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SFI Public Discussion Note

Rethinking Bank Liquidity: Measurement, Regulation, and Policy Trade-Offs

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A consolidated glossary is placed at the end of the text, on page 20, to provide quick access to key terms and abbreviations used throughout this discussion.

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1. Motivation

Managing liquidity is a core function of a traditional bank. Banks engage in "liquidity transformation" by funding themselves primarily with deposits, which can typically be withdrawn on short notice, while investing these funds in longer-term loans and other assets that are relatively illiquid. The reason this approach works is that, normally, only few depositors will want to withdraw their money on any given day. On the downside, however, it is precisely liquidity transformation that makes banks susceptible to "runs"—when a large number of depositors attempt to withdraw their money at the same time, out of fear that the bank may not have enough for everyone. And yet, as one of the foundational papers on modern banking and bank runs (Diamond & Dybvig, 1983) notes, it is through liquidity transformation that banks provide significant value to the economy.

Liquidity, in fact, is a multi-dimensional concept that touches upon several aspects of a bank's balance sheet. When asset growth generates a funding need, a bank can expand its liabilities by obtaining additional deposits, borrowing in short-term money markets, or by issuing longer-term debt—but the cost of doing so depends on the bank's *funding* liquidity. On the asset side, the *market* liquidity of both loans and securities—that is, the ease with which they can be turned into cash—changes over time and can evaporate during times of stress (Brunnermeier & Pedersen, 2009). Finally, an additional liquidity risk arises from the credit lines that banks provide to their corporate customers, who are most likely to draw upon them during downturns.

Liquidity risk in banking was especially salient during the Global Financial Crisis (GFC) of 2008–2009: Even solvent and stable banks could become illiquid, we learned, as interbank markets froze and wholesale depositors rapidly withdrew funds. New regulations were introduced in response to this crisis, as we will discuss below, but recently liquidity risks have attracted renewed attention due to the turmoil affecting U.S. regional banks and the failure of Credit Suisse in 2023. Discussions have focused on the measurement of and appropriate regulatory requirements for liquidity, as well as on the role of central banks in affecting commercial banks' liquidity holdings and on the design of facilities through which central banks can help manage liquidity risks. Such discussions are particularly important in light of technological innovations that have arguably increased the likelihood of large and rapid funding withdrawals. In historic bank runs, the depositors had to line up in person outside a bank branch, or at least at an ATM, to retrieve their money. Today, they can electronically move their funds to another bank—or perhaps even into a digital currency—with a click.

In this Public Discussion Note we aim to provide a concise overview, highlighting insights from recent academic research, of how bank liquidity is measured and regulated, the lessons from recent crises, and how liquidity risks may evolve going forward. We then provide our perspective on the current policy debates. Throughout, we restrict ourselves to banks as going concerns, abstaining from discussing liquidity issues once a bank has failed.

2. Measurement and Regulation of Liquidity

Bank managers and analysts use various ways to assess a bank's liquidity. A standard textbook on risk management (Saunders et al., 2024), for example, lists traditional balance-sheet-based metrics such as the ratio of loans to deposits or of liquid assets to total assets; these broadly available indicators can be calculated based on public data. Bank risk managers additionally consider more fine-grained measures based on their expected and stressed net cash outflows over different horizons, for example, 1 to 7 days, 7 to 30 days, etc. Risk managers also keep track of three core aspects of their bank's liquidity management: (i) potential deposit outflows or "run-offs," (ii) the bank's ability to generate funding, and (iii) its ability to monetize assets. Finally, for some institutions, off-balance-sheet commitments such as credit lines must be taken into account.

In recent years, regulatory metrics introduced internationally after the GFC have taken a central role in the assessment of a bank's liquidity. In particular, in 2013 and 2014 the Basel Committee on Banking Supervision (BCBS) introduced two new quantitative standards under the Basel III framework: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).[2]

The LCR seeks to ensure that a bank holds sufficient high-quality liquid assets (HQLA) to cover its potential net cash outflows over a 30-day stress period. To calculate these net cash outflows, each component of the bank's funding is assigned a run-off rate chosen to capture the portion of this funding that could leave the bank; similar assumptions are made for off-balance-sheet commitments such as credit lines. Then, the bank's expected inflows over the same time horizon are subtracted, up to a cap.

The NSFR, by contrast, promotes longer-term funding stability. It requires each bank to maintain a minimum of stable funding relative to the liquidity characteristics and maturities of its assets, thereby reducing reliance on short-term wholesale markets and limiting the maturity transformation risk. Together, these two ratios form a coherent framework for short- and medium-term liquidity resilience.

2) In Switzerland, banks had already been required to hold a certain amount of liquidity prior to the introduction of these regulations, but the requirements were lower (see, for example, Bankenverordnung (2005), Art 16-20; Version 1.11.2005). In addition to these legal requirements, the SNB required—and still requires—that Swiss banks hold a minimum amount of reserves. However, this requirement primarily serves to facilitate monetary policy implementation, rather than to mitigate institution-specific liquidity risks.

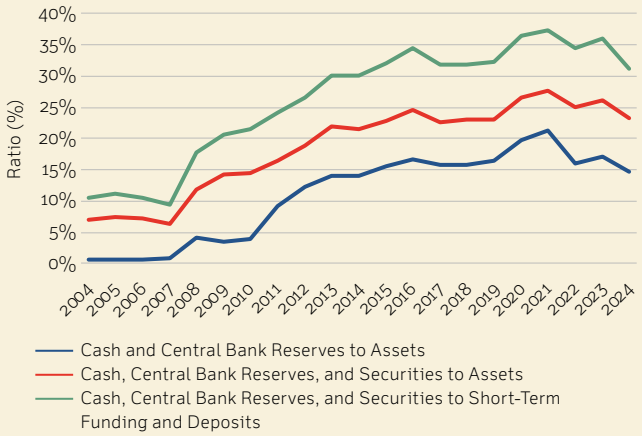
The Liquidity Situation of Swiss Banks

Here, we provide a brief perspective on the liquidity situation of Swiss banks, based on publicly available data.

First, we consider the liquid assets held by Swiss banks, using two alternative definitions. Under the narrower definition, liquid assets consist of cash and central bank reserves. Under the broader definition, we also include investment securities, although these are not necessarily all HQLA. We normalize liquid assets either by total assets or by the amount of potentially runnable short-term funding, which we define as the sum of customer deposits and money market liabilities, both secured and unsecured.

Figure 1 shows that Swiss banks as a whole have strongly increased their holdings of liquid assets compared to 20 years ago, irrespective of how we define the term. This increase occurred mostly between 2008 and 2015; since then, liquid asset ratios have been relatively steady, except for an increase during the Covid-19 pandemic years (2020-2021) and a slight decrease toward the end of the period shown. The overall increase is due to the expansion of the SNB's reserves as part of its acquisition of foreign-currency assets, with the goal of countering the upward pressure on the Swiss franc.

Figure 1: Liquid Asset Ratios for Swiss Banks



Note: This figure shows the evolution of three alternative liquid asset ratios for Swiss banks in aggregate between 2004 and 2024, measured at the parent company level. The first ratio is defined as cash plus central bank reserves divided by total assets. The second ratio expands the numerator to include investment securities, which do not necessarily all qualify as high-quality liquid assets, while keeping total assets as the denominator. The third ratio is defined as cash, central bank reserves, and investment securities divided by short-term funding and customer deposits.

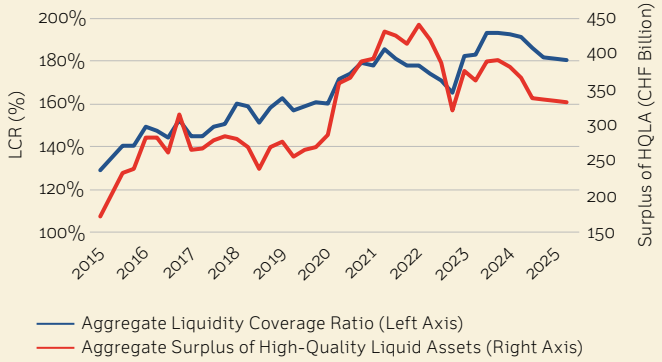
Source: Swiss National Bank (SNB)

Data: https://data.snb.ch/en/topics/banken/cube/babilpobgua

Second, we consider the LCR, defined as HQLA divided by net cash outflows over the next 30 days under stress. Basel regulations require this ratio to be at least 100%, and Figure 2 shows that Swiss banks, in the aggregate, fulfill this requirement with a substantial surplus. Figure 2 further shows that the HQLA surplus —HQLA minus net cash outflows—has grown substantially over time and, in the aggregate, exceeds CHF 330 billion (right axis).[3] The dip in late 2022 and the recovery afterwards likely reflect outflows at Credit Suisse and the subsequent support measures taken by the SNB.

Of course, the aggregate numbers shown in these figures mask substantial variation across individual banks. Figure 3 plots bank-level LCR values against the banks' total exposure, which is a measure of bank size, as of the end of 2024. This figure shows that some banks are much farther above the required 100% level than others. As bank size increases, the dispersion of LCR values becomes somewhat narrower.

Figure 2: Aggregate Liquidity Coverage Ratio and Surplus of High-Quality Liquid Assets of Swiss Banks



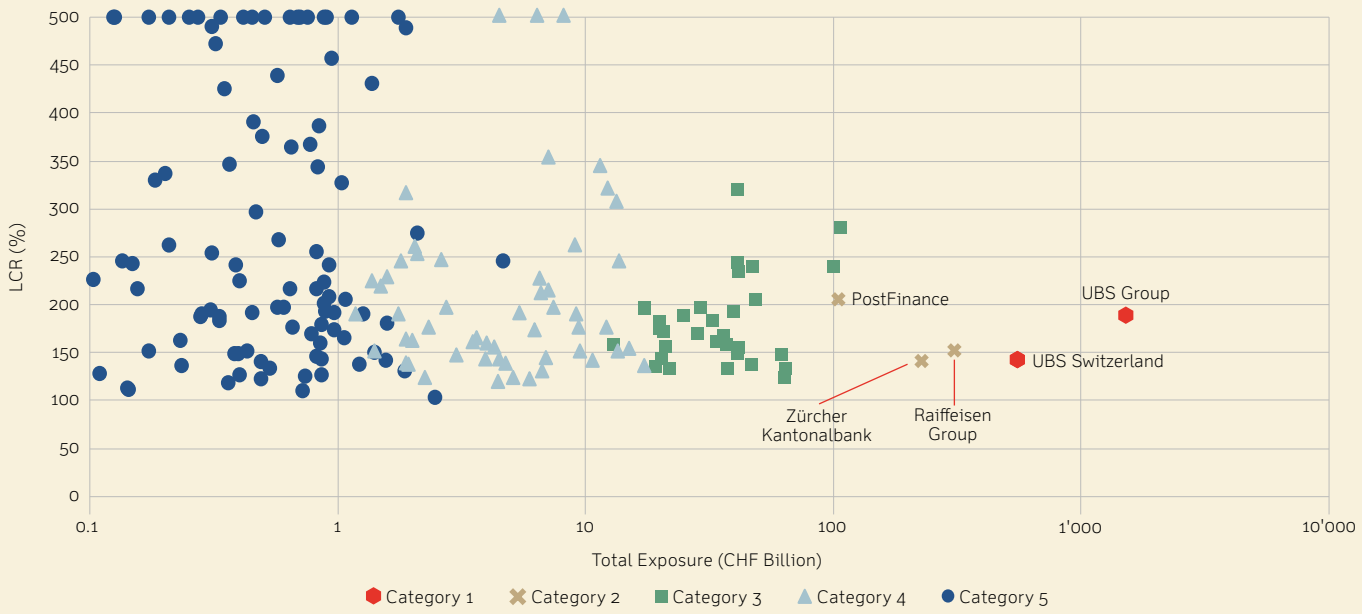
Note: This figure shows the evolution of the Liquidity Coverage Ratio (LCR) and the surplus of High-Quality Liquid Assets (HQLA) for Swiss banks in aggregate between 2015 and 2025. The LCR measures a bank's ability to withstand short-term liquidity stress by comparing its stock of HQLA with projected net cash outflows over a 30-day horizon. Regulation requires banks to maintain an LCR of at least 100%. Surplus HQLA is defined as the stock of HQLA exceeding what is required to cover assumed 30-day net cash outflows under the LCR.

Source: Swiss National Bank (SNB)

Data: https://data.snb.ch/en/topics/cross/cube/sddsfsi36912q

3) A recent SNB presentation by Tschudin and Moser (2025b) shows a smaller aggregate HQLA surplus of around CHF 150 billion above the regulatory requirements in 2025. This difference likely reflects the additional liquidity requirements beyond the LCR for systemically important banks.

Figure 3: Heterogeneity in Liquidity Coverage Ratios by Bank Size, End-2024



Note: This figure shows the Liquidity Coverage Ratio (LCR) at end-2024 against total exposure measured in CHF billion for all separate legal entities monitored by FINMA and subject to liquidity requirements. The horizontal axis is shown on a logarithmic scale. Each marker represents an individual legal entity. Some banks appear more than once because both the group and regulated subsidiaries are included. Banks with total exposure below CHF 0.1 billion are excluded. Liquidity coverage ratio values are capped at 500%. Bank categories correspond to the classification defined by FINMA.

Source: Swiss Financial Market Supervisory Authority (FINMA)

Data: https://www.finma.ch/en/documentation/finma-publications/kennzahlen-und-statistiken/kennzahlen/kennzahlen-banken/

As well as the measures described above, systemically important banks (SIBs) in Switzerland—UBS, Raiffeisen Group, Zürcher Kantonalbank, and PostFinance—have been subject to enhanced liquidity requirements since 2024. The rules applicable to these banks extend the stress horizon from 30 to 90 days and require coverage of projected net outflows for this time horizon (Federal Council, 2022). Beyond the 90-day horizon, the Swiss Financial Market Supervisory Authority (FINMA) may impose additional institution-specific requirements. To meet these requirements, eligible assets include HQLA as well as a limited amount of mortgage claims that banks hold as collateral for obtaining emergency liquidity from the SNB.

Finally, the Swiss regulatory framework requires larger banks to conduct regular liquidity stress testing.[4] These tests, covering both idiosyncratic and market-wide shocks, must form part of each bank's internal liquidity adequacy assessment process. Additional stress tests apply to intraday liquidity risks. While all banks are required to publish key liquidity metrics and their determinants, including the LCR and NSFR, the results of liquidity stress tests and the enhanced requirements for SIBs do not need to be disclosed.

One could ask why such regulations are necessary, given that it is presumably in every bank's best interest to avoid failing. There are at least two explanations, both related to the potential under-insurance of banks against liquidity risk when such decisions are guided by their self-interest alone. First, deposit insurance and, for some creditors, expectations of public support reduce the incentive for investors and depositors to monitor and price their bank's liquidity risk, which in turn weakens the bank's incentive to self-insure. Second, liquidity stress at one bank can spill over to others through bank runs, funding-market contagion, and fire-sale dynamics. Because individual banks do not internalize these systemwide costs when choosing their liquidity and funding profiles, regulation is needed to set minimum standards.

4) FINMA category 4 and 5 banks—small to medium-sized banks—are excluded.

3. Lessons from Recent Episodes

Two events rattled the global banking world in 2023. In the United States, turmoil among regional banks resulted in the failures of Silicon Valley Bank (SVB), Signature Bank, and First Republic Bank. In Switzerland, prolonged and severe difficulties at Credit Suisse ended with a takeover by UBS. Both events featured rapid deposit withdrawals and decisive policy interventions by the local authorities, and both hold lessons for future risk management and regulation.

a. Pre-Existing Conditions and the Nature of Bank Runs

Canonical models of bank runs (Diamond & Dybvig, 1983) allow for runs triggered "out of the blue." If a sufficient share of (uninsured) depositors expect other depositors to withdraw their money, then it is rational for them to do the same. However, it is difficult to argue that the runs in 2023 came out of the blue. In the case of SVB, the bank had accumulated substantial losses in its portfolio of long-term securities. By the end of 2022, these losses had exceeded the bank's equity cushion, putting it in a perilous situation (Metrick, 2024). As for Credit Suisse, the bank had struggled with lack of profitability, a negative market assessment, and various other problems for years. Nevertheless, in both cases it took a public signal to start the run. For SVB, it was the bank's announcement that it had liquidated part of its security portfolio at a loss and planned to raise new equity. News spread quickly among its very concentrated depositor base—which included many Silicon Valley entrepreneurs—leading to the withdrawal of USD 42 billion, out of the bank's approximately USD 166 billion in total deposits, in the single day of March 9, 2023. The following day, the bank was placed under the receivership of the U.S. Federal Deposit Insurance Corporation (FDIC). At the same time, banks with similar characteristics as SVB—mid-sized banks with large unrealized losses on their securities portfolios and a high share of uninsured deposits—came under pressure, both in terms of deposit withdrawals and drops in their stock prices (Choi et al., 2024; Cipriani et al., 2024). Those banks that were discussed more prominently on Twitter/X experienced larger stock price drops (Cookson et al., 2026).

In the case of Credit Suisse, the run was much more drawn out, starting in earnest in October 2022. This initial run was arguably triggered by a social media signal, namely a tweet by an Australian journalist on October 1, 2022.[5] Over the following week, Credit Suisse lost 18% of its deposits; after 30 days, the loss amounted to 31% (SNB, 2024a). Observed outflows in March 2023, prior to the takeover by UBS, occurred at a similar speed, when calculated as a monthly rate, although on certain days up to 7% of deposits left the bank in a single day. In total, Credit Suisse lost more than half of its deposits between October 2022 and March 2023—approximately CHF 200 billion (SNB, 2024a).

As one would expect, withdrawal speeds differed across depositor types. Based on payments data, Cipriani et al. (2024) identify 22 U.S. banks that experienced run-like outflows in March 2023 (defined here as daily net outflows that were much above the historic norm). They find that these outflows were driven almost exclusively by a few very large depositors, rather than by smaller retail outflows. Consistent with this finding, in Credit Suisse's case, it was also high-value retail deposits, defined as those exceeding CHF 1.5 million, that were withdrawn most quickly, especially in October 2022, although smaller retail depositors eventually followed suit.

b. Bank Responses and Policy Interventions

When a bank experiences rapid withdrawals, its liquid assets—particularly its reserves at the central bank—shrink quickly. To replenish its liquidity, the bank can respond in various ways, such as by selling liquid securities from its portfolio, increasing wholesale funding from capital markets, and borrowing from central bank facilities or, in some jurisdictions, from other government-backed institutions.

Credit Suisse mostly drew down its liquidity buffer in the fall of 2022, temporarily falling below certain Pillar 2 regulatory requirements at the legal entity level (Parliamentary Inquiry Commission, 2024, pp. 272-274). Yet it did not draw liquidity from the SNB (Schlegel, 2023). This situation changed in March 2023, when the SNB provided a total of CHF 168 billion in liquidity, of which CHF 68 billion was provided prior to the announcement of the takeover by UBS.[6]

5) The run occurred even though the tweet did not explicitly name Credit Suisse, stating only that "credible sources tell me a major international investment bank is on the brink" (Taylor, 2022), and even though the journalist was not otherwise known as a banking specialist.

6) On March 16, 2023, Credit Suisse drew CHF 48 billion from the SNB: CHF 38 billion through SNB's emergency liquidity assistance (ELA) program and CHF 10 billion from its liquidity-shortage financing facility (LSFF). On March 17, 2023, Credit Suisse required more liquidity, but did not have sufficient collateral remaining, so the SNB provided additional emergency liquidity assistance (referred to as ELA+) of CHF 20 billion, secured by preferential rights in bankruptcy proceedings. The remaining CHF 100 billion that Credit Suisse received following the announcement of its acquisition by UBS were a combination of ELA+ (CHF 30 billion) and CHF 70 billion provided under the public liquidity backstop (PLB) introduced under emergency law. See SNB (2023).

In the United States, the affected banks did *not* sell securities as deposits flowed out, possibly because these securities had lost value due to an increase in market interest rates and the banks were reluctant to realize these losses (Cipriani et al., 2024; Fuster et al., 2026; Glancy et al., 2024). Instead, they increased their borrowing, generally prioritizing the Federal Home Loan Banks (FHLB) over the Federal Reserve's discount window liquidity facility.

When SVB and Signature Bank failed, on March 10 and 12, 2023, respectively, U.S. regulators were so concerned about a contagion effect on other banks and on the overall economy that they invoked a "systemic risk exception" to fully protect all deposits of the two banks. In addition, the Federal Reserve opened a special lending facility, the Bank Term Funding Program (BTFP), through which banks could borrow against securities valued at par rather than at market value. These extraordinary interventions were successful in slowing down deposit outflows at many banks, and although another large bank failure was still to come—First Republic Bank closed on May 1, 2023—this failure was much more orderly than those of SVB and Signature Bank (Arseneau et al., 2025; Metrick, 2024).

These episodes in the U.S. and Switzerland carry various lessons for banks, regulators, and supervisors. First, we can compare the deposit outflows these banks actually experienced with the assumed LCR run-off rates. For Credit Suisse, the overall outflows in October 2022 of 31% were roughly in line with the volume-weighted LCR run-off rate of 28% (SNB, 2024a). However, the outflows for high-value retail deposits (exceeding CHF 1.5 million) were more than twice as high as assumed by the LCR (44% versus 20%). Similarly large outflows were repeated in March 2023. During that very acute stress phase, non-high-value retail deposits also exited Credit Suisse at rates exceeding the LCR assumptions (18% versus 10%). On the single day with the largest outflows, 7% of deposits exited the bank. The U.S. banks that failed in March 2023 experienced even faster outflow rates. At SVB and Signature Bank, the peak one-day outflow rates exceeded 20% (Financial Stability Board, 2024). These unprecedented outflow rates have been attributed, at least partly, to the unusually concentrated depositor base of these two banks (Kelly & Rose, 2025).

Second, the 2023 bank failures prove that central banks may not be able to provide sufficient liquidity assistance if a bank's prepositioned collateral is insufficient or if its operational and legal readiness is otherwise lacking. In the case of Credit Suisse, as noted above, the SNB provided a total of CHF 168 billion in liquidity support, but only around CHF 50 billion was collateralized by securities and mortgages—the rest had to be provided under emergency law. To put the CHF 50 billion of prepared collateral into perspective, at the end of 2021 Credit Suisse had CHF 431 billion outstanding in deposits and short-term borrowing, compared to CHF 227 billion of HQLA. Thus, the CHF 50 billion covered only about one-quarter of the bank's potentially runnable liabilities beyond what was covered by HQLA.[7] A key lesson for banks, central banks, and regulators from these episodes is that more collateral needs to be eligible and on hand so that central banks can provide emergency liquidity in times of crisis.[8]

7) According to Credit Suisse's 2021 annual report, its year-end deposits amounted to CHF 391 billion and its short-term borrowings (not including repo agreements) to CHF 40 billion, while its HQLA holdings totaled CHF 227 billion (Credit Suisse, 2022, pp. 115–117).

8) In the United States, SVB was not well prepared to access the Fed's discount window. It had only limited collateral pledged and had not conducted test transactions. On the day of the run, it attempted to move approximately USD 20 billion from an FHLB and from its custody bank to the discount window, but this attempt was unsuccessful (Federal Reserve Board, 2023).

4. How Will Liquidity Risk Evolve?

Given the speed of the run on SVB in 2023, and the fact that withdrawals were executed primarily through online and mobile banking, the event has been dubbed a "digital bank run." It was also accompanied by intense activity on Twitter/X, leading some observers to refer to it as the "first social media bank run."[9] A similar dynamic occurred in the case of Credit Suisse, where the initial run in October 2022 was directly triggered by a social media post, as noted above.

It is important to acknowledge, however, that these banks were affected by underlying problems; the social media posts did not trigger a panic "out of the blue." Furthermore, there are reasons to be skeptical that either social media or digital banking was a key driver of the speed and magnitude of the runs. As argued by Kelly and Rose (2025), retail depositors played at most a minor role in the U.S. bank runs, while institutional depositors rely on wire transfers that have been very fast for decades. Similarly, in the run on Credit Suisse, wholesale and high-value retail deposits experienced two to three times higher outflow rates, compared to regular retail depositors (SNB, 2024a). Nevertheless, it is certainly plausible that technological innovations in banking and social media communications—some of which may reflect bots or other malicious actors—could speed up or amplify bank runs going forward.

Beyond the extreme case of bank runs, technological innovations that change the bank-customer relationship are likely to present challenges for banks' liquidity management. First, in many countries, including Switzerland, interbank payments can now be executed instantly all day, any day, with some limits on transferable quantities (Tschudin & Moser, 2025a). It can be challenging for banks to manage the liquidity needed to settle these payments outside of business hours; below, we will discuss the SNB's approach to ensuring stability.

Second, alternative forms of money, be they privately provided stablecoins or central bank digital currencies (CBDC), could make deposits more flighty. In the case of CBDCs, design details such as holding limits and remuneration could play an important role, as could banks' responses to the new competition (Ahnert et al., 2024).

Third, these new technologies and evolving customer demands change the ways in which banks and depositors interact, making depositors less likely to stick with their original bank. In the United States, banks with mobile apps and brokerage services experienced larger deposit outflows when market interest rates increased (Koont et al., 2025), while banks with lower branch density, measured as the number of branches divided by deposits, experienced larger deposit outflows during the U.S. banking turmoil in 2023 (Benmelech et al., 2023). To the extent that these cross-bank relationships apply over time, they are relevant to a discussion of liquidity risk, since banks worldwide are increasingly reliant on online services and mobile banking, while the number of bank branches is on a downward trend in most developed economies, including Switzerland.[10] Developments such as open banking, which makes it easier for customers to switch banks and to maintain relationships with multiple banks, similarly may increase the propensity to withdraw deposits as soon as a bank is thought to face problems.

9) Cookson et al. (2026) provide the key academic study on the importance of social media during this episode.

10) SNB data show a decline of roughly one third in the number of bank branches in Switzerland between 1999 and 2024 (SNB, 2024b).

5. Current Policy Debates

The lessons learned from the events in 2023, and the view that technology and the evolving bank-customer relationship may increase funding outflow risks in the future, have sparked an active debate about policy measures to keep liquidity risks in check.

In this section, we review some of the measures that are currently being discussed in Switzerland and internationally. At the outset, it is important to recall that liquidity risk is inherent to banking, and to emphasize that none of the proposed policies to reduce that risk are costless, though they differ in terms of who bears the cost and whether the cost is ongoing or only materializes under certain circumstances.

a. LCR Recalibration

The BCBS has been analyzing how the Basel III liquidity framework, including the LCR outflow assumptions, performed during the 2023 banking turmoil (BCBS, 2023) and has launched follow-up analytical studies to assess whether elements of the liquidity standards should be adjusted (BCBS, 2024).

The experiences of 2023 suggest that selective recalibration may be warranted, at least in segments where the assumed run-off rates proved insufficiently conservative, such as for high-value retail deposits. In order to avoid distortions, *relative* run-off rates across different liabilities should be correctly calibrated.

However, if the result of this recalibration is an increase in *overall* run-off rates, then the potential drawbacks need to be taken into consideration. Banks can respond in two main ways to higher run-off rates and the higher assumed net cash outflows: They can hold a larger share of their assets in HQLA, or they can shift their funding profiles toward categories with lower assumed run-off rates.[11] Both reactions can be costly for a bank, and each may also transmit to the real economy by increasing the cost of financial services and reducing the availability of credit.[12] To the extent that higher liquidity requirements reduce bank profitability, they could also induce more risk-taking behavior in other parts of the bank's balance sheet. Doerr and Drehmann (2026) provide a review of these issues.

Interactions between liquidity regulation and monetary policy can be substantial. As discussed by Tschudin and Moser (2025b), monetary policy operations that reduce the size of the SNB's balance sheet also reduce central bank reserves, a key component of Swiss banks' HQLA, and put downward pressure on the banks' liquidity ratios.[13] Tschudin and Moser (2025b) note that, along with other factors, increased competition for longer-term funding of HQLA has contributed to higher liquidity premia and swap spreads—and therefore higher bank funding costs relative to the monetary policy rate—since 2023. This increase in bank funding costs can then be passed through to lending rates, for example on mortgages, as has recently been observed.

This example neatly illustrates the interaction between liquidity regulation and monetary policy; it is particularly relevant for jurisdictions with a structural shortage of HQLA, such as Switzerland.[14] If higher LCR requirements increase the demand for HQLA, this may put upward pressure on money market rates. One way to counteract this pressure is for the central bank to (continue to) hold a large balance sheet. However, this approach entails its own risks. These include mark-to-market losses on long-duration or foreign assets, and potential distortions when central banks hold large amounts of short-term government paper. Another counterargument against central banks simply injecting more reserves to solve liquidity shortages is made by Acharya and Rajan (2024). They note that higher reserves on a commercial bank's asset side need to be funded on its liability side, usually via short-term liabilities such as uninsured deposits that are less stable than its core deposits.[15] In turn, to be prepared against potential outflows, the bank increases its demand for liquidity, which may lead to liquidity hoarding. In the end, even though the reserves in the system are higher, the effective liquidity available on the interbank market, for example, may not be.

11) Some of these shifts may represent banks optimizing their contract maturities in order to obtain more favorable net cash outflows, even if the fundamental risks are little changed (Blatter & Molleyres, 2025).

12) See, for example, Fuhrer et al. (2017) for an empirical estimation of the increase in funding costs for non-HQLA bond issuers when LCR was introduced.

13) During the episode discussed, the SNB sold foreign currency in the course of tightening its monetary policy. While banks' deposits typically decline in these situations as well, the impact on the LCR is smaller than the reduction in HQLA because of the outflow parameters applied to deposits in the LCR.

14) This structural shortage occurs particularly when the domestic government bond market is small relative to the size of the banking sector, as is true for Switzerland. In such cases, the BCBS allows for "Alternative Liquidity Approaches" (ALA) in the respective currency. In the Swiss context, this means that banks may hold foreign currency HQLA or additional HQLA in category 2a, notably Pfandbriefe, that is, Swiss covered bonds; see FINMA (2016). In practice, it is an open question whether banks' use of these options would be sufficient to offset the lower availability of HQLA in case the SNB were to further reduce the size of its balance sheet.

15) This conclusion assumes that the securities bought by the central bank when expanding its own balance sheet are mostly sourced from nonbanks, rather than persistently reducing commercial banks' own holdings.

Another point to consider is whether, instead of increasing its requirements, the LCR's "buffer" function could be made more effective. In principle, the idea behind the LCR is that banks should draw down their stock of HQLA during times of stress, even if this action temporarily causes their LCR to fall below 100%. In practice, banks almost never allow this to happen, due to the stigma acquired by such action. For example, Credit Suisse reported an LCR above 100% throughout 2022 and early 2023 (Parliamentary Inquiry Commission, 2024, figures on pp. 262, 270). BCBS (2022) similarly reports cross-jurisdiction evidence of banks not letting their LCR drop below 100% during times of market stress and heightened volatility.

It thus appears that the 100% threshold effectively acts as a binding lower bound, rather than as a level to be breached during times of stress, leading banks to maintain additional buffers in normal times and potentially amplifying the impact of higher requirements. Recognizing this issue, the Federal Council floated the idea of dividing the LCR requirement into an explicit buffer portion and a minimum requirement that must always be met (Federal Council, 2024, section 8.5.1). It is not clear, however, whether using the buffer portion would not also carry a stigma.

As another way to improve HQLA usability, the U.S. Bank Policy Institute suggested revising the LCR calculation (Nelson, 2019). The idea is to exclude recent actual outflows, for example those that occurred in the past 30 days, from the projected net outflows, reflecting the observation that the flightier funds tend to leave first and the remaining pool becomes stickier. This revision would allow a bank under stress to use HQLA to meet its withdrawals without mechanically deteriorating its LCR, while the requirements remain essentially unchanged in normal times.

In sum, regulators face the delicate trade-off of strengthening banks' resilience to liquidity shocks, while at the same time considering the costs to intermediation and to the real economy that such an increase may cause. While considering this trade-off, it is important to recall that the LCR was never intended to eliminate all liquidity risk, but instead to give a bank's management and the authorities time to act during a period of stress. From this perspective, the experience of Credit Suisse during the fall of 2022, when it was able to withstand the first wave of deposit withdrawals, can be seen as a success for the existing liquidity regulations, including the bank-specific requirements (Federal Council, 2024, section 8.4.1).

b. Central Bank Facilities and Collateral Preparation

When a bank faces liquidity stress that cannot be absorbed by its HQLA or private-market funding, they turn to the central banks' (emergency) liquidity facilities. The purpose of such facilities is to provide short-term collateralized loans to banks that are temporarily illiquid but, importantly, are otherwise solvent. This "lender of last resort" function has long been at the heart of central banking. Recent discussions focus around shifting the scope of such facilities, however, from ad hoc emergency lending toward a standing and operationally frictionless backstop. For instance, prominent voices such as former Bank of England Governor Mervyn King (2023) and the Group of Thirty (2024) have argued that banks should preposition eligible collateral at the central bank so that its haircut-adjusted lendable value will be sufficient to cover their runnable liabilities, notably their uninsured deposits and other short-term funding.

Figure 4: Liquidity Facilities in Switzerland—An Evolving Alphabet Soup

Current Facilities	Planned New Facilities
Emergency Liquidity Assistance **(ELA)** Provides secured loans conditional on: • Sufficient collateral with appropriate haircuts • Solvency confirmation (including a statement by FINMA) Historically restricted to systemically important banks, but no longer the case	Extended Liquidity Facility **(ELF)**, consisting of: – Liquidity against Mortgage Collateral **(LAMC)** – Liquidity against Securities Collateral **(LASC)** Provides secured loans to all banks that make the required preparations • Still requires sufficient collateral with appropriate haircuts • For limited volumes, no formal request nor solvency confirmation is required
Liquidity-Shortage Financing Facility **(LSFF)** – Overnight liquidity against high-quality liquid assets (HQLA) collateral Intraday Facility **(IN)** – Intraday liquidity against HQLA collateral (zero interest rate)	Payment System Support Facility **(PSSF)** (planned for end-2027) Overnight and intraday liquidity against HQLA collateral around-the-clock

In Switzerland, liquidity facilities have evolved considerably over the past decades. The SNB's Emergency Liquidity Assistance (ELA) was formalized based on the 2003 revision of the National Bank Act (Martin, 2025). Under ELA, the SNB is able to make secured loans to solvent banks against sufficient collateral, but historically only if those banks were systemically important. This designation originally applied solely to UBS and Credit Suisse, but later was expanded to include Raiffeisen Group, Zürcher Kantonalbank, and PostFinance. More recently, the SNB introduced expanded programs that are accessible to

all banks in Switzerland, provided they make the requisite preparations. The first program, Liquidity Against Mortgage Collateral (LAMC), was publicly launched in 2023, although planning started in 2019. In 2024, the related Liquidity Against Securities Collateral (LASC) option was announced. While the LAMC program focuses solely on mortgages, as the name implies, the LASC program accepts a broad range of securities, including ones that are less liquid, have a lower rating, and/or are in a foreign currency.[16]

Jointly, the collateralization processes of LAMC and LASC form the basis of the SNB's newly created Extended Liquidity Facility (ELF), which is scheduled to go into operation at the beginning of 2027.[17] According to Martin (2025, p. 2), "The ELF encompasses ELA and brings the support closer to standard operations." The idea is that, for limited volumes, a bank can access the ELF without a formal request or a solvency confirmation. For larger-scale support beyond a predefined bank-specific limit, however, these two conditions would remain in place. Even though the ELF can thus be accessed much more quickly than ELA, it is supposed to remain a backstop, with borrowing rates 75 basis points above the SNB policy rate.[18] The ELF does not require prepositioning of collateral, but it does require operational readiness to transfer or pledge eligible assets to the SNB within a very short timeframe.

As of now, participation in this new facility is not compulsory for non-SIBs in Switzerland. However, the ELF offers new and meaningful risk management options. Thus, one would expect that many banks will make the necessary preparations to participate, and that the facility will get broad support from the industry.[19] Why might a bank be reluctant to participate? First, there is an administrative cost to preparing collateral according to the SNB's requirements. While such costs may be quite relevant initially, especially for smaller banks, digitization and following uniform processes for collateral management can have substantial operational benefits. Second, there remains some uncertainty related to future regulation, with respect to a potential collateral preparation requirement mentioned in the Federal Council's (2024) package of Too Big To Fail (TBTF) measures.

While collateral preparation is a key step to accessing liquidity when needed, banks might still be reluctant to draw liquidity—especially outside of a systemwide stress episode—due to the stigma acquired by such action. For instance, Armantier et al. (2024) provide evidence that U.S. banks' actions between 2014 and 2024 strongly suggest there remained a stigma associated with accessing the Fed's discount window, even though various measures had been enacted after the GFC to reduce it. Many ideas for erasing the stigma have since been suggested by policymakers and in the academic literature, but it is difficult to know what aspect of the problem is most important in any given situation. One approach that has become increasingly popular is to "normalize" the use of central bank liquidity facilities, in the hope that more frequent use by healthy banks—perhaps even by requiring occasional "test borrowing"—erases the stigma. Such normalization is also the goal of the SNB's ELF (Martin, 2025). Finally, less detailed and perhaps delayed disclosure may be helpful, although maintaining accountability is important.

While more extensive central bank liquidity facilities may reduce liquidity risks, and their normalized usage may reduce the stigma, there are, of course, costs to take into consideration. In particular, the incentives for market-based liquidity provision may weaken, while the central banks' footprint may expand in a way that is not desirable. Nyborg (2017) argues that through eligibility criteria and haircuts, collateral frameworks can materially affect relative asset prices and banks' portfolio choices. This concept means, for example, that the haircuts in the SNB's new ELF framework may make certain types of mortgages or securities particularly attractive (or unattractive) as collateral, thereby increasing (or decreasing) their relative value for banks. Hence careful thinking needs to go into the design of these new facilities to avoid central banks' becoming too closely involved in banks' asset allocations.[20]

16) In German, LAMC is referred to as *Liquidität gegen hypothekarische Sicherheiten* (LGHS), while LASC is called *Liquidität gegen Wertschriften* (LGWS).

17) The SNB announced operational details on its website in February 2026 (SNB, 2026).

18) For comparison, the Liquidity-Shortage Financing Facility (LSFF), which requires HQLA collateral with a 10% haircut, is priced at 50 basis points above the SNB policy rate.

19) At the time of writing, Migros Bank (FINMA category 3 bank) and Hypothekarbank Lenzburg (FINMA category 4 bank) have publicly announced their participation in LAMC.

20) The SNB's former chairman, Thomas Jordan (2018), expressed great reluctance about the SNB playing a role in credit allocation when assessing the implications of the "sovereign money initiative."

At the same time, in a crisis, it is important that a sufficiently broad set of collateral is eligible to draw liquidity against, given that any type of collateral is better than none. Therefore, it may be desirable to encourage banks to prepare a larger volume of collateral for possible emergency liquidity support.

A final important consideration is how LCR requirements and central bank liquidity assistance interact. Hanson et al. (2024) raise the possibility that LCR requirements could be tightened, but that the central bank liquidity accessible to banks with prepositioned collateral could count as HQLA, with appropriate haircuts and caps. A related proposal by authors affiliated with the Bank for International Settlements suggests that non-HQLA but central-bank-eligible assets could count toward a supplementary liquidity ratio that assumes higher run-off rates than the standard LCR calculation (Coelho & Restoy, 2025). In Switzerland, SIBs can already count against their enhanced liquidity requirements some of the mortgages they have prepared to obtain SNB emergency liquidity. Extending this option to the LCR for a broader set of banks and further collateral categories could be worth considering, as it would arguably make it less costly to fulfill the LCR requirements, especially if those are recalibrated, and would reward more extensive collateral preparation.

c. Deposit Insurance

Another lever that could be used to affect the overall liquidity risk in the system is the calibration of deposit insurance. In Switzerland, deposit insurance is performed by *esisuisse*, a self-regulatory organization of which all Swiss banks are members. Deposits are protected up to CHF 100'000 per customer per bank. Currently, the aggregate cap of payouts by esisuisse is CHF 8 billion, corresponding to 1.6% of protected deposits in Switzerland. Note that currently about 66% of deposits in Switzerland are not protected, which is substantially higher than in the United States (42%) or the average across European deposit insurance schemes (43%).[21]

An increase in the coverage limit (perhaps only for certain types of customers, such as legal entities) would reduce the risk of a bank run, since covered depositors have a lower run propensity (though it is still not zero; see, for example, Iyer & Puri, 2012). In the United States, where the deposit insurance limit is USD 250'000, banks' likelihood of experiencing a run in March 2023 was significantly correlated with their proportion of uninsured deposits (Cipriani et al., 2024; Glancy et al., 2024), although many banks with high uninsured shares did not experience a run.

Raising the deposit insurance limit would also mechanically lower the amount of HQLA that banks need to hold to fulfill the LCR requirement for a given level of total deposits. This change could partly offset any supervisory move to increase run-off rates in the wake of recent stress episodes. But higher insurance coverage is not free. In Switzerland's current set-up, banks must pledge collateral for half of the aggregate payout cap; a higher cap would therefore increase the amount of collateral tied up in the system. A more fundamental issue is credibility: A payout cap of only 1.6% of protected deposits may be too small to be convincing in a tail event.[22] Scaling up the cap would require either larger industry contributions (potentially risk-based) or an explicit public backstop, perhaps financed ex-ante through premia levied on banks (Federal Council, 2024).

Especially with the potential of state support, there is, of course, the issue of moral hazard. A key reason to limit deposit insurance coverage is to ensure that banks are subject to market discipline, meaning that depositors have an incentive to consider the safety and soundness of a bank before depositing their money there (Calomiris & Kahn, 1991). That said, even if the limits were increased quite substantially, there would still be a sizable portion of deposits that remains uninsured, which may be sufficient for such market discipline to operate.

Recalibrating deposit insurance in Switzerland is likely to be politically difficult, not least because the Federal Council's (2024) report on banking stability did not propose such measures. That said, higher insurance coverage limits that are credibly financed would reduce deposit flightiness in times of stress and would lower HQLA requirements. The associated moral hazard costs would likely remain limited, even though ex-post costs in the event of a bank failure could be substantial.

21) Figures refer to end-2024 for Switzerland and the United States, and to 2022–mid-2023 for the European countries. For Switzerland, the total amount of protected deposits of CHF 497.4 billion comes from esisuisse (n.d.); the total amount of domestic deposits of CHF 1'451.0 billion comes from SNB (2025). For the United States, the share of uninsured deposits comes from FDIC (2025), Table I-C. For European countries, see Figure 5 in European Banking Authority (2023). That figure shows that two countries reporting to the European Banking Authority, Luxemburg and Liechtenstein, have higher uninsured shares than Switzerland.

22) The Federal Council (2024) emphasizes that for the SIBs, the TBTF regulation requires that the domestic insurance business continue to function in case of a crisis, such that "recourse to deposit insurance in the event of a crisis at a SIB is extremely unlikely" (p. 108). Notably, the International Monetary Fund's latest Financial Sector Assessment Program for Switzerland recommends that the deposit insurance scheme be reformed in line with best international practices, by removing the 1.6% cap and shifting funding to ex-ante contributions by banks (International Monetary Fund, 2025).

d. The Private Sector as Liquidity Provider

The current debate tends to focus on central banks as the only source of liquidity in crisis times, but history shows that the private sector can, under the right conditions, play a meaningful role. In many liquidity crises, deposits are not leaving the banking system altogether—they are simply rushing out of some institutions and into others. Since the core problem is not the aggregate quantity of liquidity, but its uneven distribution, mechanisms could be devised to channel surplus liquidity from safe institutions back to those under stress, ideally on a secured and well-structured basis.

A good example is the *Limmat-Pfandbrief* program during the GFC. In 2008 and 2009, unsecured wholesale and interbank market access for Switzerland's two large banks—UBS and Credit Suisse—had largely dried up, and the banks were searching for liquidity; meanwhile, domestically focused institutions were flush with deposits and looking for safe assets in which to invest (Jordan, 2009). The SNB coordinated a plan through which market participants placed around CHF 11 billion in newly issued covered bonds (Limmat-Pfandbriefe), with the proceeds then being lent to UBS and Credit Suisse (Moser, 2014; Pfandbriefbank schweizerischer Hypothekarinstitute, 2009). This structure routed surplus liquidity from safer, deposit-rich institutions to the stressed large banks without resorting to broad state guarantees on new bank debt, thus complementing the other measures adopted for UBS at that time. The key lesson from this example is that the private sector can, with the appropriate structures and safeguards, contribute to a liquidity backstop in a crisis and reduce the need for central bank assistance.

The Swiss case is not unique. A well-known historical example of private liquidity provision is the Panic of 1907 in the United States. In the absence of a formal lender of last resort, the financier J.P. Morgan coordinated emergency liquidity infusions, drawing on networks of banks and other institutions (Moen & Tallman, 2015). More recently, in March 2023, a consortium of 11 large U.S. banks placed USD 30 billion of uninsured deposits at First Republic Bank to stem depositor flight and to signal confidence in the system (FDIC, 2023). In both cases, private actors—under public or quasi-public coordination—recycled liquidity within the system and bought time for a more durable resolution.

These arrangements are not a panacea. They often require central-bank or government orchestration and in some cases, such as First Republic Bank's, ultimately prove insufficient to prevent failure. Yet they demonstrate that purely public backstops are not the only way to deal with liquidity shocks. Well-designed private-sector mechanisms—which can operate via various channels, such as covered bond issuance for longer-term funding or repo transactions for shorter-term funding—can help reallocate liquidity in stress episodes, limit the expansion of central-bank balance sheets, and preserve a greater role for market discipline. Policymakers therefore have reason not only to refine official lender-of-last-resort frameworks, but also to strengthen the infrastructure that allows private-sector liquidity backstops to operate effectively when they are needed.

6. Conclusion

As we have outlined in this Public Discussion Note, bank liquidity is central to the traditional banking model: It underlies banks' value to the economy, but also makes them inherently fragile and exposed to runs. Recent episodes in the United States and Switzerland have brought these facts to public attention. Against this backdrop, it is important to understand that regulatory tools such as the LCR, the NSFR, and enhanced stress testing, while they have significantly strengthened banks' resilience, cannot fully insure against all forms of liquidity strain.

We believe that policy priorities should therefore lie in a few key areas. First, LCR parameters should be revisited to make sure that the relative outflow rates of different funding types are aligned with recent evidence, while recognizing the costs of higher HQLA holdings. Second, banks and central banks should continue to work jointly to expand the possibilities to draw liquidity against collateral when needed. Third, new central bank facilities such as the SNB's ELF need to be carefully designed to support rather than replace market funding, while also attempting to reduce the stigma associated with their use. The calibration of liquidity regulation and central bank liquidity facilities should be considered jointly. Fourth, expanding deposit insurance would reduce the risk of bank runs and make it easier for banks to fulfill LCR requirements, but it is likely to be politically difficult to implement. Finally, strengthening private-sector liquidity backstops—an area that is often overlooked—can help limit the public-sector footprint.

Source: U.S. National Archives and Records Administration. Rights status undetermined.

Glossary

BCBS The Basel Committee on Banking Supervision is the primary global standard setter for the prudential regulation of banks and provides a forum for regular cooperation on banking supervisory matters.

BTFP The Bank Term Funding Program is a temporary U.S. Federal Reserve facility, which was introduced in March 2023 and ceased extending new loans in March 2024, to provide funding to banks for up to one year against high-quality collateral valued at par.

ELA The Emergency Liquidity Assistance framework was formalized by the SNB with three main conditions for liquidity assistance: (i) only against sufficient collateral, (ii) only to solvent banks, and (iii) only to banks or groups of banks relevant for financial stability.

ELF The Extended Liquidity Facility, announced by the SNB, encompasses ELA and brings it closer to standard operations. Its primary purpose is to provide simplified access to limited liquidity support, when banks deem their own liquidity buffers to be no longer sufficient. For liquidity needs exceeding a predefined limit, a more rigorous process applies.

FDIC The Federal Deposit Insurance Corporation is an independent U.S. government agency. The FDIC insures deposits; examines and supervises financial institutions for safety, soundness, and consumer protection; makes large and complex financial institutions resolvable; and manages receiverships.

FHLB The Federal Home Loan Bank System is a U.S. government-sponsored enterprise created to support mortgage lending and related community investment. It provides long- and short-term loans, primarily collateralized by residential mortgage loans, and government and agency securities.

HQLA High-Quality Liquid Assets, as defined by the BCBS, are assets that can be easily and immediately converted into cash under stress conditions at little or no loss of value.

LAMC The Liquidity Against Mortgage Collateral framework was introduced by the SNB and provides liquidity assistance to banks that are no longer able to refinance their operations on the market. Only mortgage claims on Swiss properties are accepted as collateral.

LASC The Liquidity Against Securities Collateral framework was introduced by the SNB and provides liquidity assistance to banks that are no longer able to refinance their operations on the market. As collateral, a broad range of securities are accepted.

LCR The Liquidity Coverage Ratio, as defined by the BCBS, is equal to the value of the stock of HQLA in stressed conditions divided by the potential total net cash outflows during a 30-day stress scenario.

LSFF The SNB's Liquidity-Shortage Financing Facility enables its counterparties to bridge unexpected, short-term liquidity bottlenecks as part of SNB's standing facilities.

NSFR The Net Stable Funding Ratio, as defined by the BCBS, is equal to the amount of available stable funding divided by the amount of required stable funding. It requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet activities.

SIB Systemically Important Banks are banks whose distress or disorderly failure would cause significant disruption to the wider financial system and economic activity, owing to their size, complexity, interconnectedness, lack of readily available substitutes, or global cross-jurisdictional activity. SIBs are identified at both the global (G-SIBs) and the domestic (D-SIBs) levels.

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