FI Analysis No. 47

The 2023 Banking Turmoil – Could What Happened in the US and Switzerland Also Happen in Sweden?

Authors: **Gustaf Lundgren and Patricia Vernholmen ***

Summary

During the spring of 2023, one Swiss bank and several US banks failed. Multiple actors in both the US and internationally have analysed the underlying causes. We summarise the findings of these reports as follows: there was a lack of internal governance and control, there were deficiencies in the supervision, and several of the banks were not fully subject to the Basel regulations. Our conclusion is that these conditions together led to the build-up of a number of vulnerabilities: poor profitability, high interest rate risks, unrealised losses on bond holdings in the liquidity reserve, concentration risks in deposits and lending, and a high percentage of deposits that were not covered by a deposit guarantee scheme. Spurred on by digitalisation, events unfolded very quickly. For example, Silicon Valley Bank, one of the affected US banks, lost 85 per cent of its deposits in only a few days.

Some Swedish banks display several of the vulnerabilities mentioned above, but none of the Swedish banks have the same general risk profile and combination of vulnerabilities as, for example, Silicon Valley Bank. Swedish banks must hold capital to cover their interest rate and concentration risks, and the differences between the carrying amount and the market value of Swedish banks' bond holdings are small, which prevents the build-up of such vulnerabilities. In general, a high percentage of the Swedish banks' deposits are also covered by deposit insurance. It is mainly the major Swedish banks that have a greater part of their deposits uninsured, but on the other hand, they have good profitability and higher resilience. Therefore, there is a limited risk that Swedish banks would experience a bank run like the one that occurred in the spring of 2023. The lessons learned from the banking turmoil also indicate that deposit insurance contributes to the prevention of bank runs. However, if a bank is heavily reliant on uninsured deposits, it needs to be well managed and not take undue risks that undermine the confidence of its depositors.

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What caused the banking turmoil in the spring of 2023?

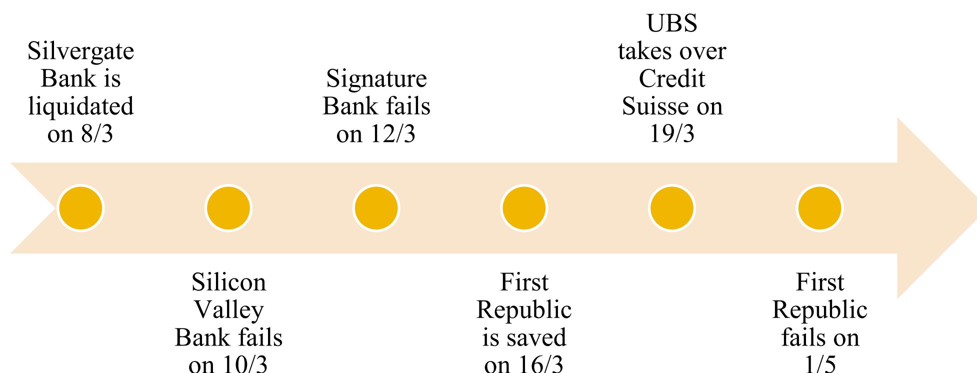
The banking turmoil in the spring of 2023 affected four banks in the US and one in Switzerland and caused large movements on the financial markets. The main events were concentrated to roughly one week in mid-March. For the public at large, the starting point was the failure of the mid-sized US bank Silicon Valley Bank on 10 March 2023. At that point, Silvergate Bank, a smaller bank, had already announced two days earlier that it would be closing its operations. Two days after Silicon Valley Bank, Signature Bank of New York also failed. The fourth US bank to be affected during the spring was First Republic Bank, which after a more drawn-out proceeding was forced to close on 1 May 2023. The largest failure was the global systemically important Swiss bank Credit Suisse, which after intervention by the authorities was taken over by UBS, another large Swiss bank, on 19 March 2023.

Tight monetary policy and a new market

The backdrop to these events was that the US had tightened its monetary policy due to high inflation. This put pressure on sectors that had relied on good access to credit, such as start-up companies in Silicon Valley. Cryptocurrencies were especially hard hit, and the end of 2022 has been dubbed "the crypto winter" when the crypto exchange FTX, among others, went bankrupt. Silvergate Bank, Silicon Valley Bank and Signature Bank of New York were all heavily exposed to the digital sector and cryptocurrencies and quickly experienced liquidity problems when it became apparent that they had significant deficiencies in their governance and risk management (IMF, 2023b). The governance deficiencies at First Republic Bank were not as severe as at Silicon Valley Bank and Signature Bank of New York, but these three banks shared other key vulnerabilities, namely a high percentage of uninsured deposits and significant interest rate risk.[1]

Credit Suisse, on the other hand, had suffered from weak profitability and repeated scandals for a long time. There had been a run on the bank already in the autumn of 2022 which undermined confidence in the bank and made it vulnerable to the turmoil that arose on the financial markets after the events in the US. Even if First Republic Bank and Credit Suisse already had problems before the turmoil in 2023, it is likely that they failed at this particular moment because of the turmoil that spread from the collapse of the first group of banks.

[1] *Interest rate risk* refers to a firm's sensitivity to changes in interest rates and the shape of yield curves. See page 5 for a more detailed discussion regarding the build-up of interest rate risk in the banks in question.



How could the turbulence spread so quickly?

Technological development contributed to the speed at which the events unfolded; digitalisation enabled rapid deposit withdrawals and the rapid propagation of rumours via social media (IMF, 2023a). This is a new challenge in the current digital environment. However, above all else, the banks that were affected shared several vulnerabilities. Based on studies and reports describing the course of events, we can identify three underlying causes to these vulnerabilities: the banks were not well run, i.e., they had poor governance and control, and both the supervision and the regulatory framework were deficient.

Three underlying causes led to the build-up of vulnerabilities

Several of the banks that were affected had insufficient competence in risk management within their management teams.[2] Some of the banks were also involved in the crypto market without having sufficient knowledge about it, such as Signature Bank of New York with its close ties to FTX (Crawley, 2023). Internal governance and control at banks are rated by supervisory authorities. Both Silicon Valley Bank and Signature Bank of New York had their ratings lowered, the former already in the summer of 2022, as deficiencies in their operations were identified. According to the review of what happened with Silicon Valley Bank conducted by the Federal Reserve, the US central bank, it had identified many problems with the bank, including insufficient risk management, but due to the bank's strong earnings these risks were underestimated. The Federal Reserve also

[2] For the US supervisory authorities' evaluations of the affected banks, see Board of Governors of the Federal Reserve System, 2023; Federal Deposit Insurance Corporation, 2023b; and Office of Inspector General, Board of Governors of the Financial Reserve System, 2023.

admits that the rating for internal governance and control should have been changed earlier.

Well-functioning internal governance and control are a pillar of banking operations in order to create proper employee incentives and a sound risk culture, where the risks unavoidably associated with banking operations can also be functionally managed. In contrast, Silicon Valley Bank had a remuneration program for its management that was not connected to the level of risk-taking, which encouraged its management to take larger risks. In addition, for the majority of 2022 the bank did not have a Chief Risk Officer.

In one case, the Federal Deposit Insurance Corporation highlighted problems in Signature Bank's financing as early as in 2019. The authority repeated its criticisms in the following years without the bank taking sufficient measures. This and other examples show the importance of supervisory authorities transforming expressed criticisms into actual requirements on action by the institutions. This in turn requires a sufficient mandate in the regulations, sufficient resources and – last but not least – sufficient empowerment of the supervisory authority to take action.

Debate surrounding supervision and regulation

The importance of supervisory authorities transforming criticisms into actual interventions that resolve problems identified in the supervision has also been discussed in the academic literature. Adrian et al. (2023) assert, for example, in their evaluation of the banking turmoil that banking supervision, despite advancement in, among other things, risk monitoring, still suffers from a lack of independence and mandate and therefore has an insufficient impact on bank behaviour. Hirtle and Kovner (2024) describe the important distinction between regulation and supervision and state that a higher degree of supervision generally leads to lower risk-taking together with a neutral or positive impact on profitability. The Office of Inspector General (OIG) at the Federal Reserve also stated in its evaluation of the supervision of Silvergate Bank that those who investigated the bank should have taken earlier and more impactful supervisory measures (OIG, Board of Governors of the Financial Reserve System, Consumer Financial Protection Bureau, 2023).

The banking turmoil also led to discussions regarding how the regulations should be formulated. FINMA, the Swiss financial supervisory authority, for example, has argued for the introduction of a so-called senior managers regime, which entails that certain members of management need to be approved by the supervisory authority and that they can be held individually accountable for deficiencies in their areas of responsibility (Swiss Financial Market Supervisory Authority, 2023). One potential contributing cause to the banking turmoil that has been widely discussed is that some of the affected US banks, including Silicon Valley Bank, Signature

Bank of New York and First Republic Bank, were not subject to the liquidity requirements in the Basel standard (Basel Committee on Banking Supervision, 2023).

Vulnerabilities that accrued in the banks

The deficiencies in the internal governance and control, supervision and regulation described above led to vulnerabilities in the banks that we break down into the following five categories:

1. Interest rate risk in the banking book,[3]
2. Unrealised losses on bonds,
3. Concentration risks in deposits and lending,
4. High percentage of uninsured deposits, and
5. Poor profitability.

What made the events unfold so quickly and dramatically was not the occurrence of only one of these vulnerabilities, but rather the combination of several of them.

Interest rate risk not covered by capital

The situation described above led to, among other things, that the banks were able to take large risks. Both in the sense that they were legally allowed to take high risks and that doing so was financially profitable since the risk-taking was not sufficiently associated with costs, for example in the form of capital requirements. An example of excessive risk-taking was so-called interest rate risk in the banking book, in which several of the affected banks built up portfolios where the assets' fixed interest rate period greatly exceeded that of the liabilities. In Silicon Valley Bank's case, the bank invested in securities with a fixed interest rate, which it financed with deposits at a variable rate. This maturity gap created a high interest rate risk since a higher interest rate increased the cost of the liabilities at the same time as the revenue from assets remained unchanged.

Liquidity reserve contained hidden losses

The situation was made more complicated by the interest-bearing securities, which in some cases were intended to be held to maturity (HTM) and had been reported in the balance sheet at their accrued cost.[4] Once the interest rates went up, the market value of the securities fell and thus dropped below the carrying amount.

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[3] *Interest rate risk in the banking book* refers to interest rate risk in positions that are not part of the bank's trading book (Article 448 of the Capital Requirements Regulation), which can also be called interest rate risk of non-trading book activities (Commission Implementing Regulation (EU) 2022/631).

[4] *Accrued cost* refers to the amount at which a financial asset or liability is recorded at the time of acquisition after considering allocation, repayments and write-downs.

These securities were part of the banks' liquidity reserve.[5] When credit markets tightened, the banks were under pressure to sell some of these assets, which resulted in the realisation of large losses. Large unrealised losses also arose since the entire HTM portfolio needs to be adjusted to market value even when only part of the portfolio is sold. This means that the unrealised losses can be very high even if just a small portion of the portfolio needs to be sold. For Silicon Valley Bank, these losses amounted to 15 per cent of the portfolio, corresponding to the value of the bank's entire equity.

Concentrated customer base created large deposit outflows

A considerable portion of the customer base of the above-mentioned US banks came from the technology sector. This industry concentration could be seen in the balance sheet in both deposits and lending; for example, half of Silicon Valley Bank's deposits came from the technology sector. When this sector experienced a downturn in 2022, the bank was particularly vulnerable. In addition to this high concentration risk, many of the customers ran in the same social circles, which meant that the rumours about the bank's problems spread very quickly. This concentration was a strong contributor to the rapid and dramatic development of the crisis.

Uninsured deposits were withdrawn when the depositors lost confidence in the bank

Yet another key factor was the high percentage of uninsured deposits at the banks that were affected. For Silicon Valley Bank, this was because its customers were largely tech companies and their owners who had large deposits that exceeded the deposit insurance limit. This on its own would not necessarily cause a bank run. What was key for Silicon Valley Bank was instead a general mismanagement of the bank, poor profitability, and that its customers did not consider it to be viable. This created uncertainty about the bank that was then amplified as the rumours spread; depositors and investors fled the bank.

It can often be considered rational market behaviour that reflects good market discipline for a bank to experience problems when the public loses confidence in it. During the spring of 2023, the spreading of rumours was expedited by social media. This underlines the importance of banks being well managed and the public having confidence in them.

[5] *Liquidity reserve* refers to the assets a bank has that are or immediately can be sold for cash.

Poor profitability undermines a bank's ability to handle a crisis

Poor profitability, the fifth of the vulnerabilities listed above, was something that had long plagued Credit Suisse. It made the bank more vulnerable when it fell under pressure once again in the spring of 2023. Even if the US banks had been very profitable during the period of low interest rates, their profits also turned to significant losses at the end of 2022. The banks had been more profitable than many other US banks, but this profitability was built on their high risk-taking given the large positions they were holding in the growing crypto and tech sectors. In the case of Silicon Valley Bank, this included the search for yield in a low interest rate environment, which led to the bank investing in securities with a long maturity (Bayes Business School, 2023). Because profitability was not based on diversified sources of income, the banks were vulnerable when the market turned.

Vulnerabilities in the Swedish banking system

This section discusses the extent to which the five vulnerabilities listed above are present in the Swedish banking sector. Compared to the banks that were impacted by the banking turmoil in 2023, Swedish banks in general have low interest rate risks, small differences between carrying amounts and market values, low concentration risks, a high percentage of insured deposits and good profitability.

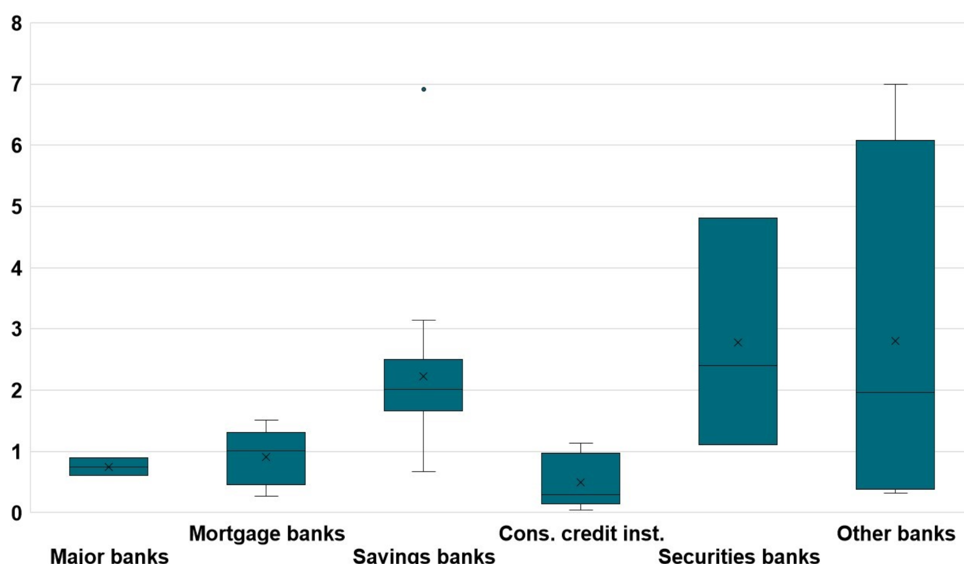
Interest rate risks low in Swedish banks

A capital requirement based on interest rate risks in the banking book is applied in Sweden. Finansinspektionen (FI) conducts a supervisory review and evaluation process (SREP) as part of Pillar 2 of the Basel regulations to set the capital requirement. This requirement is based on stress tests of positions in the bank's balance sheet that are sensitive to interest rate changes. The idea behind this capital requirement is to reduce incentives for banks to take on high interest rate risks and ensure that they hold capital for the interest rate risks they still choose to take. The banks that were affected were not subject to such a capital requirement. Given the same regulation as in Sweden, Silicon Valley Bank would have been given an additional capital requirement of around 10 percentage points for its interest rate risks, and it thus would have had a capital buffer that could have protected the bank. This type of additional capital requirement could have also been an incentive for the bank to reduce its interest rate risks since it is costly to hold capital.

Since 2021[6], FI has conducted an SREP for 51 banks. Most Swedish banks have received a low capital requirement for interest rate risk in this process, which indicates that the banks limit this type of risk (Diagram 1).

1. Swedish banks have low interest rate risks

Per cent



Source: FI

Note: Shows capital requirements for interest rate risk for the institutions in the six institution categories for which FI conducted an SREP since 2021. Banks are grouped according to the categorisation in the Bank Barometer. Cons. credit inst. = consumer credit institutions. The diagram shows the values for maximum, third quartile, median, first quartile and minimum. X marks the average and • marks an outlier.

Market value of Swedish banks' interest-bearing securities close to carrying amount

In addition to Swedish banks having low interest rate risks in the banking book, the majority of the approximately 120 banks under FI's supervision (all except 21) report their interest-bearing securities at market value.[7] In cases where securities are reported at accrued cost, they are often short-term, which means that a change in the interest rate has a relatively small impact on the value of the holding. The

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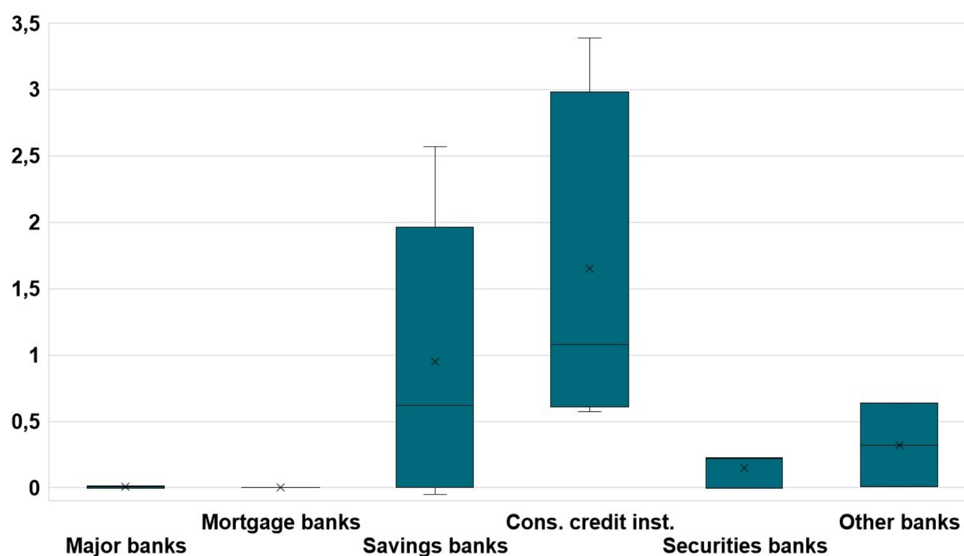
[6] FI made a number of changes to the SREP at this point, so the figures prior to 2021 are not fully comparable; see, for example, https://www.finansinspektionen.se/sv/publicerat/sarskilda-pm-beslut/2020/fi-har-beslutat-om-andrad-tillampning-av-bankers-kapitalkrav/.

[7] *Interest-bearing securities* here and throughout the text refer to treasury bills eligible for financing and bonds.

difference between fair value and accrued cost is therefore very small for all Swedish banks (see Diagram 2).

2. Difference between carrying amount and fair value of interest-bearing securities very small

Per cent



Source: FI and the banks' reports

Note: Shows the difference between accrued cost and the actual value of the security as a percentage of the assets' carrying amount for the 21 banks that report at accrued cost. The other banks report these assets at market value. The banks are grouped using the categorisation in the Bank Barometer, where some have been excluded due to an insufficient number of data points. Cons. credit inst. = consumer credit institutions. The diagram shows the values for maximum, third quartile, median, first quartile and minimum. X marks the average. Data from annual reports between Q4 2022 and Q3 2023.

Compared to the affected banks in the US and Switzerland, this means that the Swedish banks have a greater possibility of selling their assets in a liquidity crisis without realising losses. This makes the Swedish banks more resilient.

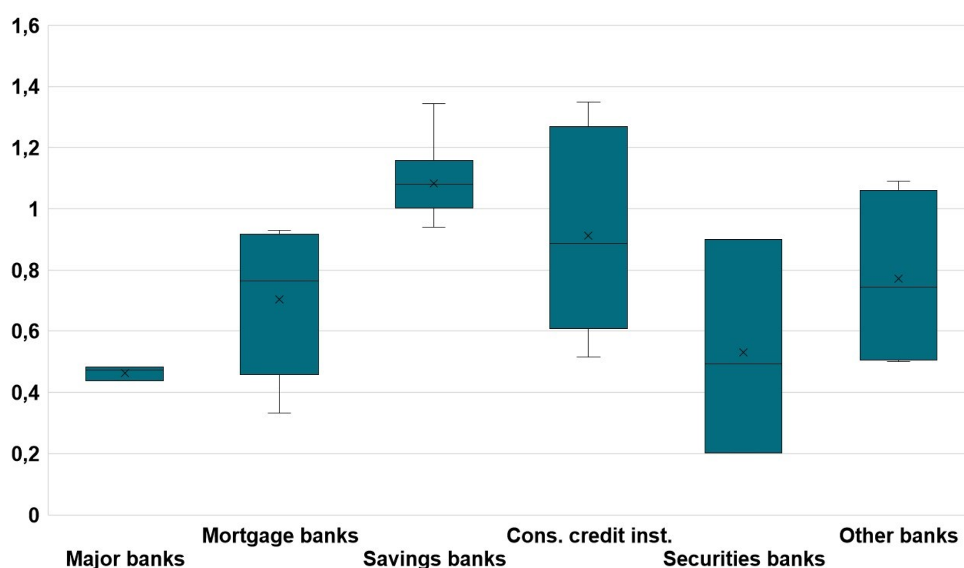
Relatively low concentration risk in Swedish banks' lending

The third vulnerability in several of the US banks was concentration risk in both deposits and lending. When an adverse financial shock occurs, customers that are similar to one another can be impacted in a similar manner. This means that a high concentration risk in assets or liabilities can lead to relatively higher outflows or losses for banks during crises. It is thus advantageous for banks to diversify their customer base. In Sweden, the market is dominated by the major banks. These banks have significant exposures to the real estate market, but since they are

universal banks, they avoid extreme concentration risks. They offer a wide range of services and have considerable regional reach, which leads to a wide customer base. In addition, FI sets a capital requirement for credit-related concentration risk as part of the SREP. We calculate this capital requirement by assessing name concentration (exposures to an individual counterparty), industry concentration (exposures to an individual industry), and geographic concentration (exposures to individual countries or regions). Based on this method, the credit-related concentration risk is relatively low in the Swedish banks that have received such a capital requirement (see Diagram 3).

3. Low credit-related concentration risk in Swedish banks

Per cent



Source: FI

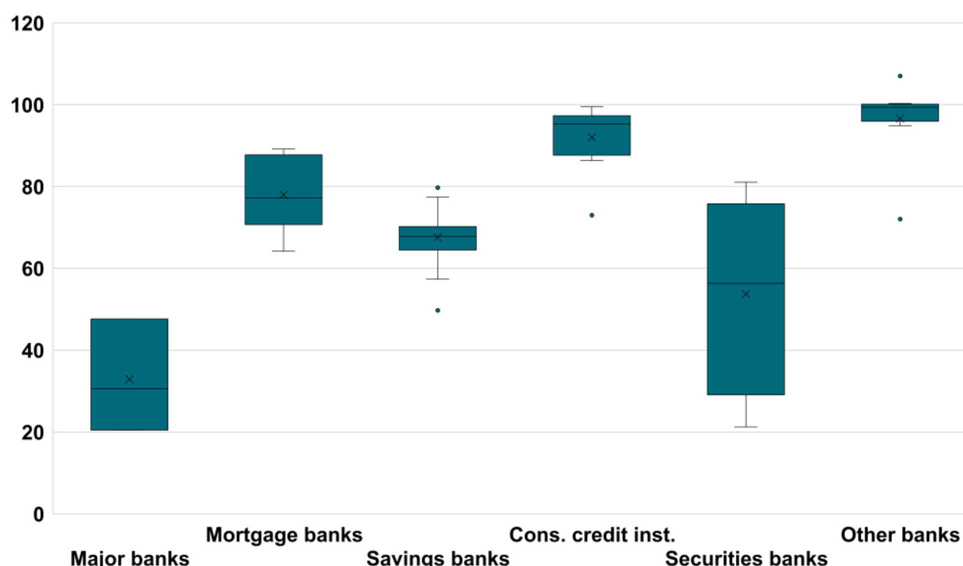
Note: Shows the total capital requirement for credit-related concentration risk for the institutions for which FI has conducted an SREP since 2021. The banks are grouped using the categorisation in the Bank Barometer, where some have been excluded due to an insufficient number of data points. Cons. credit inst. = consumer credit institutions. The diagram shows the values for maximum, third quartile, median, first quartile and minimum. X marks the average.

Deposits are usually insured

In terms of uninsured deposits, there is a large difference between banks, depending on whether their business model relies more on deposits from, for example, small savers or large firms. A lower percentage of insured deposits is thus not per se a sign that a bank is experiencing problems or taking unreasonable risks. All else equal, though, it is probable that a bank with a high percentage of insured

deposits will have more stable deposits and be less vulnerable to runs.[8] For Silicon Valley Bank, only 6 per cent of the deposits were insured at the end of 2022, which meant that depositors faced incentives to rapidly withdraw their money when confidence in the bank collapsed. Swedish banks, in contrast, hold a much larger percentage of insured deposits (see Diagram 4).

4. Most Swedish banks have a high percentage of insured deposits
Per cent



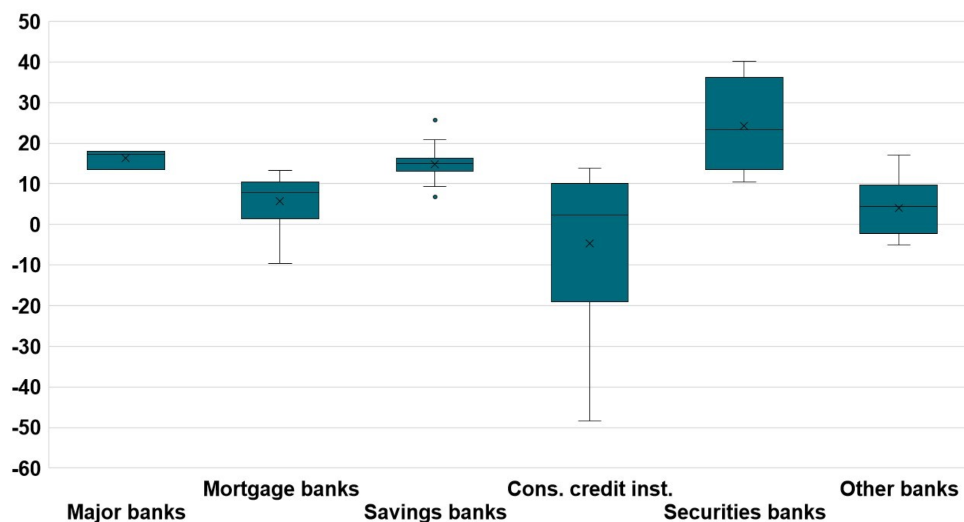
Source: FI
Note: The percentage of the banks' total deposits covered by the deposit guarantee. *Total deposits* include deposits from the public and large firms. The banks are grouped using the categorisation in the Bank Barometer, where some have been excluded due to an insufficient number of data points. Cons. credit inst. = consumer credit institutions. The diagram shows the values for maximum, third quartile, median, first quartile and minimum. X marks the average and • marks outliers. Data for Q1 2023.

Generally good profitability

Stable profitability is important for a bank's stability. The major Swedish banks have good return on equity (see Diagram 5). At the same time, there is a clear difference between the banks' business models.[9] For example, securities banks show high median profitability but with a significant spread. In terms of profitability, consumer credit firms, with a median of 2.3 per cent, are the most vulnerable institution category.

[8] See, for example, "Flightiness of deposits varies across Swedish banks", an article in the Riksbank's Financial Stability Report 2023:2, which finds that uninsured deposits in Swedish bank are more flighty than insured deposits.
[9] For more information about the difference between banks' business models, see *Bankbarometern,* only available in Swedish.

5. Positive return on equity in general – but significant variation between different categories of banks
Per cent



Source: FI
Note: The banks are grouped using the categorisation in the Bank Barometer, where some have been excluded due to an insufficient number of data points. Cons. credit inst. = consumer credit institutions. The diagram shows the values for maximum, third quartile, median, first quartile and minimum. X marks the average and • marks outliers. Data for Q1 2023.

Overall assessment of vulnerabilities

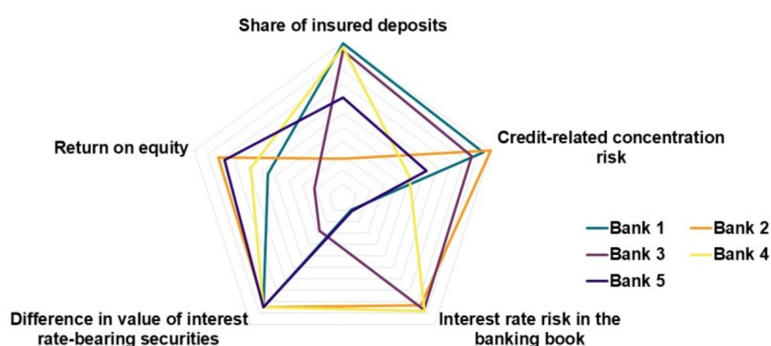
One way to try to illustrate the total vulnerability is to consider all of the vulnerabilities that we have discussed above. Banks that are vulnerable in one dimension are often significantly less vulnerable in other dimensions, which we see throughout this analysis. For example, consumer credit institutions have relatively weak profitability, but, on the other hand, many have a high percentage of insured deposits, low interest rate risk, and low concentration risk, which makes them more resilient to runs. Swedish banks also generally have low concentration risks and a high percentage of insured deposits compared to the banks that were impacted by runs in 2023. The data presented in the diagrams represent a snapshot of a specific time point, but both the risks that are covered by the capital requirements and the share of insured deposits have been relatively stable over time.

The absence of significant vulnerabilities at the aggregate level for each institution category, however, does not rule out that individual institutions could be vulnerable. Nevertheless, the institutions that are vulnerable in a particular dimension tend to have lower vulnerability in other dimensions.

Overall, this means that the Swedish banks have a different risk profile than the US banks and Credit Suisse in 2023 (see Diagram 6). No Swedish banks are showing

high vulnerability in all areas. If we look at Bank 1 in Diagram 6, for example, we can see that it has a relatively high interest rate risk in its banking book. It also has only mid-high return on equity. But these vulnerabilities are offset by a very high share of insured deposits, low credit-related concentration risk, and that the interest-bearing securities are recorded at market value. This indicates that there is a significantly lower risk that a Swedish bank will experience a run like those that occurred during the banking turmoil in 2023. There are naturally many other risks, challenges and vulnerabilities in the financial system, but this analysis focuses on the factors that were important during the banking turmoil in 2023, and those vulnerabilities are clearly less prominent in the Swedish banking sector.

6. No Swedish bank is showing the same combination of vulnerabilities as the banks that were affected in the spring of 2023
Standardised values



Source: FI
Note: A sample of five banks that are among the weakest in one of the vulnerability dimensions. The units for each vulnerability have been standardised to be able to be interpreted uniformly, and the values further out towards the edges in the diagram represent lower vulnerability. Data for Q1 2023.

How have deposits been impacted by digitalisation?

So far, we have focused on what has happened in the US and Switzerland and the risk of a similar event occurring in the Swedish banking system. Another issue that has been discussed after the events in 2023 is digitalisation and whether the digital development has made the financial system more vulnerable. Even if we have not identified digitalisation as an important cause, it contributed to accelerating the course of events. It is therefore relevant to comment on this issue as well.

In the US in the spring of 2023, digitalisation appeared to have accelerated the development of the crisis, particularly for Signature Bank of New York and First Republic Bank, and it was primarily the uninsured deposits that were withdrawn from the banks. Swedish society has quickly embraced the shift towards digitalisation, and bank customers have long been able to move their money simply and quickly. Despite this, traditional deposits at Swedish banks have still been very stable. We therefore do not see that digitalisation on its own presents any imminent risk of bank runs in the Swedish banking system. This seems especially true given the differences that the Swedish banks exhibit compared to the banks that experienced runs in 2023, for example with regard to the share of insured deposits.

Digitalisation makes it easier for depositors to quickly move their money

We thus do not see major risks associated with traditional deposits. However, digitalisation has led to an upswing in new forms of deposits that can introduce larger risks. One example is brokered deposits, where the customer deposits money in the bank via a deposit platform.[10] In some cases, these platforms offer automatic transfer of deposits to banks with higher interest, which can make deposits flightier. In Sweden, there are a number of banks that use deposit platforms, but the phenomenon is still rather limited.

It is also more common for online banks to compete with attractive deposit rates, and price-sensitive customers move their deposits to the bank that offers the highest interest. This has been made possible by digitalisation, which makes it easier than before to both compare banks' offers and move money. This can result in deposits becoming flightier, regardless of the public's confidence in the bank.

What happened in the spring of 2023 is not fundamentally a new phenomenon in the financial system. The Swedish banking system had one of the world's first bank runs already in 1668 when it became apparent that Johan Palmstruch's bank Stockholms Banco had issued credit notes backed by copper coins that it could not cover. When a bank has taken large risks and does not have the liquidity to cover its commitments, the loss of confidence can trigger a run that ultimately results in the failure of the bank. The banking turmoil in 2023 was thus a classic crisis but in modern trappings. It therefore continues to be of utmost importance that we have regulations and supervision that ensure that banks do not take unreasonable risks and that they are holding capital and liquidity to cover the risks they are taking.

[10] See Finansinspektionen's report "Ökad inlåning via inlåningsplattformar" (2024) for an analysis of deposit platforms in Sweden: https://www.fi.se/contentassets/a32f6a6562f74476b3b7c2d67f15a0a0/extern-rapport-inlaningsplattforma-240930.pdf.

This will allow the financial system to keep the public's confidence and contribute to good and robust economic development.

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