Silicon Valley Bank’s insolvency highlights the risk of similar investors

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The insolvency of Silicon Valley Bank is a powerful reminder of the risks faced by banks with ‘similar investors’. The bank’s deposits were large, uninsured, and mostly from one industry, exposing it to correlated withdrawals. This column uses data on money market funds investing in banks to show that uninsured investors adjust their portfolios to reduce their exposure to assets owned by other investors with similar portfolios. Stress tests and bank supervision going forward should account for the structure of bank liabilities and their concentration..

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With the collapse of the Silicon Valley Bank (SVB) in March 2023, the concentration risk in bank liabilities has come under scrutiny. Not only had SVB heavily invested in the tech sector, most of its deposits came from investors in the same industry as well. In fact, the bank's CEO and team repeatedly referred to themselves as “bankers to technology, start-up companies, and venture capital firms”. The bank was financed by large uninsured deposits from the same industry and the same region. In addition to their size, the similarity of depositors further exacerbated the concentration risk in SVB's liabilities. In this column, we ask whether depositors and, in general, investors internalise concentration risk of liabilities stemming from investor similarity. As the SVB episode vividly shows, investor similarity contributes to bank fragility. Consequently, we argue that it is crucial to monitor this risk in addition to reviewing existing deposit insurance schemes, as Dewatripont et al. (2023) recommend.

The prediction that investors consider concentration risk in bank liabilities when making investment decisions is consistent with the theoretical framework of Wagner (2011). His model highlights a trade-off that investors face between diversification benefits and joint liquidation costs when these are systemic, i.e. disproportionately higher when several investors (rather than one) liquidate an asset. In the absence of such frictions, full diversification would be optimal for investors who might then end up with similar portfolios. With systemic liquidation costs, however, investors prefer to hold diverse – as opposed to diversified – portfolios to differentiate themselves from other investors and reduce their exposure to joint liquidation costs. A testable prediction from this model is that investors reduce their exposure to assets owned by other investors with similar portfolio holdings, as they expect elevated joint liquidation costs.

As portfolio holdings of investors are rarely observed, there has been relatively little research on the concentration risk associated with bank liabilities. In Georg et al. (2023), we use detailed information on the portfolio holdings of US money market funds (MMFs) investing in banks through certificates of deposits and commercial papers from November 2010 until August 2014.[1] MMF investments, similar to SVB's large deposits, are uninsured, available on demand, and therefore runnable. Due to post-crisis regulations in the US, MMFs are able to monitor the portfolio holdings of other MMFs through the monthly collection and public disclosure of such holdings by the Securities and Exchange Commission. In addition, MMFs face regulatory constraints that limit the types of securities they can invest

in, forcing them to be more similar and more vulnerable to concentration risk. Thus, MMFs provide a unique laboratory for investigating the demand for diversity among investors and the effect of investor similarity on bank funding fragility.

We introduce a novel measure of portfolio similarity capturing the similarity of the portfolio holdings of one fund to the portfolio holdings of all other funds investing in one bank. Figure 1 provides two simple examples to illustrate this measure and how it differs from traditional measures of concentration, such as the Herfindahl–Hirschman index (HHI). In both examples, there are three investors who can invest in three banks. In panel (a), the investors fully diversify their portfolios, and, as a result, they hold the same portfolios. The bank liabilities are also fully diversified according to the HHI (33%) as each bank received a third of its funding from each investor. However, our measure indicates maximal concentration risk in bank liabilities (100%) as the bank is exposed to investors who hold the same portfolios, which is equivalent to being exposed to only one investor.

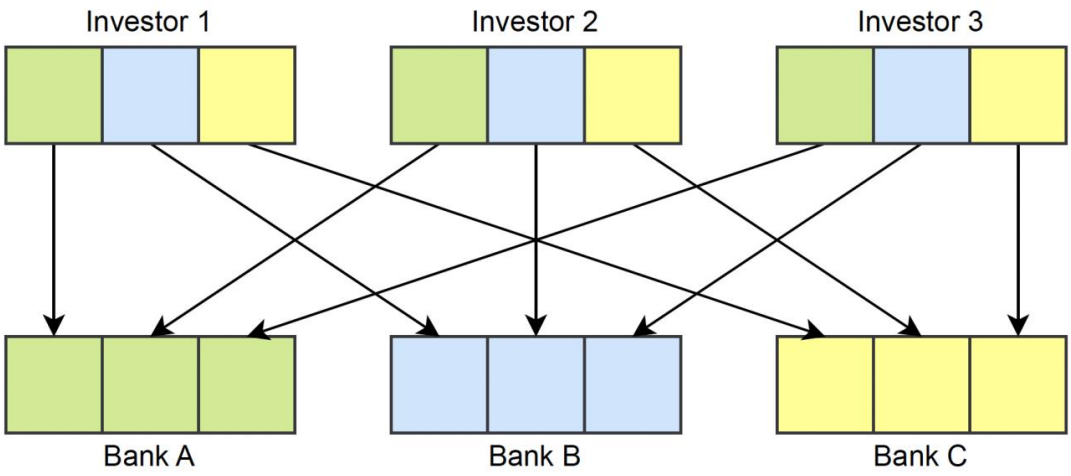
In panel (b), the investors hold different portfolios. When Investor 2 considers rolling over funding to Bank B, she compares her portfolio holdings to those of Investors 1 and 3 and sees that the holdings of Investors 1 and 3 are less similar (65%) than the holdings of Investors 1 and 2 (88%), and the holdings of Investors 2 and 3 (88%).[2] Investor 2 is the most similar investor in Bank B and should thus be the most

concerned about joint liquidation costs. Consequently, Investor 2 is the least likely to roll over funding to Bank B in the next period.

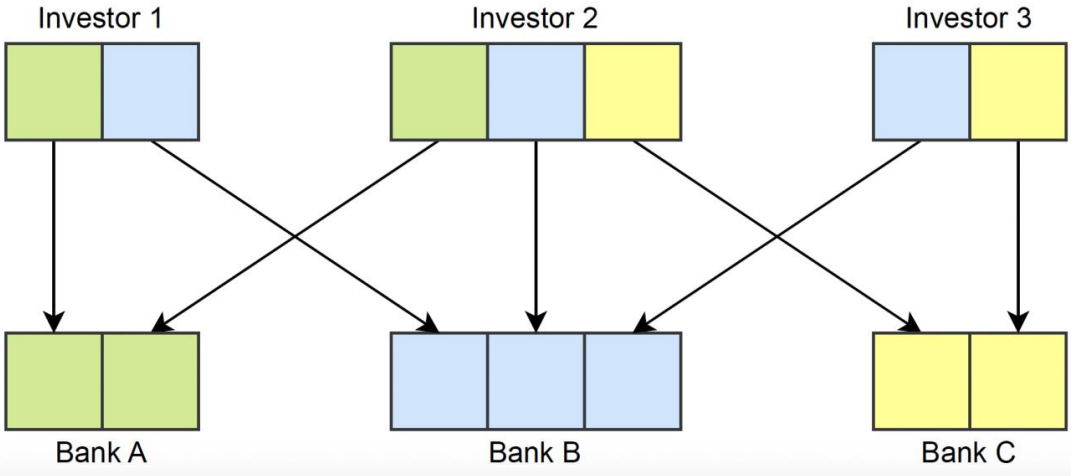
Concentration risk as measured by the HHI is the same (33%) as in the example in Figure 1a since Bank B still receives a third of its funding from each investor. In contrast, the concentration risk in the liabilities of Bank B based on investor similarity is lower in Figure 1b (80%) because investors hold more diverse portfolios. These examples illustrate how our measure and the HHI offer different perspectives on concentration in bank liabilities.

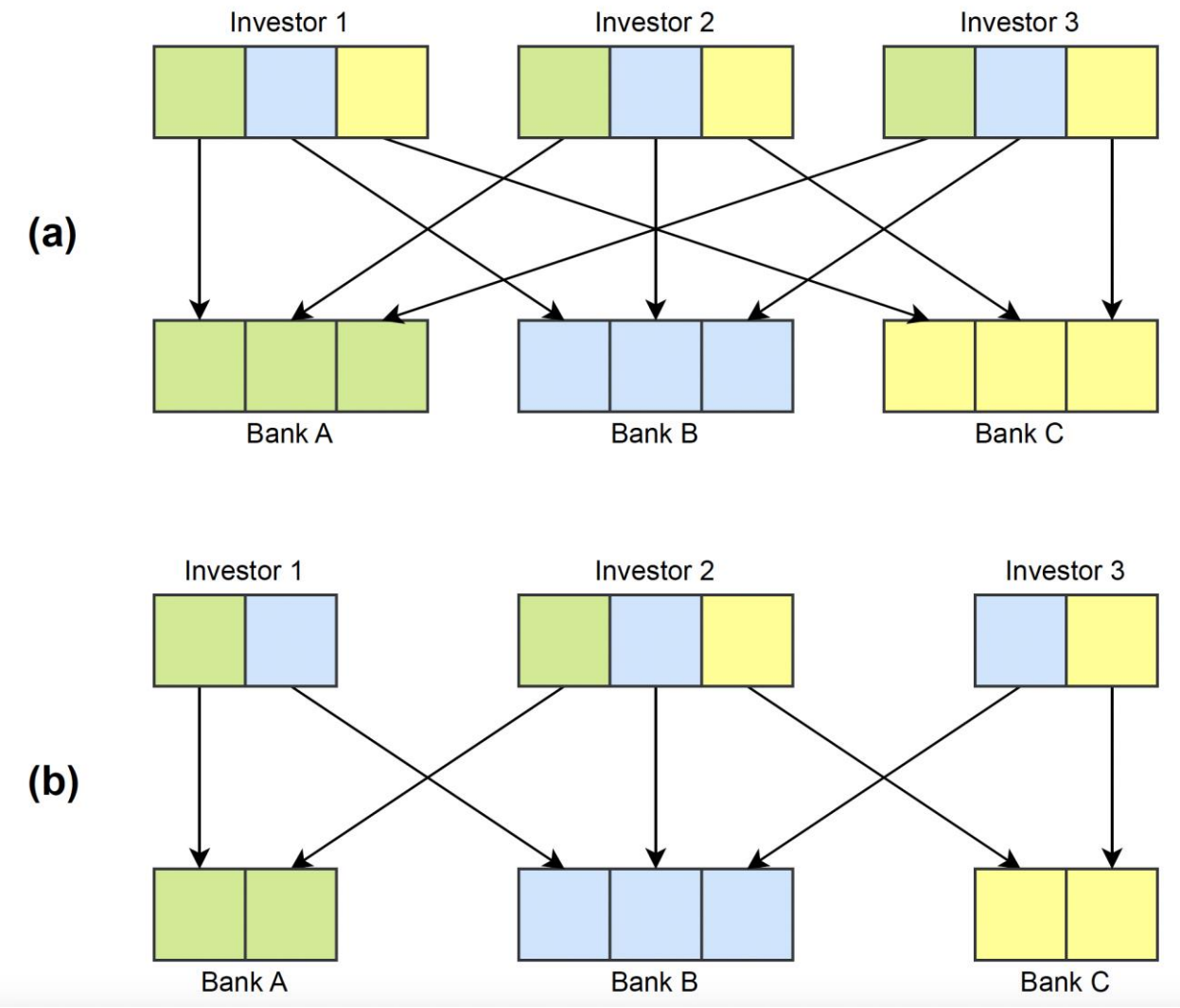
Figure 1

(a)


Investor 1
Investor 2
Investor 3
Bank A
Bank B
Bank C

(b)


Investor 1
Investor 2
Investor 3
Bank A
Bank B
Bank C



In Georg et al. (2023), we apply our similarity measure to the portfolios of MMFs and present evidence of a *demand for diversity*, where funds strive to reduce their exposure to an asset as their similarity to other funds investing in the same asset increases. We compare different funds with varying similarity levels investing in the same asset at the same time, while controlling for various factors, such as the fund size, maturity, yield of the security contract, and security type. Our results indicate that the probability of outflow increases as similarity to other funds investing in the same asset

increases, and investments in the asset decrease accordingly. Additionally, we conduct various robustness tests and explore alternative hypotheses, including control variables to address the possibility that fund outflows are not triggered by fund similarity, but rather by funds' investment strategies and constraints, such as concentration limits or following a benchmark index (Woolley and Vayanos 2022).

The portfolio allocation decisions made by funds based on similarity have implications for bank funding fragility. Specifically, the average similarity of the funds invested in a bank can affect the bank's access to funding during a crisis, such as the European sovereign debt crisis in the summer of 2011, which triggered significant redemptions from some US MMFs (Chernenko and Sunderam 2014). Our analysis shows that during this period (June 2011 to December 2011), even after controlling for measures of concentration such as the number of funds of the bank and the HHI of the bank liabilities, an increase in the average similarity of funds invested in a bank results in significant funding outflows.

Our findings extend beyond the MMF sector and can provide valuable insights for the ongoing policy debate on bank liquidity risk and regulation. This column questions the current approach to bank supervision, which focuses primarily on collecting detailed information about the quality of assets and capital components while ignoring the rest of the liabilities. As things stand, not even the stress tests conducted by US and European banking authorities collect the

information necessary to monitor concentration risk in bank liabilities. Although collecting data on investor portfolios might be difficult, knowing the sectoral and geographical composition of bank liabilities would help us better understand and monitor concentration risk. The recent collapse of Silicon Valley Bank in March 2023, partially attributed to its heavy dependence on uninsured depositors from the same industry and region, underscores the need for additional research to better understand the impact of similar investors on bank liquidity risk and its regulation.

References

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Footnotes

1. The sample is restricted to abstract from the impact of the 2016 MMF reform (Baghai et al. 2022).
2. For a detailed explanation of how the measures are derived, please refer to Georg et al. (2023).