

Florian Heider
Jan Pieter Krahnen
Loriana Pelizzon
Jonas Schlegel
Tobias Tröger

European lessons from Silicon Valley Bank resolution: A plea for a comprehensive demand deposit protection scheme (CDDPS)

SAFE Policy Letter No. 98 | March 2023

Leibniz Institute for Financial Research SAFE
Sustainable Architecture for Finance in Europe

policy_center@safe-frankfurt.de | www.safe-frankfurt.de

European lessons from Silicon Valley Bank resolution:

A plea for a comprehensive demand deposit protection scheme (CDDPS)

Florian Heider, Goethe University and SAFE

Jan Pieter Krahnen, SAFE

Loriana Pelizzon, Goethe University and SAFE

Jonas Schlegel, SAFE

Tobias H. Tröger, Goethe University, SAFE

Abstract

The SVB case is a wake-up call for Europe's regulators as it demonstrates the destructive power of a bank-run: it undermines the role of loss absorbing capital, elbowing governments to bailout affected banks. Many types of bank management weaknesses, like excessive duration risk, may raise concerns of bank losses – but to serve as a run-trigger, there needs to be a large enough group of bank depositors that fails to be fully covered by a deposit insurance scheme. Latent run-risk is the root cause of inefficient liquidations, and we argue that a run on SVB assets could have been avoided altogether by a more thoughtful deposit insurance scheme, sharply distinguishing between loss absorbing capital (equity plus bail-in debt) and other liabilities which are deemed not to be bail-inable, namely demand deposits. These evidence-based insights have direct implications for Europe's banking regulation, suggesting a minimum and a maximum for a banks' loss absorption capacity.

1. Motivation

The failure of U.S. Silicon Valley Bank (SVB), and its repercussions in the US and Europe, particularly in the UK and Switzerland, raise the question of what we can learn from the turbulent events surrounding SVB's final days. While we have seen that a targeted ad hoc intervention of central banks and the FDIC could stop the devastating bank run ex-post, we propose a regulatory framework that prevents runs ex-ante and upholds the essential role of loss absorbing capital – equity and bail-in debt – which is to instill market discipline.

The U.S. Silicon Valley Bank (SVB) was a regional bank, founded in 1982, with a strong focus on start-up firms. It also offered advisory services for founding and running new businesses, and it served as an interface between young firms and a vast network of VC capitalists and financiers, and capital markets. When the bank suddenly faltered in early March 2023, fear of contagion spread over the world, triggering further bank collapses in the US, the UK, and Switzerland.

The consequences of the faltering of SVB were felt across the entire industry, despite the moderate size of the bank and just below the SIFI-threshold, above which banks are deemed systemically important financial institutions. The FDIC, acting as the bank's supervisor and deposit insurer, offered a quick and unconditional bailout to (all of) SVB's depositors, above the statutory coverage. But there was no helping hand for SVB stockholders – their stakes were wiped out, the bank was closed on March 10, 2023, one day after it had failed to raise fresh equity in the market.

Meanwhile, after the massive liquidity provision by FDIC and Fed had stopped the run on SVB assets, bank stock prices in the US and in Europe plunged, with some institutions more affected than others. Future research may decipher the specific reasons for cross-sectional differences in the decline of stock prices – for now we can only speculate that markets have priced in the potential unwillingness of governments to bail out equity holders, and similarly for subordinate bond holders.

To calm global markets and contain the spreading of fear around the world, central banks responded with resolve. Several of the most important institutions, Fed, ECB, Bank of Japan, Bank of England, and Swiss National Bank have signed a joint reinsurance arrangement securing access to dollars for any of its members.

Thus, central banks, through their interventions, assumed a leading role in dealing with the ensuing banking crisis. By offering ample liquidity against collateral, they could stop the run – at the price of bailing out hitherto unprotected depositors and thus confirming the existence of implicit government guarantee.

This last point is clearly against the rationale of the post-2008 reform of banking regulation, the Dodd-Frank act in the US, and the Bank Resolution and Recovery Directive (BRRD) in Europe. Both frameworks were set up after the 2008 financial crisis, aspiring to minimize the role for government interventions.

To derive lessons for Europe, we will next describe the existing regulatory framework in more detail, showing that in principle loss absorption through private investors, via equity and bail-in debt, should curtail risk seeking behavior in banking. We will then argue that an incomplete deposit insurance scheme may undermine private loss absorption, and, hence, may threaten to unravel financial stability in today's banking markets.

Box 1: Anatomy of a bank run: the case of Silicon Valley Bank (SVB)

Banks typically face asset risk of all sorts, at all times, like interest rate risk, credit risk, and liquidity risk. This is not only normal – it is the essence of their business model. In fact, the functional role of banks in the economy is to act exactly as risk takers and risk managers, not as risk-avoiders. Therefore, the experiences made by SVB, and relatedly by Credit Suisse, are not unusual at all. What is unusual and scaring in these events, however, is something else: the withdrawal of short-term funds by many depositors at once, commonly referred to a run on bank assets. In the case of SVB, depositors on the run were apparently account holders without deposit insurance, i.e. without FDIC protection: wealthy individuals with account balances exceeding 250K, and firms running their business accounts at SVB. These latter corporate accounts encompass the turnover from firms' daily business activities: sales income (from goods and services sold to customers) and payment outflows (like wages and cost of intermediate products). Knowing there is no FDIC protection, firms' CFOs watch out carefully for any sign of bank weakness, in which case they transfer her/his account balance to another institution – without any delay, by the click of a mouse. This is the anatomy of a bank run – deadly for any bank. But, as we argue in this paper, bank runs are not only inefficient and costly – they are above all: avoidable by sensible regulation. Here is the sequence of events at SVB, the storyline of a bank run.

31st of December 2022: 89% of total assets of SVB are uninsured deposits. With \$209bn in total assets, SVB falls into the regulatory category IV (\$100bn-\$250bn). This category does not require Total Loss Absorbency Capacity (TLAC), so that in the case of failure, all liabilities besides deposits below \$250,000 are at risk.

8th of March 2023: SVB sold over \$21bn assets at a loss of 1.8bn, borrowed \$15bn and aims to hold an emergency sale of stocks to raise \$2.25bn in equity. Nevertheless, Moody's downgrades SVB.

9th of March 2023: Customers withdraw further \$42bn from the bank.

10th of March 2023: California regulators closed down SVB and put it under control of the US Federal Deposit Insurance Corporation (FDIC).

12th of March 2023: FDIC decides to not follow their standard procedure and makes use of the systemic risk exception, which allows the FDIC to guarantee uninsured deposits. To prevent contagion effects, the FED sets up a Bank Term Funding Program (BTFP) to provide liquidity at par to U.S. depository institutions for up to one year.

21st of March 2023: Treasury Sec. Janet Yellen states that the government is ready to provide further guarantees of deposits if banking crisis worsens.

2. The current bail-in framework in Europe

Drawing on a review of the regulatory response to the 2008 global financial crisis (GFC) written by two of us, policy makers around the globe had implemented bail-in as the primary regulatory tool to bring back market discipline into the financial sector. Bail-in implies private loss absorption: forcing holders of bank equity capital and bank bonds to absorb losses the bank incurs in its business. Bail-in thus allows to recapitalize a failing institution, e.g., by converting debt into equity, without drawing on taxpayers' money. Bail-in mitigates implicit government guarantees and, so it was hoped, it induces the holders of capital and debt instruments to monitor the banks and their risk-taking behavior, eventually pricing bank risk adequately (Tröger 2018, European Commission 2012).

The reform agenda post GFC focused on bolstering balance sheet positions available for loss absorption rather than pushing for outright higher equity ratios. The G-SII requirement (TLAC, total loss absorbing capital) is a set of layers of capital available for bail-in foreseen by the FSB for global systemically important banks (G-SIIs) and for other systemically important institutions (O-SIIs). MREL is the extensive, country-sensitive European implementation of the TLAC standard, required by the BRRD for all institutions in the EU, including smaller banks. Finally, bail-inable debt comprises all debt of a bank that can be used to absorb losses of the institution under the BRRD. It may be senior or junior to equity, depending on the details of the debt contract, as evidenced by the Credit Suisse case.

Figure 1: Waterfall of payment ranks

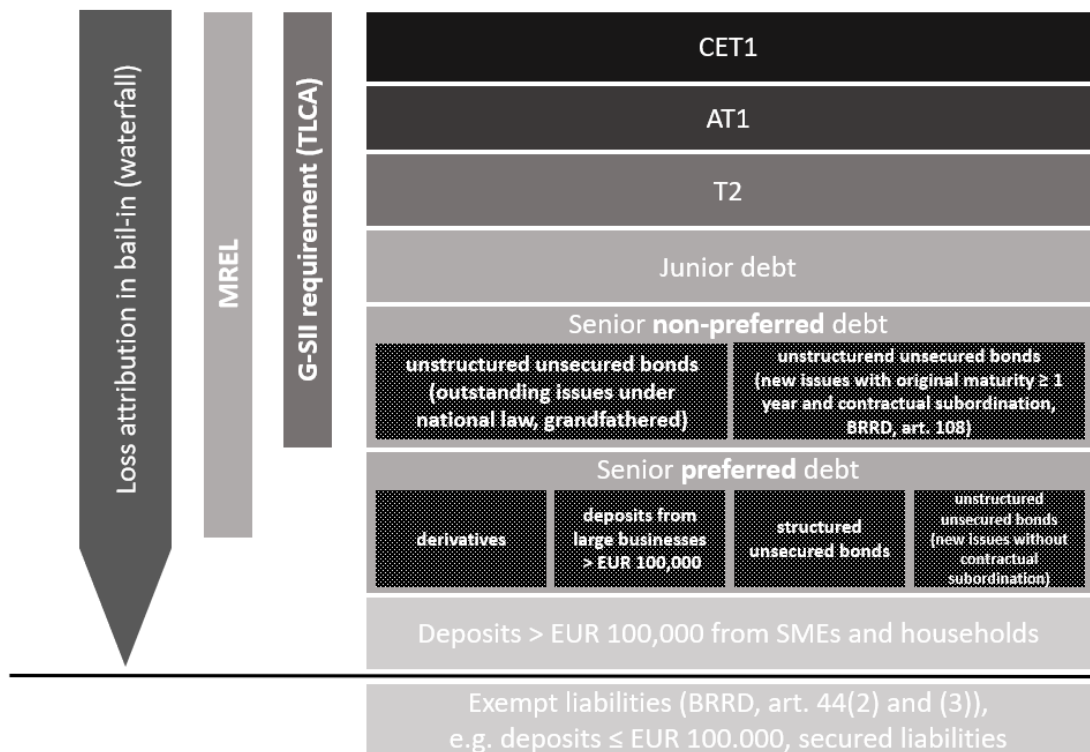


Figure 1 depicts the creditor waterfall, which determines the order in which bail-in is applied if a bank is resolved under the BRRD. This hierarchy applies, although individual liabilities of different seniorities may be exempt from bail-in under BRRD, art. 44(2) and (3). G-SII requirement and MREL primarily absorb losses in a gone concern scenario, but private sector involvement still applies if these balance sheet positions are exhausted, as more senior debt positions, e.g., long-term bank bonds, may be bailed-in as well. Based on the BRRD, the supervisors – SSM and national authorities— continuously determine the *minimum* level of loss absorbing capital every bank under their control must hold. The interesting question to ask is whether there is also a *maximum* bail-in foreseen in the rulebook. We turn to this question next.

3. Maximum requirements for an effective bail-in

Prior to the SVB case, it seemed to be the consensus, also shared by the European legislator, that bail-in should be without limits and, as a matter of principle, should affect the entire liability side of a bank's balance sheet, of course except for insured deposits. We think, however, that this is a mistake as it gravely underestimates the run risk emanating from unprotected demand deposits, which are neither part of designated total loss absorbing capital (i.e., equity plus bail-in debt), nor part of insured demand deposits.

We claim that unprotected demand deposits should be absent from a bank's balance sheet, meaning demand deposits should be protected in their entirety, large and small, private and corporate, while term deposits may remain unprotected because they are by their very nature not runnable, i.e., cannot be withdrawn without notice.

The reasoning behind protecting all demand deposits is simple: If left unprotected, demand deposits will one day fall for a run on the bank, destroying its franchise value. Trigger events of a bank-run may

be manifold, ranging from SVB-type interest rate risk to Credit-Suisse-type weak business models. Whatever the trigger event, once a run is ongoing it not only destroys the bank's franchise value, but it may also severely undermine the role of loss absorbing capital.

A run forces a bank to sell its assets at ongoing market prices, irrespective of the investment commitment the bank made when originating the transaction. To give an example, if the bank has extended a construction loan to firm or a household with 3 years' time to repayment, an early redemption may either not be possible at all, or it may yield a lower repayment than its face value.

These losses will be booked directly against equity, thereby destroying the bank's capital base. Note that the resulting demise of the bank is an undesired, inefficient outcome as assets are liquidated below their intrinsic value, the value the asset would have had if held to maturity.

On the other hand, designated bail-in debt instruments, such as contingent convertible (coco) bonds should, in accordance with the stipulations of the BRRD, remain 100% unprotected because they provide outside monitoring and thus serve as the guarantor of market discipline.

Note that there is a widely shared argument for bank-runs in the modern theory of banking. In that literature, depositor runs are caused by the bail-in risk faced by those unprotected depositors. Because of the loss threat, these depositors are seen as instrumental in addressing moral hazard problems in banking. According to Diamond and Rajan (2000, 2001), the run-threat keeps bank risk taking constantly in check, thereby allowing deposits to become liquid. In these models, the run-threat is a response to the informational opacity surrounding risk transformation in banking. This incentive-oriented interpretation, however, disregards the possibility of contagion effects among banks and the role of systemic risks (see Allen et al., 2017 and Cordella et al., 2016)

The regulated banking world of 2023 has come a long way from the simple model world assumed in the cited literature: Most notably, the safeguard of market discipline is nowadays delivered by a new class of debt instruments, the said bail-in bonds, which are part of a bank's loss absorbing capital. In the models just cited, a separate class of bail-in-able debt instruments is absent, hence is the conclusion that market discipline can only come from depositors running potentially. In the new world of the BRRD, market discipline emerges from the existence of debt that will credibly be bailed-in.

We have discussed in various places the design features favouring bail-in credibility (Farina et al., 2022; Mecatti and Tröger, 2023), and will not repeat them here – suffice it to say that transparency about which institution or investor is holding bail-in-able securities is relevant for averting a government bailout when the bank is “failing or likely to fail”.

The underlying idea that bail-in extends to all bank liabilities is probably due to the post-2008 desire to avoid government bail-outs of banks. As we have argued above, a universal bail-in that includes large deposits is neither necessary nor even desirable for establishing a strong market discipline.

Requirements prescribing the level of bail-in able liabilities may only restore desired market discipline up to a certain point. It is important to consider the extent to which a possible disciplining, positive effect of the marginal run risk outweighs the negative effect of increased systemic risk from the inefficient failure of banks. Considering the negative effects, it is beneficial to restrict the bail-in threat to those investors that are invested in the TLAC/MREL tranche of a bank's liabilities. Thus, an upper limit for bail-in should be set in addition to a – sufficiently large – regulatory minimum requirement for bail-in able capital. An a priori bail-out guarantee on the other hand, undermines market discipline and incentivizes banks to take on too much risk as it precipitates moral hazard.

Efforts should be made to strike a balance between these two risks. The BRRD in its current form only provides for a highly discretionary and unspecified possibility to exclude certain liabilities from bail-in. In particular, where "the exclusion is absolutely necessary and it is appropriate to ensure the continuity of the critical functions and core business areas, so that the ability of the institution that is in the process of liquidation is maintained to allow it to continue the main business, services and transactions" (Article 44(3)(b) of the BRRD). This exception could be interpreted in line with our normative prescriptions, but an ex ante clear regulation would be preferable. This would shape market expectations without ambiguities.

Our proposal of a full protection of all bank demand deposits goes hand-in-hand with a sufficiently high level of loss absorbing capital. Only the latter is supposed to deliver market discipline, while the former is basically treated as risk-free. All other bank liabilities, mostly term deposits and bank bonds, are senior to loss absorbing capital, but in principle bail-in-able.

4. Discussion

In this section we take up a list of questions that were raised by various people when we first presented the basic concept of fully protected demand deposits to a broader audience. Here is the list of questions, and a brief discussion that will be extended in future work.

1. Does the proposed reform of the deposit insurance regime incentivize banks to shift their liabilities into shorter-term products, thereby shifting risk to the deposit insurer?
This is an important moral hazard argument. It can be answered as follows: The comprehensive demand deposit protection scheme (CDDPS) is self-financing, as in a steady state situation, insurance premia paid by the member banks will equal insurance fund payoff because of bank failures. Assuming proper risk-related premia, there are no incentives for an inefficient level of risk taking.
Moreover, the incentive to accept more liquid deposits can be curtailed further if the regulatory bail-in minimum is positively related to the share of short-term deposits in a bank's total liabilities. In other words, a bank that has more demand deposits, relative to other banks, will have to build more loss absorbing capital. The formula connecting the share of demand deposits to the minimum bail-in requirement can be managed by the supervisor to reach any desired level of liquidity (i.e., demand deposits) provision in the banking system.
2. How to align the comprehensive demand deposit protection scheme (CDDPS) with today's diverse, national and/or sectorial deposit insurance landscape in Europe?
The answer to this question deserves a separate inquiry. For now, it is important to know that deposit insurance in Europe is not unified, nor consolidated. For example, in Germany deposit insurance is privately organized, there is no government guarantee. Risk consolidation in the insurance portfolio is restricted to sectors (private banks, savings banks, cooperative banks), it comprises a mandatory insurance layer of up to 100K, and a voluntary layer of essentially unlimited volume (per account holder). There is no explicit government guarantee which raises the question of insurance credibility. Thus, a harmonized European deposit insurance model would supplant the diverse schemes at the national level by a European re-insurance scheme that mitigates moral hazard risks (see Krahen 2013, Farina et.al. 2022).
3. How much government protection is required to allow for a comprehensive demand deposits protection scheme?

In order to achieve full credibility, a CDDPS will always require some guarantor of last resort. This can only be an entity with funding power beyond any doubt – the government budget or the central bank. However, this commitment to stand ready for an ultimate support should a big bank run happen is not very costly at all, as the likelihood of seeing a run is basically zero now that all deposits are insured. The guarantee, however, is of particular importance during the early phase of the rescue fund when new expectations are built up.

5. Conclusions

We argue that uninsured short-term bank deposits and other callable liabilities are a major reason why we observe bank runs (see Gorton et al., 2020). The exclusion of those deposits from the insurance scheme is a design flaw, not only, in the European regulatory architecture. While the existence of run-prone deposits was the instrument of choice to ensure some market discipline in banking in the early literature (see Calomiris and Kahn, 1991, Diamond and Rajan, 2001), today's regulatory framework has reserved the disciplining role of market forces to a different class of bank liabilities dubbed total loss absorbing capital (TLAC), or MREL in the European framework. TLAC consists of two components, bank equity and bank subordinate (bail-in) bonds. These capital items are fully exposed to bank risk, and the holders will face the extinction of their value in case of a crisis. In normal times, however, equity and bail-in bonds are expected to earn high returns, rewarding their holders for the existential risks they carry.

Given today's role of TLAC, the remainder of the balance sheet should be fully insured against value loss and hence, be made run-proof. As in other parts of everyday life, such an insurance comes with a premium which, on average and over time, will cover the compensation paid by the deposit insurance fund, especially if the fund can levy extraordinary contribution ex post. Note furthermore that an effective insurance scheme will rarely pay out any compensation, because the reason for runs has been removed.

Insured deposits are not a free lunch for banks, however, as they must pay premia to attain coverage. As in all risk insurance schemes, there is an element of public guarantee required to render the insurance promise fully credible. The deposit insurance is no difference here: The bailout promised by the insurance scheme is 100% valid only if there is a type of public backstop, or reinsurance fund accessible. That is why a solid deposit insurance system in Europe has to have a European dimension, in the form of a backstop, apart from the national schemes we observe today.¹

If deposits are insured, and thus safe, they are not part of the resolution anymore. This, in turn, will lower their return to depositors, in exchange for enhanced safety. The funding costs for the rest, in particular for loss absorbing bail-in capital, should go up, reflecting the likelihood of future bank losses – given that generous bailouts are no longer foreseen in the regulatory regime.

Obviously, some banks will need to issue new bail-inable bonds, and/or increase their equity, and/or reduce asset volume and/or asset risk. This might be difficult and expensive for banks which heavily rely on deposits. Nevertheless, it needs to be recollected that SVB was a bank which mainly funded itself by short-term deposits. This type of short-term liability structure will therefore require a high level of loss absorbing capital. Of course, it remains an open question if today's layers of required equity and MREL are sufficiently thick to fully cover expected bank losses – a recalibration may be required.

¹ [SAFE White Paper 66 \(2020\)](#) addresses the construction of a market-driven, two-tier European deposit insurance scheme with a public backstop.

References

- Allen, F., E. Carletti, I. Goldstein and A. Leonello (2017). Government guarantees and financial stability. ECB Working Paper Series No. 2032.
<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp2032.en.pdf>
- Calomiris, C. W. and Kahn, C. M. (1991). The Role of Demandable Debt in Structuring Optimal Banking Arrangements. *American Economic Review*, 81, 497-513.
- Calomiris, C. W. and Mason, J. R. (1997). Contagion and Bank Failures during the Great Depression: The June 1932 Chicago Banking Panic. *American Economic Review*, 87(5). 863-83.
- Cordella, T., G. Dell’Ariccia and Marquez, R. (2016). Government guarantees, transparency and bank risk-taking. Policy Research Working Paper No. 7971. World Bank Group.
https://www.imf.org/external/np/res/seminars/2016/arc/pdf/Cordella_Dellariccia_Marquez_Session4.pdf
- Diamond, D. W., and Rajan, R. G. (2000). “A theory of bank capital”. *Journal of Finance* 55. pp. 2431-2465.
- Diamond, D. W., and Rajan, R. G. (2001). “Liquidity Risk, Liquidity Creation, and Financial Fragility: A Theory of Banking.” *Journal of Political Economy*, vol. 109, no. 2, 2001, pp. 287–327.
- Farina, T., Krahen, J. P., Mecatti, I., Pellizzon, L., Schlegel, J. and Tröger, T. (2022). Is there a ‘retail challenge’ to banks’ resolvability? What do we know about the holders of bail-inable securities in the Banking Union?. SAFE White Paper. No. 92.
- Gorton, G. B., Metrick, A. and Ross, Chase P. (2020). Who Ran on Repo?. *AEA Papers and Proceedings*. 110: 487-92.
- Götz, M., Krahen, J. P., Tröger, T. (2017). Five years after the Liikanen Report: What have we learned?. SAFE White Paper. No. 50
- Krahen, JP (2013). Deposit insurance suitable for Europe: Proposal for a 3-stage deposit guarantee scheme with limited European liability. SAFE Policy Letter Series. No. 8.
- European Commission (2012). High-level expert group on reforming the structure of the EU banking sector, chaired by Erkki Liikanen. Final Report October 2012. Brussels.
- Mecatti, I and Tröger, T. (2023). Who Should Hold Bail-Inable Debt and How can Regulators Police Holding Restrictions Effectively?. SAFE Working Paper. No. 379. <https://ssrn.com/abstract=4342444>.
- Tröger, TH (2018). Too Complex to Work – A Critical Assessment of the Bail-In Tool Under the European Bank Recovery and Resolution Regime. *Journal of Financial Regulation*. 4(1):35-72.