

LENDER OF LAST RESORT: LESSONS FROM THE 2023 BANKING CRISIS

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ABSTRACT

The “lender of last resort” refers to a central bank’s capacity to extend collateralized loans to a solvent bank facing a liquidity crisis, such that a bank’s temporary illiquidity does not cause the bank to fail and catalyze a wider crisis in the banking system (“contagion”). In March 2023, Silicon Valley Bank (“SVB”) failed after it experienced the largest single-day bank run in U.S. history. Its failure triggered a contagion in the U.S. banking system that brought down two other large banks: Signature and First Republic. Though SVB, Signature, and First Republic each sought emergency liquidity from the Federal Reserve, in no case did the lender of last resort function avert the bank’s collapse. This Article analyzes the SVB crisis to understand why the lender of last resort function failed to fulfill its role of preventing one bank’s liquidity crisis from triggering broader instability in the banking system. Our analysis culminates in eleven recommendations for reforms including operational improvements to expedite emergency lending, rationalized collateral policies that allow solvent banks experiencing a liquidity crisis to borrow without exposing the lender of last resort to credit risk, and recalibrations of the regulatory liquidity and deposit insurance frameworks to better coordinate with the lender of last resort in stabilizing the U.S. banking system. Our Article advances the literature on banking regulation by documenting the facts of a major banking crisis and assessing the response of regulators in order to generate policy recommendations that contribute to the future stability of the banking system.

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INTRODUCTION

The “lender of last resort” refers to a central bank’s capacity to extend collateralized loans to a solvent bank facing a liquidity crisis, such that a bank’s temporary illiquidity does not cause the bank to fail and catalyze a wider crisis in the banking system (“contagion”).¹ In the United States, the Federal Reserve Act authorizes the Federal Reserve (the “Fed”) to act as a lender of last resort to banking institutions by lending through a facility known as the discount window.² Together with deposit insurance, regulatory capital, and liquidity requirements, the Fed’s lender of last resort function is a critical safeguard of the U.S. banking system’s stability. The stability of the banking system is in turn a critical factor in the stability of the financial system and economic growth.³

In March 2023, Silicon Valley Bank (“SVB”) experienced the largest single-day run on deposits, totaling \$42 billion, in U.S. banking history. The run was triggered by the public revelation of SVB’s failure to manage its interest rate risk on its substantial portfolio of Treasury securities. Despite remaining solvent, the pace of deposit withdrawals exceeded SVB’s ability to liquidate the assets necessary to honor those withdrawals. SVB sought to address its liquidity crisis by borrowing through the discount window, but despite remaining solvent and possessing substantial stores of collateral, it could not obtain a sufficient discount window loan due to a combination of operational limitations and regulatory decisions.⁴ State and federal banking regulators as a result seized SVB and placed it in a resolution proceeding administered by the Federal Deposit Insurance Corporation (“FDIC”). The failure of SVB resulted in a contagion that triggered runs on deposits at two other large banks—Signature and First Republic—both of which also failed despite efforts to secure lender of last resort liquidity. In an effort to stem the contagion, banking regulators invoked the systemic risk exception allowing the FDIC to extend protection to uninsured depositors and created a new Fed lending facility to supply liquidity to the banking system outside the discount window. Although the contagion did not spread further, the failure of

1. See generally WALTER BAGEHOT, LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET (1873), <https://perma.cc/F432-DV9E>; HAL S. SCOTT, CONNECTEDNESS AND CONTAGION: PROTECTING THE FINANCIAL SYSTEM FROM PANICS (2016).
2. Federal Reserve Act of 1913 § 10B, 12 U.S.C. § 347b.
3. See, e.g., Jérôme Creel, Paul Hubert & Fabien Labondance, *Financial Stability and Economic Performance* 6 (Financialisation, Econ., Soc'y & Sustainable Dev., Working Paper No. 35, 2014), <https://perma.cc/BV7C-ZH5E>; Alexander Popov, *Evidence on Finance and Economic Growth* 5 (Eur. Cent. Bank, Working Paper No. 2115, 2017), <https://perma.cc/E5U8-Q6BU>; *Financial Stability*, THE WORLD BANK, <https://perma.cc/37RS-2XXV> (“Financial stability is paramount for economic growth, as most transactions in the real economy are made through the financial system.”).
4. SVB also unsuccessfully sought to borrow from the Federal Home Loan Banks, which have emerged as de facto alternative lenders of last resort, causing a critical delay. See *infra* notes 56-59.

these banks cost the FDIC's Deposit Insurance Fund approximately \$38.3 billion and placed the banking system at risk of a wider crisis. Had the lender of last resort function been able to respond effectively to the initial run on SVB, these costs and risks could potentially have been avoided.

In this Article, we examine the actions and policies of the Fed, FDIC, Treasury, and Federal Home Loan Banks ("FHLBs") in connection with the 2023 banking crisis. Part I identifies the causes and consequences of SVB's failure, including the ensuing failures of Signature Bank and First Republic, and documents the response of the aforementioned agencies. Part II analyzes the facts developed in Part I and culminates in eleven reform recommendations to prevent the recurrence of similar crises and minimize the costs of future bank failures. The reforms address three general areas: (1) optimizing the operational capabilities and lending policies of the Fed's lender of last resort facilities, (2) calibrating the deposit insurance and liquidity frameworks to better coordinate with lender of last resort facilities in stabilizing the banking system, and (3) reassessing aspects of the bank resolution framework to minimize the costs of future bank failures. Our analysis seeks to advance the literature on banking regulation by documenting a major banking crisis and assessing the response of regulators in order to generate policy recommendations that contribute to the future stability of the U.S. banking system.⁵

I. THE SVB CRISIS AND THE RESPONSE OF FEDERAL BANKING SUPERVISORS

We begin by documenting the events that triggered the deposit run on SVB, SVB's subsequent failure, and the resulting contagion in the U.S. banking system. This provides a foundation for understanding and evaluating the response of the federal banking agencies to the crisis.

A. The Causes of SVB's Liquidity Crisis

SVB was a California-based bank that specialized in lending to and taking deposits from venture capital ("VC") firms and VC-financed companies. It was a state-chartered bank supervised at the state level by California, and, as a member of the Federal Reserve system, its primary federal supervisor was the Fed.⁶ SVB became

5. Through our analysis, we identify key information about the failed banks and the decisions of the banking agencies that is absent from the public record. We have sought to make reasonable inferences based on the banks' 2022 year-end financial statements, FDIC-prepared receivership balance sheets for the failed banks, and other publicly available transaction documents. To address these gaps in the public record, the Fed should conduct a complete forensic investigation of how this crisis evolved and publish those results or explain why it cannot publish such a report.
6. BD. OF GOVERNORS OF THE FED. RSRV. SYS., REVIEW OF THE FEDERAL RESERVE'S SUPERVISION AND REGULATION OF SILICON VALLEY BANK 17 (2023), <https://perma.cc/4R2E-ECVJ>.

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vulnerable to a liquidity crisis because its portfolio of long-term fixed-rate assets, combined with a high concentration of uninsured deposit liabilities, made the bank susceptible to interest rate increases and unexpected deposit withdrawals. SVB's managers failed to manage these risks. Meanwhile, federal banking supervisors repeatedly identified these risks in the years before SVB's failure but did not require remedial action.

In the years leading up to its failure, SVB had grown substantially as a result of increased IPO activity, VC investments, and other fundraising activities.⁷ Between 2019 and 2022, the assets of SVB's parent holding company, Silicon Valley Bank Financial Group ("SVBFG"), tripled from \$71 billion to \$212 billion.⁸ By 2022, SVB was the sixteenth largest bank in the United States.⁹

In addition to causing SVB's rapid growth, the substantial amounts of funding available to SVB's startup customers meant that its customers required fewer loans. SVB therefore needed to find other uses for its cash. It chose to invest substantially in long-term debt securities—primarily fixed-rate mortgage-backed securities and Treasury securities, nearly four-fifths of which were accounted for as held-to-maturity ("HTM") assets. Figure 1 shows an excerpt of SVBFG's balance sheet as of December 31, 2022.¹⁰

7. Silicon Valley Bank Fin. Grp., Annual Report (Form 10-K) 32, 49 (Feb. 24, 2023), <https://perma.cc/GJ63-ZRGF>.
8. See FED. RSRV., *supra* note 6, at 18. Although SVBFG had other direct subsidiaries, they accounted for less than 1% of SVBFG's total assets. *See id.* at 17.
9. David French, Echo Wang & Alun John, *SVB Is Largest Bank Failure Since 2008 Financial Crisis*, REUTERS (Mar. 11, 2023), <https://perma.cc/U2HL-WNGA>.
10. SVBFG, *supra* note 7, at 95. Because SVB accounted for substantially all of SVBFG's assets and liabilities, we hereafter refer to SVBFG's Dec. 31, 2022, balance sheet as that of SVB's.

Figure 1: SVBFG Consolidated Balance Sheet as of December 31, 2022

SVB FINANCIAL GROUP AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS		
	December 31,	
	2022	2021
Assets		
Cash and cash equivalents	\$ 13,803	\$ 14,586
Available-for-sale securities, at fair value (cost of \$28,602 and \$27,370, respectively, including \$530 and \$61 pledged as collateral, respectively)	26,069	27,221
Held-to-maturity securities, at amortized cost and net of allowance for credit losses of \$6 and \$7 (fair value of \$76,169 and \$97,227, respectively)	91,321	98,196
Non-marketable and other equity securities	2,664	2,543
Total investment securities	120,054	127,959
Loans, amortized cost	74,250	66,276
Allowance for credit losses: loans	(636)	(422)
Net loans	73,614	65,854
Premises and equipment, net of accumulated depreciation and amortization	394	270
Goodwill	375	375
Other intangible assets, net	136	160
Lease right-of-use assets	335	313
Accrued interest receivable and other assets	3,082	1,791
Total assets	\$ 211,793	\$ 211,308
Liabilities and total equity		
Liabilities:		
Noninterest-bearing demand deposits	\$ 80,753	\$ 125,851
Interest-bearing deposits	92,356	63,352
Total deposits	173,109	189,203
Short-term borrowings	13,565	71
Lease liabilities	413	388
Other liabilities	3,041	2,467
Long-term debt	5,370	2,570
Total liabilities	195,498	194,699
Commitments and contingencies (Note 21 and Note 26)		
SVBFG stockholders' equity:		
Preferred stock, \$0.001 par value, 20,000,000 shares authorized; 383,500 and 383,500 shares issued and outstanding, respectively	3,646	3,646
Common stock, \$0.001 par value, 150,000,000 shares authorized; 59,171,883 and 58,748,469 shares issued and outstanding, respectively	—	—
Additional paid-in capital	5,318	5,157
Retained earnings	8,951	7,442
Accumulated other comprehensive income (loss)	(1,911)	(9)
Total SVBFG stockholders' equity	16,004	16,236
Noncontrolling interests	291	373
Total equity	16,295	16,609
Total liabilities and total equity	\$ 211,793	\$ 211,308

HTM is a Generally Accepted Accounting Principles (“GAAP”) designation that applies when a company intends to retain a debt security until maturity and collect the principal amount.¹¹ Securities classified as HTM are recorded on the balance sheet of GAAP-reporting entities (including banks) at cost and do not reflect fluctuations in market value, though the market value must be disclosed in the notes to the financial statements.¹² A change in the market value of HTM securities does not affect a bank’s capital requirements.¹³

As of December 31, 2022, 43% of SVB’s total assets and 78% of SVB’s total securities portfolio consisted of HTM securities.¹⁴ This was significantly higher than other large banks: Among other banks with more than \$100 billion in assets, HTM

11. PRICEWATERHOUSECOOPERS, LOANS AND INVESTMENTS 3-9 (Sept. 2022), <https://perma.cc/6UWG-BH94>.
12. *Id.* at 3-22.
13. OFF. OF THE COMPTROLLER OF THE CURRENCY, BANK ACCOUNTING ADVISORY SERIES 1 (2024), <https://perma.cc/5AF9-WSE7>; João Granja, *Bank Fragility and Reclassification of Securities into HTM* 1 (Becker Friedman Inst., Working Paper No. 2023-53, 2023), <https://perma.cc/Z6HV-UHML>.
14. See FED. RSRV., *supra* note 6, at 22.

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securities accounted, on average, for only 11% of total assets and 42% of these banks' total securities portfolio.¹⁵ Although SVB's balance sheet recorded its HTM securities at a book value of \$91.3 billion, by year-end 2022, rising interest rates had reduced the market value of SVB's HTM securities to \$76.2 billion, reflecting an unrealized loss of \$15.1 billion.¹⁶ This limited SVB's ability to sell HTM securities to obtain liquidity without realizing significant losses with respect to the portion of the HTM securities that it sold. Furthermore, under U.S. GAAP rules, the sale of any portion of the HTM securities would normally require SVB to record all such securities at market value and realize a \$15.1 billion loss.¹⁷ Because SVB stockholders' equity was approximately \$16 billion,¹⁸ recording a \$15.1 billion loss would have placed SVB close to insolvency.¹⁹

Another portion of SVB's assets consisted of securities classified for accounting purposes as "available for sale" ("AFS"), which indicates that the holder may sell the security before maturity.²⁰ As of December 31, 2022, SVB held \$26.1 billion in AFS securities, equal to 12% of total assets.²¹ Unlike HTM securities, AFS securities are recorded on a company's balance sheet at market value.²² However, SVB had elected to disregard unrealized gains and losses with respect to its AFS securities for purposes of its capital requirements.²³

15. *Id.* at 23 tbl. 1 (since total securities made up 25% of total assets and HTM securities accounted for 42% of total securities, HTM securities represented approximately 11% of total assets).
16. SVBFG, *supra* note 7, at 125.
17. PwC, *supra* note 11, at 3-11.
18. SVBFG, *supra* note 7, at 95.
19. However, GAAP exempts from this general rule sales arising as a result of "extremely remote disaster scenarios (such as a run on a bank[])." ACCOUNTING STANDARDS CODIFICATION: INVESTMENTS—DEBT SECURITIES, TOPIC 320 (FIN. ACCT. STANDARDS Bd. 2018), <https://perma.cc/9Q7D-PQQU>. SVB may thus have been entitled to rely on this carveout to avoid reclassifying the balance of its HTM portfolio and thereby realizing the entirety of the built-in loss as a result of a partial sale, once the run on SVB began. But to the extent SVB sought to liquidate portions of its HTM portfolio before it became apparent that it was experiencing a bank run, it may not have believed that this carveout was available and thus still anticipated that the sale of any of its HTM securities would require it to recognize all of the built-in loss in its entire HTM portfolio.
20. *Id.* at 3-21.
21. See SVBFG, *supra* note 7, at 64, 95.
22. PwC, *supra* note 11, at 3-23.
23. SVBFG, BASEL III STANDARDIZED APPROACH DISCLOSURES FOR THE QUARTER ENDED DECEMBER 31, 2022 4 (2023), <https://perma.cc/92UZ-82F3>. Unrealized gains and losses on AFS securities are tracked in Accumulated Other Comprehensive Income ("AOCI"), and the "AOCI filter" provides that banks such as SVB may elect to disregard changes to AOCI in calculating their capital requirements. FED. DEPOSIT INS. CORP., *Regulatory Capital Rules: Accumulated Other Comprehensive Income (AOCI) Opt-Out Election* (Mar. 23, 2015), <https://perma.cc/8QUL-QBD3>. Under the Fed's 2023 capital rule proposal, this election would have been eliminated. *Regulatory Capital Rule: Large Banking Organizations and*

SVB's net loan assets totaled \$73.6 billion, which accounted for 35% of SVB's total assets.²⁴ By comparison, loans accounted, on average, for 58% of total assets at other large banks.²⁵ Government securities thus accounted for a greater percentage of the value of SVB's balance sheet compared to other large banks and changes in the prices of government securities contributed significantly to its eventual distress.

SVB's liabilities consisted largely of demand deposits. As of year-end 2022, 93.8% of these deposits were not insured by the FDIC.²⁶ This was the highest percentage of uninsured deposits of any U.S. bank with at least \$50 billion in assets,²⁷ and more than double the average figure among banks with more than \$100 billion in assets.²⁸ It also exceeded the equivalent figure among smaller banks: For 85% of banks with assets between \$1 billion and \$50 billion, uninsured deposits constituted 50% or less of total domestic deposits.²⁹ SVB also reported non-deposit liabilities of approximately \$22 billion, which accounted for approximately 11% of its total liabilities, and \$13 billion of these non-deposit liabilities consisted of secured short-term loans from the San Francisco Federal Home Loan Bank ("SF FHLB").³⁰

Uninsured deposits are more susceptible to rapid withdrawals than insured deposits.³¹ This is because a depositor that fears its bank will be unable to honor withdrawals in the future is more likely to withdraw its deposit if the deposit is uninsured. Deposits of business entities—which accounted for the largest deposits at SVB—are also generally assumed to be withdrawn at a faster rate than deposits of retail customers in times of stress.³² FDIC data indicate that SVB's ten largest

Banking Organizations with Significant Trading Activity, 88 Fed. Reg. 64028 (Sep. 18, 2023) (to be codified at 12 C.F.R. pts. 3, 6, 32, 208, 217, 225, 238, 252, 324), <https://perma.cc/K2WE-3KPQ>.

24. See SVBFG, *supra* note 7, at 95, 130.
25. FED. RSRV., *supra* note 6, at 23.
26. David Hayes, *SVB, Signature Racked Up Some High Rates of Uninsured Deposits*, S&P GLOB. (Mar. 14, 2023), <https://perma.cc/8KWT-VJX4>.
27. *Id.*
28. FED. RSRV., *supra* note 6, at 23.
29. Martin J. Gruenberg, Chairman, Fed. Deposit Ins. Corp., Remarks on The Resolution of Large Regional Banks — Lessons Learned (Aug. 14, 2023), <https://perma.cc/FTJ4-MWGW> (noting that “[u]ninsured deposits comprised the majority of domestic deposits for about 15 percent of banks between \$1 billion and \$50 billion in assets”).
30. See SVBFG, *supra* note 7, at 81, 95 (non-deposit liabilities are calculated by subtracting total deposit liabilities of \$173 billion from total liabilities of \$195 billion).
31. Christopher Martin, Manju Puri & Alexander Ufier, *Deposit Inflows and Outflows in Failing Banks: The Role of Deposit Insurance* 3 (Fed. Deposit Ins. Corp. Ctr. for Fin. Rsch., Working Paper No. 2018-02, 2018), <https://perma.cc/NQZ9-M53Q>.
32. *LCR40 – Cash Inflows and Outflows*, BANK FOR INT'L SETTLEMENTS (Mar. 30, 2023), <https://perma.cc/86AL-AMGA> (assigning a minimum run-off rate of 20% to uninsured deposits of non-financial corporate depositors and 10% to uninsured deposits of retail depositors).

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depositors had an average balance of \$1.3 billion and, together, accounted for approximately 8% of SVB's total deposits.³³ Although comprehensive data on other banks' depositor concentrations are generally not publicly available, the FDIC has suggested that the percentage of SVB's deposits attributable to large depositors was high relative to other banks.³⁴

Another contributing factor that is beyond the scope of this Article was supervisory inaction in response to warning signs of SVB's poor risk management. In particular, Fed supervisors repeatedly identified SVB's vulnerability to interest rate risk, as well as SVB's deficient risk management systems more generally, in the years before March 2023.³⁵ It was only as of mid-February 2023 that Fed supervisory staff raised the issue of SVB's interest rate risk to the Fed's Board of Governors.³⁶

B. The Run on SVB

Throughout 2022 and early 2023, the Fed raised interest rates by roughly 4.5% to combat inflation.³⁷ As a result, VC financing became scarcer and SVB's VC clients began to withdraw their deposits. SVB's total deposits fell from \$198 billion in Q1 2022³⁸ to \$173 billion in Q4 2022.³⁹

The release of SVB's year-end 2022 financial statements on February 24, 2023, revealed that the unrealized losses on SVB's HTM portfolio had grown to \$15 billion. This news prompted speculation among analysts and investors about SVB's stability.⁴⁰

33. Jonathan Rose, *Understanding the Speed and Size of Bank Runs in Historical Comparison*, FED. RSRV. BANK OF SAINT LOUIS (May 26, 2023), <https://perma.cc/D4RT-UKNP> (citing *Recent Bank Failures and the Federal Regulatory Response: Hearing Before the S. Comm. on Banking, Hous., & Urb. Affs.*, 118th Cong. (2023) (statement of Martin J. Gruenberg, Chairman, Fed. Deposit Ins. Corp.), <https://perma.cc/LW5E-EK5R>).
34. Fed. Deposit Ins. Corp., FDIC's SUPERVISION OF SIGNATURE BANK 11 (2023), <https://perma.cc/FEK4-B6TA>.)
35. Andrew Ackerman & Dave Michaels, *Fed Raised Concerns About SVB's Risk Management in 2019*, WALL ST. J. (Mar. 19, 2023), <https://perma.cc/57EB-CUWY>; FED. RSRV. BANK OF S.F., Letter from Federal Reserve Bank of San Francisco to Greg Becker, CEO, SVBFG (Nov. 2, 2021), <https://perma.cc/4SZ4-TECU>; FED. RSRV., *supra* note 6, at ii. The Capital Adequacy, Assets, Management Capability, Earnings, Liquidity, Sensitivity ("CAMELS") rating system applies to all FDIC-insured depository institutions. FED. RSRV., *Examination Strategy and Risk-Focused Examinations*, in COMMERCIAL BANK EXAMINATION MANUAL 1, 7, 11 (2021), <https://perma.cc/7KR8-ZL36>.
36. FED. RSRV., *supra* note 6, at 14.
37. *Federal Funds Effective Rate*, FED. RSRV. BANK OF SAINT LOUIS, <https://perma.cc/RA29-QSUS>.
38. SVBFG, Quarterly Report (Form 10-Q) 4 (Mar. 31, 2022), <https://perma.cc/C6KR-LNNF>.
39. SVBFG, *supra* note 7, at 6.
40. Tabby Kinder et al., *Silicon Valley Bank Profit Squeeze in Tech Downturn Attracts Short Sellers*, FIN. TIMES (Feb. 22, 2023), <https://perma.cc/N7TM-5C2E>.

Then, in the evening of Wednesday, March 8, SVB announced that earlier that day it had sold almost all of its \$26.1 billion AFS securities portfolio and had realized a \$1.8 billion loss on the sale.⁴¹ It also announced that it was attempting to raise \$2.25 billion in equity capital by issuing new stock.⁴² That same evening, Moody's downgraded SVBFG's credit rating.⁴³ SVBFG's stock immediately began to decline during after-hours trading on the evening of March 8.⁴⁴

On Thursday, March 9, SVBFG's stock had declined by 60%.⁴⁵ Presumably, the run started at the opening of the bank, as SVB then honored after-hours requests from March 8 and new requests from March 9. The pace of these withdrawals was likely accelerated by the interconnectedness of SVB's depositors. For example, many VC firms with SVB accounts advised their portfolio companies that also had SVB accounts to withdraw funds as well.⁴⁶ The news also spread through social media group chats among startup founders and CEOs.⁴⁷ By the time it closed for business on March 9, SVB had received \$42 billion in withdrawal requests,⁴⁸ representing 25% of its deposits. This made for the largest single-day run in U.S. banking history.⁴⁹

It is unclear what portion of these withdrawals SVB honored before it closed on Thursday, March 9, and how much cash SVB would have had when it opened for business on Friday, March 10. SVB's December 31, 2022, balance sheet recorded approximately \$13 billion in cash and cash equivalents.⁵⁰ Assuming it still had this cash plus the \$26.1 billion from the sale of AFS securities at the beginning of March 9, its total cash of \$39.1 billion was \$2.9 billion short of the \$42 billion of withdrawal requests it received throughout the day. SVB was reported to have ended March 9 with a

41. Letter from Greg Becker, President & CEO, SVBFG, to Stakeholders Regarding Recent Strategic Actions Taken by SVB (Mar. 8, 2023), <https://perma.cc/9NUZ-K475>.
42. *Id.*; AnnaMaria Andriotis, Corrie Driebusch & Dave Michaels, *Fed, SEC Probing Goldman Sachs's Role in SVB's Final Days*, WALL ST. J. (June 15, 2023), <https://perma.cc/7XB3-N8PJ>; AnnaMaria Andriotis, Corrie Driebusch & Miriam Gottfried, *How Goldman's Plan to Shore Up Silicon Valley Bank Crumbled*, WALL ST. J. (Mar. 15, 2023), <https://perma.cc/56VG-DFQ7> [hereinafter Andriotis et al., *Goldman's Plan*].
43. Candice Choi, *The Banking Crisis: A Timeline of Key Events*, WALL ST. J. (May 11, 2023), <https://perma.cc/NT9Q-RV67>.
44. Hakyung Kim, *Stocks Making the Biggest Moves After Hours: Silvergate Capital, MongoDB, Uber and More*, CNBC (Mar. 8, 2023), <https://perma.cc/9TKS-FQ8H>.
45. Krystal Hu, Anna Tong & Ananya Mariam Rajesh, *Silicon Valley Bank Scrabbles to Reassure Clients After 60% Stock Wipe-Out*, REUTERS (Mar. 10, 2023), <https://perma.cc/MY64-3L85>.
46. Ben Foldy, Rachel Louise Ensign & Justin Baer, *How Silicon Valley Turned on Silicon Valley Bank*, WALL ST. J. (Mar. 12, 2023), <https://perma.cc/4RSZ-EHFS>.
47. *Id.*
48. Austin Weinstein, *SVB Depositors, Investors Tried to Pull \$42 Billion Thursday*, BLOOMBERG (Mar. 10, 2023), <https://perma.cc/6XQN-J2TF>.
49. Rose, *supra* note 33 (stating that SVB faced 62% of deposit outflows in a single day).
50. SVBFG, *supra* note 7, at 95.

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negative cash balance of approximately \$1 billion.⁵¹ This report is consistent with a scenario where SVB had about \$15 billion in cash on its balance sheet immediately before the AFS sale (i.e., \$2 billion more than at year-end 2022) and used this cash, plus the \$26.1 billion in AFS sale proceeds, to satisfy \$41 billion of the \$42 billion in withdrawal requests that came in on March 9. This left SVB with no cash to fund the remaining \$1 billion in outstanding requests or any further withdrawals received on March 10.

Although over half of SVB's portfolio consisted of securities that qualified as "high-quality liquid assets,"⁵² SVB's liquid assets were still evidently insufficient to stem the run. As noted above, selling HTM securities would require such securities to be marked to market, placing SVB close to insolvency. Furthermore, practically speaking, such a sale would have been too slow to meet its immediate liquidity needs. SVB privately continued to attempt to complete its equity capital raise throughout the day on March 9.⁵³ Although it had secured a commitment for \$500 million, it could not obtain commitments for the remaining \$1.75 billion and the attempt ultimately failed to raise any funds.⁵⁴ SVB thus required an immediate external liquidity source to continue meeting its customers' withdrawal requests without risking insolvency, and it turned to the SF FHLB and the San Francisco Fed as lenders of last resort.

C. The Failure of Lender of Last Resort to Avert SVB's Collapse

Although SVB had become illiquid, it was still solvent. SVB had assets (HTM securities and loans) that could have served as sufficient collateral to obtain large loans from the FHLB or the Fed. SVB's borrowing capacity would have been even greater had the Fed been willing to reduce the haircuts (i.e., discounts to market value) it applied to pledged assets or value SVB's HTM assets at par rather than market value.⁵⁵ However, operational and procedural shortcomings and the Fed's ostensible assessment that SVB's assets were insufficient to collateralize a loan sufficient to stem the run prevented the FHLB and Fed from acting as effective lenders of last resort.

By the end of 2022, SVB had \$25.9 billion in collateral pre-pledged to the SF FHLB and available to finance additional liquidity borrowing.⁵⁶ Some or all of this collateral evidently remained available as of March 9, 2023, as SVB first attempted to borrow \$20

51. Silicon Valley Bank, Cal. Dep't of Fin. Prot. & Innovation (Mar. 10, 2023), <https://perma.cc/HQ6W-SW33> (order taking possession of property and business).
52. Bill Nelson, *The Middle Course: What Fed History Teaches Us About Liquidity Requirements*, BANK POL'Y INST. (Aug. 22, 2023), <https://perma.cc/X2ZX-23NS>.
53. Andriotis et al., *Goldman's Plan*, *supra* note 42.
54. *Id.*
55. See *infra* Part II.A.
56. SVBFG, *supra* note 7, at 87.

billion from the SF FHLB against its pre-pledged collateral.⁵⁷ Though ultimately a larger loan may have been required to stem the run, relying on pre-pledged collateral may have been the logical first step for SVB's management in order to obtain the maximum amount of liquidity in a short timeframe. However, unlike the Fed, which can finance loans by creating money, the FHLBs must finance such loans by issuing short-term debt.⁵⁸ The SF FHLB informed SVB that there was insufficient time left in the business day to issue bonds to finance a loan of that size.⁵⁹

SVB also had \$5.3 billion in collateral pre-pledged to the Fed and available to support borrowing at the end of 2022.⁶⁰ Assuming that a similar amount remained available as of March 2023, this was still insufficient to support a loan necessary to secure SVB's liquidity, thus necessitating the transfer of additional collateral.⁶¹ SVB first asked the SF FHLB to transfer \$20 billion of its pre-pledged collateral to the Fed. But before such a transfer could occur, the SF FHLB needed to complete various procedural steps that it could not complete that day, including recalculating SVB's collateral requirements for its outstanding loans with the SF FHLB.⁶² The FHLBs were thus unable to avert SVB's illiquidity.⁶³

Once it became clear that the SF FHLB could not support the required borrowing or transfer the collateral to the Fed, SVB asked its custodial bank, BNY Mellon, to transfer \$20 billion of SVB's government securities (presumably some portion of its HTMs) as additional collateral to the Fed.⁶⁴ Such transfers must take place via the

57. Hannah Miao, Gregory Zuckerman & Ben Eisen, *How the Last-Ditch Effort to Save Silicon Valley Bank Failed*, WALL ST. J. (Mar. 22, 2023), <https://perma.cc/AD5H-NQRH>.
58. *Funding*, FED. HOME LOAN BANK OFF. OF FIN., <https://perma.cc/JQ5L-GDP3> (noting that "the fundamental business of the FHLBanks is . . . to provide primary liquidity to the U.S. housing market The FHLBanks raise money . . . through the daily sale of debt securities").
59. Miao et al., *supra* note 57.
60. SVBFG, *supra* note 7, at 87.
61. Miao et al., *supra* note 57.
62. *Id.*
63. *Id.* (noting that the San Francisco FHLB was unable to assist SVB in a timely manner—either by extending a significant loan or by transferring \$20 billion of collateral to the Fed's discount window to enable emergency funding). SVB was also unable to access liquidity through the Fed's Standing Repo Facility ("SRF") because it did not register to use that program. *Something Happened: An Initial Try at an Explanation*, BANK POL'Y INST. (Mar. 10, 2023), <https://bpi.com/something-happened-an-initial-try-at-an-explanation>. Like most other banks of its size, SVB evidently did not sign up due to the cost and because SVB's examiners indicated that it would not receive credit for SRF capacity in complying with its liquidity requirements. *Id.* While the SRF may be a helpful supplement to discount window borrowing, it is unlikely that the SRF could serve as a sole substitute for discount window borrowing, either for SVB or distressed banks generally, as liquidity is only available once per day at a set time and only for a one-day term at a time. *Id.*
64. *Id.*

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Fedwire system.⁶⁵ SVB made its request after BNY Mellon's daily cutoff time, but BNY Mellon agreed to an extension. However, Fedwire had its own daily cutoff at 7:00pm ET.⁶⁶ Although BNY Mellon attempted to complete the transfer on SVB's behalf before this deadline, the Fed required a "test trade" before the actual transfer.⁶⁷ This test trade could not take place before the deadline, and the Fed declined to extend the deadline.⁶⁸ It is unclear why the deadline was not extended, though it has been reported that the Fed's Board of Governors was not aware of the run until 3:00pm ET, which may suggest that there was insufficient time to coordinate an extension.⁶⁹ Regardless of the reason, at close of business on March 9, SVB did not have sufficient cash to cover all outstanding withdrawal requests and ended the day with a negative cash balance of approximately \$958 million.⁷⁰

On the morning of March 10, the \$20 billion collateral transfer that SVB had sought to complete from BNY Mellon the prior day reached the Fed.⁷¹ But by then, news of SVB's distress had spread further and SVB expected \$100 billion in withdrawals (representing 62% of deposits), which was beyond the \$42 billion in requests received the prior day.

At 8:15am PT on March 10, before SVB opened for business, the California bank regulator (the Department of Financial Protection and Innovation ("CDFPI")), in consultation with the FDIC and Fed, placed SVB into receivership proceedings, citing inadequate liquidity and insolvency.⁷² The CDFPI appointed the FDIC as receiver.⁷³ In testimony before the Senate Banking Committee, Michael Barr, then-Vice Chair for Supervision of the Fed, indicated that at the time SVB was placed in receivership, SVB "did not have enough cash or collateral" to keep up with the rapid pace of withdrawals.⁷⁴ The Fed has not clarified if this statement indicates an assessment that SVB had insufficient assets to pledge as collateral (as opposed to a simple assessment of assets that SVB had already pledged) to make further discount window loans to SVB a viable option to stem the run. If so, the Fed did not clarify the calculations underlying this assessment.

We estimated that SVB closed for business on March 9 with a negative cash

65. *Pledging Collateral*, FED. RSRV. DISC. WINDOW, <https://perma.cc/EPK9-65K3>.

66. *Id.*

67. Miao et al., *supra* note 57.

68. *Id.*

69. See *infra* note 202.

70. CDFPI, *supra* note 51.

71. Miao et al., *supra* note 57.

72. CDFPI, *supra* note 51, at 1.

73. *Id.*; Gruenberg, *supra* note 33, at 7.

74. *Bank Oversight: Hearing Before the S. Comm. on Banking, Hous., & Urb. Affs.*, 118th Cong. 3 (2023) (statement of Michael S. Barr, Vice Chair for Supervision, Fed. Rsrv.), <https://perma.cc/UPX2-5NZT>.

balance of just under \$1 billion. If one assumes that none of this \$100 billion was already reflected in the negative \$1 billion cash balance as of the end of March 9, SVB would have required a discount window loan of approximately \$101 billion to meet all outstanding withdrawal requests.⁷⁵

D. The Resulting Contagion in the U.S. Banking System

The run on SVB and its entry into receivership produced significant and costly consequences for the U.S. banking system. Most immediately, it sparked a contagion that triggered runs on twenty-one other U.S. banks, two of which failed: Signature Bank and First Republic. Relevant state banking agencies seized and placed each of the two banks in receivership proceedings, appointing the FDIC as receiver. The FDIC then arranged for sales to private acquirers.⁷⁶

Signature Bank (“Signature”) was the twenty-ninth largest U.S. bank, with total assets of \$110 billion.⁷⁷ As a New York-chartered bank that was not a member of the Federal Reserve system, its primary federal regulator was the FDIC, not the Fed.⁷⁸ Signature primarily served clients in the cryptoasset industry. Like SVB, over 90% of its deposits were uninsured as of December 31, 2022.⁷⁹ Moreover, the FDIC reported that as of year-end 2021, approximately 40% of total deposits were attributable to only sixty depositors and 14% of total deposits were attributable to only four depositors.⁸⁰ As in the case of SVB, the FDIC report suggested that this degree of depositor concentration was higher than at other banks.⁸¹ Also like SVB, Signature experienced rapid growth in the 2019-2022 period.⁸² However, rising interest rates and volatility in the cryptoasset industry caused deposits to decline over the course of 2022 by \$17.6 billion.⁸³ Public perception that Signature was associated with failed cryptoasset exchange FTX and related companies also resulted in increased scrutiny of Signature and speculation about its liquidity.⁸⁴ The announcement on March 8 of the self-

75. For an analysis of the validity of the assertion that SVB possessed insufficient collateral for a loan of this size, see *infra* Part II.
76. Press Release, FDIC, JPMorgan Chase Bank, National Association, Columbus, Ohio Assumes All the Deposits of First Republic Bank, San Francisco, California (May 1, 2023), <https://perma.cc/KJY8-QAY6>.
77. FDIC, *supra* note 34, at 2.
78. *See id.*
79. *Id.* at 6.
80. *Id.* at 11.
81. *Id.*
82. *Id.* at 10-11.
83. *Id.* at 7.
84. *Id.* at 14-15. FTX was one of the largest cryptoasset trading platforms. It filed for bankruptcy in November 2022 after news emerged that the platform had misused

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liquidation of another cryptoasset lender, Silvergate, further intensified the speculation.⁸⁵

On March 10, the day after the run on SVB began, 20% of Signature's deposits were withdrawn.⁸⁶ Signature did not have sufficient cash to meet these withdrawal requests.⁸⁷ Like SVB, Signature sought to obtain a loan from the Fed's discount window. But unlike SVB, the Fed did extend Fedwire's hours to allow Signature to post the required collateral.⁸⁸ Despite this loan, Signature's deposit withdrawal requests continued to mount at an unsustainable level over the weekend.⁸⁹ Signature's ability to obtain additional discount window loans was also constrained by the Fed's refusal to accept as collateral certain of Signature's loans to obligors with foreign limited partners.⁹⁰

By the afternoon of Sunday, March 12, Signature still had \$7.9 billion in outstanding withdrawal requests but only had \$3 billion in liquid assets to meet those requests.⁹¹ As a result, the New York state banking regulator, in consultation with the FDIC, placed Signature into receivership proceedings on the afternoon of Sunday, March 12, and appointed the FDIC as receiver.⁹²

First Republic, the fourteenth largest U.S. bank with total assets of \$212.6 billion, also collapsed soon after SVB.⁹³ First Republic's business model focused on serving wealthy clientele and providing enhanced customer service.⁹⁴ During the first quarter of 2023, its deposits fell by more than \$100 billion, from \$176 billion as of year-end 2022

customer assets. *See generally* David Yaffe-Bellany, *New Chief Calls FTX's Corporate Control a 'Complete Failure'*, N.Y. TIMES (Nov. 17, 2022), <https://perma.cc/VF3T-6T9P>; Memorandum from FSC Majority Staff to Members, Committee on Financial Services (Dec. 13, 2022), <https://perma.cc/E932-M9UQ>.

85. FDIC, *supra* note 34, at 15.
86. *Id.* at 15.
87. *Id.*
88. Hal S. Scott, President, Comm. on Cap. Mkts. Regul., Panel Presentation at Dallas Fed Roundtable: Lender of Last Resort (July 18, 2024), <https://perma.cc/5YDA-XQRF>
89. FDIC, *supra* note 34, at 15.
90. *Id.* at 12. The Fed's policy is generally not to accept loans to foreign obligors as discount window collateral, due to the risk that the Fed would not be able to perfect and enforce a security interest on such collateral. *See Collateral Eligibility*, FED. RSRV. DISC. WINDOW, <https://perma.cc/6M9H-L6X9>. Presumably, Signature sought to persuade the Fed, unsuccessfully, that the existence of foreign limited partners in the obligors on some of its loans did not conflict with this policy.
91. FDIC, *supra* note 34, at 16.
92. *Id.*
93. *Insured U.S.-Chartered Commercial Banks That Have Consolidated Assets of \$300 Million or More, Ranked by Consolidated Assets*, FED. RSRV. (Dec. 31, 2022), <https://perma.cc/4JWE-DY5A>.
94. Rachel Louise Ensign et al., *Why First Republic Bank Collapsed*, WALL ST. J. (May 1, 2023), <https://perma.cc/GY67-ZMXK>.

to \$74 billion by the end of March 2023—most of which occurred as a result of the contagion following SVB’s entry into receivership on March 10.⁹⁵ In an effort to stay ahead of mounting deposit withdrawals, First Republic obtained a \$30 billion infusion of deposits from a consortium of eleven major U.S. banks on March 16.⁹⁶ It also borrowed up to \$109 billion from the Fed’s discount window⁹⁷ and \$13.8 billion from the Fed’s newly established Bank Term Funding Program.⁹⁸ Although these loans were enough to avert an immediate liquidity crisis, deposit requests continued to mount throughout March and April, and the interest rates it had to pay on Fed and FHLB loans exceeded the rates it was earning on its assets, placing First Republic at continued risk of insolvency.⁹⁹ Eventually, the CDFPI and FDIC seized First Republic and caused its assets and liabilities to be assumed by JPMorgan.¹⁰⁰ Because an acquisition of First Republic was arranged before it was declared insolvent, First Republic was not placed in a receivership.

E. The Protection of Uninsured Depositors and the Creation of the BTFP

The Fed, the FDIC, and the Secretary of the Treasury took two major actions in an effort to stem the contagion arising from the failure of SVB: (1) invoking the systemic risk exception to protect uninsured depositors of SVB and Signature, and (2) creating a new Fed bank lending facility outside the discount window.

1. Protection of Uninsured Depositors Under the Systemic Risk Exception

The Federal Deposit Insurance Act (“FDIA”) requires that the FDIC resolve a failed bank in a manner that minimizes the cost to the FDIC’s Deposit Insurance Fund (“DIF”).¹⁰¹ The DIF is funded by contributions from insured banks, which pay a premium for the insurance coverage that the FDIC provides to the banks’ depositors.¹⁰² This “least-cost resolution” requirement entails that the resolution of a failed bank cannot involve the use of DIF monies to pay out deposit claims in excess of FDIC

95. Gordon Smith, *FirstFT: First Republic Deposit Withdrawals Hit \$100bn*, FIN. TIMES (Apr. 25, 2023), <https://perma.cc/T3TG-ZTS7>.
96. David Benoit et al., *Eleven Banks Deposit \$30 Billion in First Republic Bank*, WALL ST. J. (Mar. 16, 2023), <https://perma.cc/AYZ2-XM7X>.
97. *Id.*
98. Lorenzo Migliorato, *First Republic Taps Fed Facilities in Effort to Plug Funding Hole*, RISK.NET (Apr. 26, 2023), <https://perma.cc/KB5L-5ZWA>. See also *infra* Part II.E.
99. FDIC OFF. OF INSPECTOR GEN., MATERIAL LOSS REVIEW OF FIRST REPUBLIC BANK 24-25 (2023), <https://perma.cc/8X79-C44Y>.
100. FDIC, *supra* note 76.
101. 12 U.S.C. § 1823(c)(4).
102. *Id.* §§ 1815, 1817.

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insurance limits (“uninsured deposits”), which are currently \$250,000 per depositor, per account type, per bank.¹⁰³

However, the FDIA also provides for the suspension of the least-cost resolution requirement if two-thirds of the Board of Governors of each of the Fed and FDIC recommend, and the Secretary of the Treasury (in consultation with the President) determines, that the requirement “would have serious adverse effects on economic conditions or financial stability” (the “systemic risk exception”).¹⁰⁴ This means that DIF monies can be used on an emergency basis to protect uninsured deposits. Any loss to the DIF as a result of the systemic risk exception must be repaid via a special assessment on FDIC-insured banks.¹⁰⁵

In 2010, the Dodd-Frank Act made an important change to the systemic risk exception by limiting its scope to banks that have already been placed in an FDIC receivership.¹⁰⁶ As such, the systemic risk exception cannot be used as a preemptive measure to avoid a bank failure by preemptively guaranteeing a bank’s uninsured deposits outside of resolution. Dodd-Frank also imposed another important limit on the FDIC’s authority to preempt a bank failure by requiring a joint resolution of Congress before the FDIC authorizes an increase in deposit insurance limits for banks.¹⁰⁷ But obtaining the joint resolution of Congress in time to respond to the events of the March 2023 crisis would have been impracticable. This meant that the FDIC could not use a general increase in insurance limits for all deposits across the banking system and could not increase deposit limits with respect to any of the distressed banks until the bank was placed in insolvency.

After SVB and Signature had been placed in receiverships, the Fed and FDIC recommended that the systemic risk exception be invoked.¹⁰⁸ In consultation with the President, the U.S. Treasury Secretary provided the requisite approval.¹⁰⁹ The invocation of the systemic risk exception allowed the FDIC to use DIF monies to guarantee all uninsured deposit claims against SVB and Signature, either by paying out uninsured deposit claims directly or arranging for a private acquisition that

103. *Id.* § 1821(a)(1)(E)-(F).

104. *Id.* § 1823(c)(4)(G)(i).

105. *Id.* § 1823(c)(4)(G)(ii).

106. Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, Pub. L. No. 111-203, § 1106(b)(1)(A), 124 Stat. 1376, 2125 (2010).

107. 12 U.S.C. §§ 5612-13. The FDIC invoked the exception five times during 2008-2009, including to establish the temporary liquidity guarantee program. MARK LABONTE, CONG. RSCH. SERV., IF12378, BANK FAILURES: THE FDIC’S SYSTEMIC RISK EXCEPTION (Apr. 23, 2023), <https://perma.cc/LW2E-2YQV>; FDIC, OPTIONS FOR DEPOSIT INSURANCE REFORM 19 (2023), <https://perma.cc/Z7NB-EN8Z>.

108. See Press Release, Fed. Rsr., FDIC & Dep’t of the Treasury, Joint Statement by the Department of the Treasury, Federal Reserve, and FDIC (Mar. 12, 2023), <https://perma.cc/EK9T-UKQ3>.

109. *Id.*

included the assumption of uninsured deposits.¹¹⁰

2. Creation of the Bank Term Funding Program

On the same day as the FDIC's recommendation, the Fed announced the establishment of a *new lending facility*: the Bank Term Funding Program ("BTFP").¹¹¹ The BTFP was established under section 13(3) of the Federal Reserve Act, which allows the Fed to make emergency loans under "unusual and exigent circumstances."¹¹² Because the BTFP was established under section 13(3), its establishment, pursuant to Dodd-Frank, required approval from the Department of the Treasury.¹¹³

Section 13(3) was added to the Federal Reserve Act to enable emergency lending to non-banks. Since then, the Fed has invoked it only sparingly, and principally to lend to non-banks. Before the 2008 financial crisis, all lending under section 13(3) occurred from 1932 to 1936 and amounted to \$1.5 million.¹¹⁴

The BTFP is the first facility established under section 13(3) that has been exclusively available to banks.¹¹⁵ Under the BTFP, collateral must consist of government securities, and loan collateral is not permissible.¹¹⁶ However, unlike under the discount window, government securities collateral was valued at par value rather than discounted market value.¹¹⁷ Moreover, whereas the terms of discount window loans are statutorily limited to four months, the BTFP permitted a maximum loan term of one year.¹¹⁸ The Treasury provided up to \$25 billion in credit protection using the

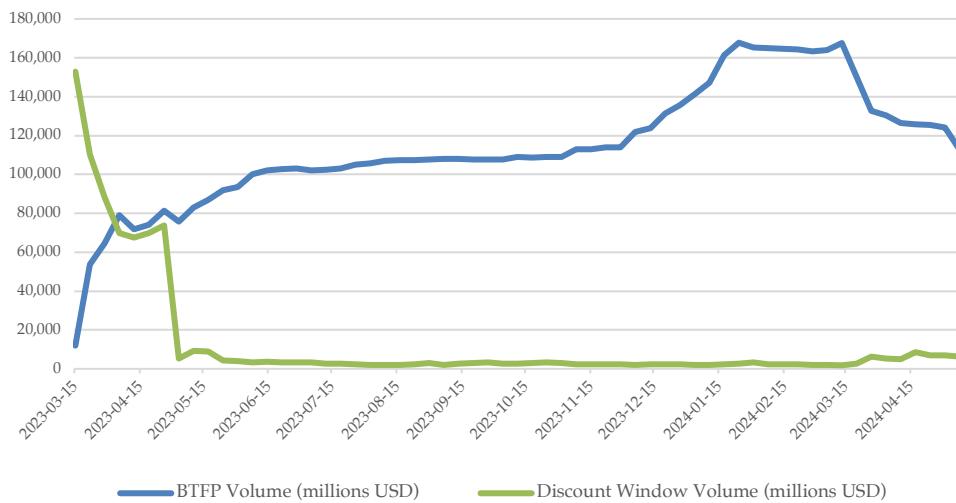
110. Federal Deposit Insurance Corporation Improvement Act of 1991 § 141(a)(4)(G), 12 U.S.C. § 1823(c)(4)(G).
111. *Bank Term Funding Program*, FED. RSRV (Apr. 11, 2025), <https://perma.cc/EVQ4-B252>.
112. FED. RSRV., PERIODIC REPORT: UPDATE ON BANK TERM FUNDING PROGRAM AUTHORIZED BY THE BOARD UNDER SECTION 13(3) OF THE FEDERAL RESERVE ACT (June 12, 2023), <https://perma.cc/V3Y4-PSLG>; 12 U.S.C. § 343 (3).
113. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 1101(a)(6), 124 Stat. 1376, 2113-14 (2010) (adding the following to section 13(3) of the Federal Reserve Act: "The Board may not establish any program or facility under this paragraph without the prior approval of the Secretary of the Treasury.").
114. Thomas C. Baxter, Jr., Gen. Couns., Fed. Rsr. Bank of N.Y., Presentation Delivered to Regulatory Response to the Financial Crisis: The Legal Position of the Central Bank, The Case of the Federal Reserve Bank of New York 5 (Jan. 19, 2009), <https://perma.cc/4BSN-3GKH>; SCOTT, *supra* note 1, at 91.
115. Scott, *supra* note 88, at 5.
116. Steven Kelly, *How the FDIC Sourced Crisis-Time Fed Funding Through the Failed Banks of 2023*, YALE SCH. MGMT. (Aug. 20, 2024), <https://perma.cc/NK9D-9NP5>.
117. *Id.*
118. Press Release, Fed. Rsr., Federal Reserve Board Announces It Will Make Available Additional Funding to Eligible Depository Institutions to Help Assure Banks Have the Ability to Meet the Needs of All Their Depositors (Mar. 12, 2023), <https://perma.cc/GFC3-ADRA>.

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Exchange Stabilization Fund for any losses the Fed realizes on loans it makes under the BTFP.¹¹⁹ From its inception, the BTFP was set up as a temporary facility: new BTFP loans were to be available to banks only until March 11, 2024, unless the Fed extended the term.¹²⁰

As illustrated in Figure 2, in its first week, the BTFP provided a total of \$11.9 billion in loans.¹²¹ By comparison, outstanding discount window loans increased from less than \$10 billion to \$152.85 billion during the same week.¹²² While total loans under the BTFP had increased to \$129 billion by May 31, 2023, by that time, any immediate contagion stemming from SVB's failure had largely been contained.¹²³ The BTFP expired as scheduled on March 11, 2024.¹²⁴

Figure 2: Usage of Discount Window and BTFP



119. *Id.*

120. *Id.*

121. Alex Harris & Craig Torres, *Banks Borrow \$164.8 Billion from Fed in Rush to Backstop Liquidity*, BLOOMBERG (Mar. 16, 2023), <https://perma.cc/JM46-QE38>.

122. *Id.*

123. FED. RSRV., *supra* note 112, at 1.

124. *Bank Term Funding Program: Frequently Asked Questions*, FED. RSRV. (Jan. 24, 2024), <https://perma.cc/QQ35-WH35>. The data suggest that banks may have been using the BTFP as an arbitrage opportunity unconnected with financial distress until the Fed modified the terms of the BTFP to end that opportunity in January 2024, at which point BTFP usage leveled off. *See infra* Part II.D.

F. The Costs of Resolving SVB, Signature Bank, and First Republic Bank

The resolutions of SVB and Signature and the sale of First Republic imposed substantial costs on the DIF, which will ultimately be borne across the banking system. As of April 2025, the combined cost to the DIF of the resolution of these three banks is expected to total approximately \$38.1 billion.¹²⁵ Of these costs, the FDIC estimates that \$16.3 billion is attributable to the protection of SVB's and Signature's uninsured depositors pursuant to the systemic risk exception.¹²⁶ These costs will eventually be recouped via special assessments on certain large banks and regular assessments on all insured banks, and these banks may pass the costs onto customers in the form of higher charges for services.

The resolutions of SVB and Signature occurred via the establishment of bridge banks. Bridge banks are temporary banks chartered by the FDIC that generally acquire substantially all the assets and assume insured deposit liabilities of a bank that enters FDIC-administered receivership proceedings. The remainder of the bank's liabilities usually remain in an FDIC-administered receivership. The bridge bank may also assume the failed bank's uninsured deposits when the assumption of uninsured deposits is consistent with the FDIC's obligation to accept the bid for a failing bank that imposes the least cost on the DIF, or when the systemic risk exception is invoked. Bridge banks continue to serve the insolvent bank's customers while the FDIC seeks an acquirer for the bridge bank's assets and liabilities. Depositors of the insolvent bank become depositors of the bridge bank and can withdraw funds or make additional deposits during the operation of the bridge bank, both of which occurred in the case of the SVB and Signature bridge banks. The FDIC's guarantee of uninsured deposits under the systemic risk exception remained in place only while the deposit was a liability of the bridge bank. Once the uninsured deposit liabilities were assumed by the acquirers, they no longer benefited from the FDIC's guarantee.¹²⁷ It is commonly the case that the deposits that the acquirer agrees to assume do not match exactly the market value of the assets that the acquirer wishes to acquire. In such cases, the acquirer either makes a cash payment or issues an IOU to the FDIC as receiver equal to the difference between the two values (when the market value of the assets exceeds the value of the assumed deposits, as in the case of SVB) or receives a cash payment from the FDIC (when the market value of the assets is less than the value of the

125. See *BankFind Suite: Bank Failures & Assistance Data*, FDIC, <https://perma.cc/95KA-ZG3C> (adding the estimated loss for SVB (\$19.7 billion), Signature (\$2.6 billion), and First Republic (\$15.8 billion)).

126. Special Assessment Pursuant to Systemic Risk Determination, 88 FED. REG. 83329, 83331 (Nov. 29, 2023) (to be codified at 12 C.F.R. pt. 327), <https://perma.cc/53KV-AWPV>.

127. See *Silicon Valley Bank: Customer FAQs*, FIRST CITIZEN BANK, <https://perma.cc/3ZDQ-MTGY> ("Your deposits will continue to be insured by the FDIC up to the maximum amount allowed by law. This maximum amount is \$250,000 per depositor, per insured bank, for each account ownership category.").

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assumed deposits, as in the case of Signature).

Any assets and liabilities of the bridge bank that cannot be transferred to an acquirer remain lodged in the bridge bank, which is then placed into a separate receivership. The FDIC then seeks to liquidate those assets and liabilities. The original failed bank receivership holds a residual equity interest in the bridge bank receivership. As a result, in the case of each of the banks that were resolved using bridge banks—SVB and Signature—there are two separate receivership entities, each with its own assets and liabilities.

On Sunday, March 12 at 6:15pm ET / 3:15pm PT, the Secretary of the Treasury, with the requisite concurrence of the President, invoked the systemic risk exception with respect to the failures of SVB and Signature, allowing for the full protection of uninsured depositors in these banks. The FDIC then chartered Silicon Valley Bridge Bank, N.A. (“SVB Bridge Bank”) and Signature Bridge Bank, N.A. (“Signature Bridge Bank”). The same day, SVB Bridge Bank acquired substantially all of SVB’s approximately \$167 billion in assets and assumed all of SVB’s approximately \$119 billion in insured and uninsured deposit liabilities.¹²⁸ Also the same day, Signature Bridge Bank acquired substantially all of Signature’s \$110 billion in assets and assumed its approximately \$89 billion in insured and uninsured deposit liabilities.¹²⁹

In each case, the failed banks’ other liabilities remained in the respective FDIC receiverships. Fed documents disclose and testimony from Vice Chair Barr confirmed that the Fed extended a total of approximately \$179 billion in credit through the discount window to the SVB and Signature Bridge Banks¹³⁰ to provide the necessary liquidity to the bridge banks to continue serving customers during the pendency of these bridge banks.¹³¹

The Fed received credit protection for the loans it extended to the bridge banks in the form of collateral and an FDIC corporate guarantee. The collateral consisted of a priority security interest in the bridge banks’ assets. The FDIC, in its corporate

128. *Recent Bank Failures and the Federal Regulatory Response: Hearing Before the S. Comm. on Banking, Hous., & Urb. Affs.*, 118th Cong. 14, 17 (2023) (statement of Martin J. Gruenberg, Chairman, Fed. Deposit Ins. Corp.), <https://perma.cc/GS9Y-XTP4>.
129. Press Release, FDIC, FDIC Establishes Signature Bridge Bank, N.A., as Successor to Signature Bank, New York, NY (Mar. 12, 2023), <https://perma.cc/46ZK-T6LL>.
130. No breakdown of the allocation between them is yet public.
131. C-SPAN, Federal Officials Testify at House Hearing on Silicon Valley Bank Collapse, at 3:34:30 (Mar. 29, 2023), <https://perma.cc/G9E2-FNVN> (“These bridge institutions are nationally chartered banks eligible to borrow from the Fed and utilize that in order to manage the liquidity situation.”); *see also* Bill Nelson, *The Mysterious Footnote 7: To Whom And on What Terms Is The Fed Lending \$173 Billion*, BANK POL’Y INST. (Apr. 20, 2023), <https://perma.cc/AJS5-JKYD>. The bridge banks’ assumption of uninsured deposit liabilities and the built-in losses in the banks’ securities portfolios meant that the bridge banks were likely much less solvent than the prototypical bridge bank and, but for the FDIC’s guarantee, may have been close to insolvency if the securities assets were valued at market value. *See infra* Part II.E.

capacity, also guaranteed repayment of the full amount of the loans. The FDIC evidently based its claim of authority for this guarantee on its general authority to issue obligations, including guarantees, under the FDIA.¹³² This may have been the first time that the FDIC used this general authority to provide such a guarantee to the Fed. Both of these credit protections remained in place as the discount window loans were not assumed by the bridge bank acquirers and thus remained in the bridge bank receivership: The Fed retained its security interest in the banks' securities portfolios in the receiverships, and the FDIC's guarantees remained in place with respect to the Fed's claims against the receiverships.¹³³

1. Resolution of Signature Bank

On Monday, March 13, the SVB and Signature Bridge Banks opened for business and began serving former customers of SVB and Signature.¹³⁴ On March 15, the FDIC began soliciting bids from other banks to acquire the bridge banks.¹³⁵ Of the five bids received with respect to Signature Bridge Bank, the FDIC approved the bid of Flagstar Bank.¹³⁶ On March 19, Flagstar Bank acquired approximately \$38 billion of Signature Bridge Bank's assets, including loan assets of \$12.9 billion, and assumed \$34 billion in deposit liabilities, which constituted all of Signature's deposit liabilities except for \$4 billion from cryptoasset customers.¹³⁷ In exchange, Flagstar issued the FDIC common stock appreciation rights worth up to \$300 million.¹³⁸

Approximately \$60 billion of Signature's loan assets remained in the Signature

132. See 12 U.S.C. §§ 1825-26.

133. We note as well that the Fed evidently has another mechanism for credit protection that, for unknown reasons, it did not draw upon. Namely, the Fed has reported that it is the beneficiary of an indemnity agreement with the FDIC under which the FDIC agrees to repay any outstanding discount window loan liabilities of an insolvent bank in return for the Fed's surrender of its rights to the collateral securing those loans. Bill Nelson, *Forward Guidance: FOMC Call and New Info on the Fed's Loans to the FDIC*, LINKEDIN (Jun. 13, 2023), <https://perma.cc/RC6F-ZDPK>. It is unclear whether the Fed had a right to demand immediate repayment under the indemnity agreement in the case of SVB and Signature, and if it did, why it chose not to exercise it, rather than remain a secured creditor of the receiverships pending liquidation of the receiverships' assets. *Id.*

134. *Recent Developments: Silicon Valley Bank and Signature Bank*, COOLEY (Mar. 13, 2023), <https://perma.cc/786B-TRND>.

135. Gruenberg, *supra* note 128.

136. *Id.*

137. Press Release, FDIC, Subsidiary of New York Community Bancorp, Inc., to Assume Deposits of Signature Bridge Bank, N.A., from the FDIC (Mar. 20, 2023), <https://perma.cc/T5W8-R4DY>; N.Y. Cmty. Bancorp, Inc., Current Report (Form 8-K) (Mar. 19, 2023), <https://perma.cc/4HE5-ZV5W>.

138. Gruenberg, *supra* note 128, at 16.

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receivership for later disposition by the FDIC.¹³⁹ As of September 30, 2023, the Signature receivership and Signature bridge bank receivership retained combined assets of approximately \$60.9 billion. Their combined liabilities totaled \$61.1 billion and consisted primarily of \$39 billion in FDIC subrogated deposit claims. These claims arise when the FDIC pays out depositors of the failed bank and thereby takes over the claims of the depositors against the failed bank. These deposit payouts generally arise from two sources: (1) Depositors that initiated withdrawal requests that were not fulfilled before the failure and that the bridge bank then fulfilled, or (2) deposit liabilities that the private acquirer did not assume, and were thus left in the bridge bank receivership to be paid out with the receivership's remaining assets.¹⁴⁰ The FDIC then seeks to recover as much of these claims as it can through the liquidation of the receivership's assets. To the extent the receivership's assets are insufficient to satisfy the FDIC's claims, the DIF realizes a loss.

2. Resolution of SVB

Of the twenty-seven bids received with respect to SVB Bridge Bank, the FDIC approved the bid of First Citizens.¹⁴¹ On March 27, First Citizens acquired approximately \$74.8 billion of SVB Bridge Bank's assets and assumed \$59 billion of its liabilities. The acquired assets consisted of all of SVB's \$72.1 billion in loan assets and \$2.7 billion in "other assets."¹⁴² The assumed liabilities consisted of \$56.5 billion of SVB's deposit liabilities (insured and uninsured) and \$2.5 billion in "other liabilities."¹⁴³ The FDIC also agreed to cover a share of First Citizens' losses, if any, arising from SVB's loan assets.¹⁴⁴ Furthermore, the FDIC provided \$35 billion in purchase money financing in exchange for a five-year note bearing interest at the favorable interest rate of 3.5% per annum.¹⁴⁵ The difference between the \$74.8 billion in assets First Citizens acquired and the \$59 billion in liabilities it assumed represented a discount of approximately \$16.5 billion to the book value of the SVB loan assets that First Citizens acquired, reflecting that the market value of those loan assets was less

139. FDIC, *supra* note 137.

140. Deposit payouts can also occur during the operation of the bridge bank—that is, after the bank has failed and before the private acquisition. In these cases, the deposit withdrawal does not generate a subrogated deposit claim because the withdrawal extinguishes the obligation of the bank to the depositor.

141. Gruenberg, *supra* note 136.

142. First Citizens BancShares, Inc., Current Report (Form 8-K) (Mar. 27, 2023), <https://perma.cc/F2RE-AEGK>.

143. *Id.*

144. *Id.*

145. *Id.*

than the value recorded on SVB's balance sheet.¹⁴⁶

However, the full extent of the discount, and the additional consideration the FDIC provided in the form of the loss share agreement and low-interest purchase money financing, may have also been attributable to other factors.¹⁴⁷ Contemporaneous reports indicated that approximately \$90 billion in assets, and an approximately equal amount of debt, primarily consisting of loans from the Fed and FHLBs, remained in the SVB receivership.¹⁴⁸ As of September 30, 2023, the SVB and SVB Bridge Bank retained a total of approximately \$100 billion in assets and \$116 billion in liabilities. These liabilities included \$59 billion in subrogated deposit claims held by the FDIC.¹⁴⁹

3. Resolution of First Republic Bank

In the case of First Republic, the unsustainable rate of deposit withdrawals led the CDFPI to seize First Republic on May 1, 2023, on the grounds that its business was being operated in an "unsound manner," and to appoint the FDIC as receiver.¹⁵⁰ Unlike in the cases of SVB and Signature, the banking agencies had arranged for a private acquirer to assume First Republic's insured and uninsured deposit liabilities *before* they placed the bank in receivership. Thus, simultaneously with the announcement that they had seized First Republic, the FDIC and CDFPI announced that JPMorgan had

146. *Id.*

147. First, buyers likely faced difficulty valuing these assets accurately under a short timeframe and in an environment where rising interest rates were continually affecting the value of SVB's portfolios of Treasuries and loans. Second, incenting a bank to buy the entirety of SVB's loan assets and a substantial portion of its deposit liabilities may have been difficult: The FDIC had to extend the bidding period to find an acceptable bid, and according to some reports it preferred a bank buyer over other potentially interested private equity acquirers, narrowing the range of potential acquirers. Luisa Beltran, *If the Feds Fail to Find Big Banks to Buy SVB and Signature, the Likeliest Buyers Are the One Group They Don't Want to Sell To*, FORTUNE (Mar. 17, 2023), <https://perma.cc/29WA-2SH5>; see also Letter from Sen. Bill Hagerty to Hon. Martin Gruenberg, Chairman, FDIC (Mar. 10, 2023), <https://perma.cc/D89S-AGR8>. In particular, a bank buyer may have also required a higher discount as compensation for the potential increases to its capital and liquidity requirements as a result of the acquisition of a substantial loan portfolio. Third and more generally, the bidding process for the bridge banks also raises the question of what efforts the FDIC made to arrange a sale of SVB or Signature to a strong acquirer before invocation of the systemic risk exception, as occurred with First Republic, including whether and why any bids may have been rejected. See Randal K. Quarles, *What Congress Should Ask Regulators in SVB's Aftermath*, WALL ST. J. (Mar. 27, 2023), <https://perma.cc/BHF3-J83T>.

148. Gruenberg, *supra* note 128, at 17.

149. In placing SVB and Signature in FDIC-administered receivership procedures, the regulators also did not make use of the Orderly Liquidation Authority. See *infra* Part II.F.

150. First Republic Bank, CDFPI (May 1, 2023), <https://perma.cc/575R-2F97> (order taking possession of property and business).

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agreed to pay \$10.6 billion to acquire a substantial majority of First Republic's assets, equal to \$185.8 billion, and assume all of its deposits, insured and uninsured, and certain other liabilities, equal to \$167.8 billion.¹⁵¹ As in the case of the SVB, the FDIC also agreed to share a portion of JPMorgan's future losses, if any, on First Republic's loans.¹⁵² Because JPMorgan agreed to acquire all of First Republic's deposits, a systemic risk determination was not necessary with respect to First Republic.¹⁵³ Also as in the case of SVB and Signature, the unacquired assets and liabilities remained in the FDIC-administered receivership. As of September 30, 2023, the First Republic receivership had negative equity of \$17 billion.

As of April 2025, the total cost to the DIF of the resolution of SVB and Signature was \$19.4 billion and \$2.7 billion, respectively.¹⁵⁴ The FDIC estimated that \$15.7 billion and \$0.6 billion, respectively, of the total losses from SVB and Signature were attributable to the protection of uninsured depositors.¹⁵⁵ The FDIC also estimated that the cost to the DIF of the JPMorgan purchase of First Republic, under which uninsured depositors retained the full value of their claims, would be about \$15.8 billion.¹⁵⁶ These loss estimates may be adjusted as the FDIC proceeds with asset liquidation.

This amounts to \$38.3 billion in total costs being borne by the DIF, which, by the end of 2024, had assets of \$137.1 billion.¹⁵⁷ The portion of these losses attributable to the protection of uninsured depositors reflects losses the FDIC will incur as a result of paying out uninsured depositors whose claims were not assumed by the private acquirers and stepping into the shoes of those depositors (via subrogation) as creditors of the failed banks' receiverships. It also reflects a portion of the additional consideration that the FDIC had to extend to the private acquirers. This includes, for example, loss-share agreements and favorable purchase money financing that caused the FDIC to assume the uninsured deposit liabilities. According to the FDIC's estimates, the assets of these receiverships do not have sufficient market value in liquidation to pay out the full amount of the FDIC's subrogated claims. Indeed, the balance sheets for each of the bridge banks and receiverships confirm that the FDIC possesses substantial subrogated deposit claims against the bridge banks and receiverships, and that the assets of the receiverships and bridge banks are less than

151. JPMORGAN CHASE & CO., JPMORGAN CHASE ACQUIRES SUBSTANTIAL MAJORITY OF ASSETS AND ASSUMES CERTAIN LIABILITIES OF FIRST REPUBLIC BANK 2 (2023), <https://perma.cc/FA8Q-UJ67>.

152. *Id.*

153. *Distressed Bank Developments: First Republic Receivership; Government Reports on SVB and Signature Bank; Next Steps in Distressed Bank Resolutions*, SIDLEY (May 1, 2023), <https://perma.cc/UY6U-35WV>.

154. FDIC, *supra* note 125.

155. FDIC, *supra* note 126, at 83331.

156. See FDIC, *supra* note 125.

157. Courtney Smith, *Insurance Fund Indicators*, 19 FDIC Q. 31, 31 (2025).

the outstanding claims against them.¹⁵⁸

The FDIA requires that any loss to the DIF arising from the use of the systemic risk exception must be recovered from one or more special assessments on insured banks.¹⁵⁹ In November 2023, the FDIC finalized a special assessment with respect to SVB and Signature that is to be apportioned among insured banks that are part of banking organizations with more than \$5 billion in uninsured deposits based on the relative values of each bank's uninsured deposits as of December 31, 2022.¹⁶⁰ The total assessment is \$16.3 billion.¹⁶¹ Because the FDIC did not invoke the systemic risk exception for First Republic, no special assessment will be made with respect to First Republic. However, the costs arising from the First Republic resolution reduced the size of the DIF, and, unless the FDIC implements higher deposit insurance premiums, it will take longer for the fund to be replenished over time through regular deposit insurance premiums and interest on DIF investments.

Following these events, no additional U.S. banks have entered receivership or insolvency apart from two small banks which had no apparent connection to the failure of SVB.¹⁶² Thus, although some combination of the Fed's discount window lending, the resolution of these banks including the guarantee of uninsured deposits pursuant to the systemic risk exception, and the availability of the BTFP ultimately stemmed the contagion, these measures came at an estimated cost of approximately \$38.3 billion to insured banks, which may pass on these costs to their customers.¹⁶³

II. ANALYSIS AND RECOMMENDATIONS FOR REFORM

In this Part, we analyze the performance of the lender of last resort and the actions of banking regulators in response to the SVB crisis, with the goal of developing recommendations for reforms that will contribute to the future stability of the U.S. banking system. The reforms address three main areas: (1) optimizing the operational capabilities and lending policies of the Fed's lender of last resort facilities, (2) calibrating the deposit insurance and liquidity frameworks to better coordinate with lender of last resort facilities in stabilizing the banking system, and (3) reassessing

158. See *Silicon Valley Bridge Bank – Receivership Balance Sheet Summary*, FDIC, <https://perma.cc/5PSY-AR3J>; *Signature Bank – Receivership Balance Sheet Summary*, FDIC, <https://perma.cc/2YEG-YB54>; *First Republic Bank – Receivership Balance Sheet Summary*, FDIC, <https://perma.cc/8PML-JL3W>.

159. 12 U.S.C. § 1823(c)(4)(G)(ii); Memorandum from Patrick Mitchell, Dir., Div. of Ins. & Rsch., to the Bd. of Dirs. (May 11, 2023), <https://perma.cc/RSE4-7MQ5>.

160. FDIC, *supra* note 126, at 83331, <https://perma.cc/GQ7U-3G4G>.

161. *Id.*

162. *Failed Bank Information for Heartland Tri-State Bank, Elkhart, KS*, FDIC (July 28, 2023), <https://perma.cc/LGG9-2QGH>; *Failed Bank Information for Citizens Bank, Sac City, IA*, FDIC (Nov. 3, 2023), <https://perma.cc/Y2MG-MEJM>.

163. FDIC, *supra* note 125.

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aspects of the bank resolution framework to minimize the costs of future bank failures.

The fundamental purpose of a lender of last resort is to prevent contagion. This is the primary reason the Fed was created in 1913.¹⁶⁴ In this capacity, the Fed failed to prevent the crisis by lending to SVB, a solvent bank by applicable accounting standards. This failure resulted in a contagion that helped bring down two other banks and set off fear of an even wider bank run. The failure of the Fed to lend to SVB has raised major questions about its operational ability to be an effective lender of last resort to a bank with extremely high uninsured and concentrated deposits, in the midst of a speedy deposit run.

A. The Fed Should Lend to Solvent Banks with Sufficient Collateral

In determining the quantity and type of collateral that it requires as security for a discount window loan to a bank at risk of a liquidity crisis, the Fed must be prepared to exercise its discretion under the discount window statute and balance the risks of accepting less collateral against the risks of allowing contagion to spread in the banking system. In the case of both SVB in 2023 and Lehman Brothers in 2008,¹⁶⁵ the Fed arguably did not do so, which contributed to the failures of both banks and the ensuing contagion in the U.S. banking system.¹⁶⁶

Fed officials have indicated that as of March 10, they did not believe that SVB had enough collateral to stem the run via discount window loans.¹⁶⁷ But it remains unclear (1) what the size of the discount window loan was that the Fed thought SVB needed, (2) whether the difference between the par value and the market value of SVB's HTM portfolio or the effect of any applicable haircuts was dispositive of the Fed's assessment, and (3) whether the Fed would have declined to lend further to SVB in

164. David C. Wheelock, *Overview: The History of the Federal Reserve: 1913 to Today*, FED. RSRV. HIST. (Sep. 13, 2021), <https://perma.cc/GZ6Z-RGVF> (suggesting that at the time of its establishment, the Fed's primary purpose was "mak[ing] the American banking system more stable").

165. Lehman Brothers Holdings Inc. was a U.S. investment bank that filed for bankruptcy in September 2008 as a result of the subprime mortgage crisis. Lehman's failure triggered runs on several large U.S. money market funds, including those with no significant exposure to Lehman. See SCOTT, *supra* note 1, at 71-75 (2016).

166. Hal S. Scott, *An Essay on the Fed and the U.S. Treasury: Lender of Last Resort and Fiscal Policy*, 2021 HARV. J.L. & PUB. POL'Y PER CURIAM, no. 19, Fall 2021, at 1-2, <https://perma.cc/HLG6-XC4W>; Andrew Loo, *Is SVB the Next "Lehman Moment"?*, CORP. FIN. INST. (Mar. 14, 2023), <https://perma.cc/S8VK-932D>; Laurence Ball, *The Fed and Lehman Brothers* 183 (Nat'l Bureau of Econ. Rsch., Working Paper No. 22410, 2016), <https://perma.cc/U4KX-ZK6Z>.

167. Barr, *supra* note 74, at 3; Richard Ostrander, Gen. Couns. & Head of the Legal Grp., Remarks at the Paris Meeting of the Committee on International Monetary Law of the International Law Association (MOCOMILA), Paris, France (June 17, 2023), <https://perma.cc/TYT8-NMMA>.

any event due to its proximity to insolvency.

At the time SVB was placed in receivership, its assets included a portfolio of HTM securities consisting of Treasury and agency securities, which SVB's year-end 2022 balance sheet valued at \$91 billion.¹⁶⁸ The Fed accepts such securities as collateral to support discount window borrowing, but the Fed's policy is to value them at market value, not their par value.¹⁶⁹ As of early March 2023, it also subjected such collateral to haircuts ranging from 1% to 8%.¹⁷⁰ As noted above, the market value of SVB's HTM securities portfolio had declined to \$76.2 billion by December 2022.¹⁷¹ The Fed also accepts loan assets as collateral for discount window loans.¹⁷² SVB's year-end 2022 balance sheet recorded net loan assets worth \$73.6 billion at amortized cost (essentially, par value).¹⁷³ But as in the case of SVB's HTM securities portfolio, we do not know what the market value of these loans was as of March 2023. Determining the market value of these loans in real time would have also been a significant challenge for the Fed.

Moreover, the haircuts the Fed applies to loans vary widely depending on the type and characteristics of the loan. For example, the Fed's current policy is to discount a floating rate first lien mortgage loan by anywhere from 6% to 40% of its fair market value.¹⁷⁴ It is therefore impossible to know definitively how the Fed's haircut and valuation policies as of March 2023 would have valued SVB's loan portfolio. However, the acquisition deal between SVB Bridge Bank and First Citizens provides a clue about the market value of SVB's loan portfolio as of March 2023 by valuing SVB's loan portfolio at an approximately 22% discount to book value.¹⁷⁵ Even assuming that SVB's HTM portfolio was discounted by 8% and its loan portfolio's market value, subject to applicable discounts, was only 50% of the par value recorded on SVB's last balance sheet (i.e., far in excess of the discount applied by SVB's private acquirer), the combined value of these portfolios would have been \$106.9 billion. This estimate suggests that SVB may have had sufficient assets to collateralize a discount window loan to meet outstanding withdrawal requests under then-existing Fed policies.

168. SVBFG, *supra* note 7, at 65.

169. FED. RSRV. DISC. WINDOW, *supra* note 65.

170. *Securities Valuation and Margins Table: Effective March 14, 2022 to March 12, 2023*, FED. RSRV. DISC. WINDOW, <https://perma.cc/M9TZ-8UH9> (U.S. Treasuries and Agencies securities pledged as collateral were valued in a range 92%-99% of their market value by the Fed at the time).

171. SVBFG, *supra* note 7, at 125.

172. FED. RSRV. DISC. WINDOW, *supra* note 65.

173. SVBFG, *supra* note 7, at 95.

174. *Collateral Valuation*, FED. RSRV. DISC. WINDOW, <https://perma.cc/MR8B-MZVF> (noting that margins for floating rate first lien mortgages pledged as collateral in the discount window are 60%-94%).

175. See First Citizens BancShares, Inc., *supra* note 142.

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This estimate is of course based on the values of SVB's assets two months before the events in question.¹⁷⁶ But even assuming the market value of SVB's securities and loan portfolios declined during that two-month period to below the levels implied by the terms of the First Citizens acquisition, the Fed has wide discretion to vary its collateral valuation and haircut policies in a manner that could well have continued to accommodate further discount window loans to SVB. Indeed, on March 13, following the collapse of SVB, the Fed entirely eliminated the haircuts on U.S. government securities.¹⁷⁷

The Fed's current policy is to value all securities pledged as collateral for discount window lending at fair market value, including U.S. Treasury securities and fully guaranteed U.S. government agency securities, subject to varying discounts (haircuts) depending on the specific category of asset pledged.¹⁷⁸

Any lack of collateral under Fed policies was not a legal impediment to further discount window loans to SVB. Section 10B of the Federal Reserve Act authorized the Fed to make advances to member banks so long as they are "secured to the satisfaction of [the Fed]."¹⁷⁹ The Fed thus has the legal discretion to determine what assets, if any, it requires as collateral, and how those assets are valued, which should permit it to adopt a policy that values government securities collateral at par rather than fair market value. Such a policy would entail a risk of loss to the Fed of up to the difference between the par and fair market value of the collateral. It could also incentivize banks to allocate a greater portion of their assets to government securities rather than loans. Such risks, however, must be weighed against the risk of permitting contagion to spread through the banking system. Even if the bank ultimately cannot continue as a separate enterprise, extending adequately secured liquidity to a distressed bank allows for more time for a sale to be arranged outside receivership, thus avoiding a bank failure that can increase the risk of contagion.

The difference between the market value and par value of SVB's HTM portfolio at the time of its collapse was approximately \$15 billion.¹⁸⁰ This difference approximates the Fed's potential loss if it had extended a loan based on the assets' par value and were to liquidate the collateral at market value. By comparison, the direct costs of the resolutions of SVB, Signature, and First Republic alone amounted to almost \$40 billion,¹⁸¹ and had the contagion spread further, these costs could have increased further. Moreover, as of March 8, 2023, SVB's HTM portfolio constituted

176. Specifically, the values are drawn from SVB's year-end 2022 financial statements. *See* SVBFG, *supra* note 7.

177. *Securities Valuation and Margins Table: Effective March 13, 2023 to March 14, 2023*, FED. RSRV. DISC. WINDOW, <https://perma.cc/E9GS-4WTD>.

178. FED. RSRV. DISC. WINDOW, *supra* note 65.

179. 12 U.S.C. § 347b(a).

180. *See supra* note 16 and accompanying text.

181. *See supra* note 125 and accompanying text.

approximately 1.9% of the total value of the Fed's portfolio of Treasury securities such that any losses on the collateral would have had a minimal impact on the Fed's balance sheet.¹⁸² Of course, the Fed will need to carefully balance the relevant risks on a case-by-case basis. In cases where the Fed chooses to accept collateral at par value, the market value of the collateral should still be publicly disclosed.

It was possible that if SVB had been able to receive additional discount window loans, the run would have been stemmed, SVB would have avoided insolvency, and the Fed would have incurred no losses. In the case of the run on Continental Illinois in 1984, discount window lending was one of the sources of liquidity that allowed the bank to stem the run and avoid failure.¹⁸³ In addition, it is unclear whether in assessing SVB's ability to remain solvent the Fed considered the U.S. GAAP carveout that allows a bank facing a bank run to avoid reclassifying and recognizing losses on its entire HTM portfolio when selling a portion of those HTM securities.¹⁸⁴ Once the run on SVB began, the availability of that carveout would have increased SVB's ability to obtain liquidity by liquidating a portion of that portfolio without approaching insolvency by having to reclassify the remainder of its HTM portfolio under prevailing accounting standards.

The Fed has shown that it is willing to adjust its collateral policies in response to a crisis, but it chose to do so *after* SVB failed. More specifically, later in March 2023, after SVB failed, the Fed reduced the haircuts it applies to government securities collateral for purposes of discount window lending.¹⁸⁵ The Fed also had the authority to make similar adjustments both to the haircuts on government securities and loan assets in the lead-up to the failure of SVB. Indeed, the Fed is evidently willing in principle to accept securities as collateral at par value, as evidenced by the BTFP rules, which provide that these securities are valued at par (albeit with section 13(3) Treasury credit protection).¹⁸⁶ Had the Fed adjusted its policies to value SVB's government securities collateral at par *before* SVB's failure, it could have increased SVB's capacity to borrow from the discount window, and potentially averted SVB's failure.

182. See *Federal Reserve Statistical Release: Factors Affecting Reserve Balances*, FED. RSRV. (Mar. 9, 2023), <https://perma.cc/358F-9ZNT>.

183. In 1984, Continental Illinois was one of the largest banks in the United States. It experienced a massive bank run (losing 30% of deposits within 10 days) following rumors that the bank was in distress. It avoided insolvency by replacing the lost funding with discount window loans and an FDIC guarantee of all the bank's creditors. See *Continental Illinois: A Bank That Was Too Big to Fail*, FED. RSRV. HIST. (May 15, 2023), <https://perma.cc/D82D-PYRW>.

184. See *supra* note 19 and accompanying text.

185. See *Historical Collateral Margins Tables*, FED. RSRV. DISC. WINDOW, <https://perma.cc/RM6X-RV2D> (last visited Aug. 9, 2023).

186. FED. RSRV., *supra* note 118.

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B. The Fed Should Publicize Its Intention to Support Liquidity in a Crisis

At the earliest sign of a potential contagion, the Fed should clearly and publicly state that it is ready and willing to support the liquidity of solvent banks. An example of such a signal is the public statement by then-European Central Bank President Mario Draghi in 2012 that the ECB would do “whatever it takes to preserve the euro” in the midst of the European debt crisis.¹⁸⁷ The Fed failed to make such a statement when the run on SVB began. Had the Fed clearly stated on March 9 that it was prepared to lend as necessary to SVB, the additional \$100 billion in withdrawals that SVB experienced on March 10 may not have occurred and the contagion may have thus been limited.

The Fed has during prior crises made statements that—though not as direct as President Draghi’s—could signal a general intention to support liquidity. In 2008, then-Chair of the Fed Ben Bernanke discussed publicly the “steps the Fed had taken in response to the developing crisis,” including trying to “make discount window borrowing through the regular primary credit program more attractive.”¹⁸⁸ During the March 2020 COVID crisis, Fed Chair Powell stated that the Fed would “act as appropriate to support the economy.”¹⁸⁹ The Fed also issued a statement to the effect that it “encourage[d] depository institutions to use the discount window to meet demands for credit from households.”¹⁹⁰ Recent empirical research has suggested that public statements from the Fed about banking stability have the potential to reassure depositors and prevent bank runs.¹⁹¹ It is unclear why the Fed did not make such a statement in March 2023, though it may be that events simply moved too quickly. In future crises, the Fed must take quicker action to voice its intentions to support liquidity with discount window lending.

C. Operational Improvements to the Discount Window Are Necessary

The events of March 2023 show that bank runs can occur faster than they did in the past. SVB experienced a total outflow of 25% of its deposits in one day.¹⁹² A further

187. EURONEWS, *ECB’s Draghi to the Euro’s Rescue?*, at 00:23-00:28 (YouTube, July 26, 2012), <https://perma.cc/6D39-3D96>.
188. Ben S. Bernanke, Chairman, Fed. Rsrv., Liquidity Provision by the Federal Reserve (May 13, 2008), <https://perma.cc/UP7J-KJXZ>.
189. Howard Schneider, *Powell Says Fed Ready to Act as Coronavirus Poses “Evolving” Economic Risks*, REUTERS (Feb. 28, 2020), <https://perma.cc/HC7A-C83D>.
190. Press Release, Fed. Rsrv., FDIC & OCC, Statement on Use of Discount Window (Mar. 16, 2023), <https://perma.cc/2ATJ-7XZS>.
191. See Damiano Sandri et al., *Keep Calm and Bank on: Panic-Driven Bank Runs and the Role of Public Communication* 30, (Nat’l Bureau of Econ. Rsch., Working Paper No. w31644, 2023), <https://perma.cc/Z5QV-63QF>.
192. Rose, *supra* note 33.

outflow of 62% of SVB's deposits was anticipated to occur on the following day.¹⁹³ Signature Bank experienced an outflow of 20% of its deposits in one day, with a further outflow of 9% expected the next day.¹⁹⁴ By comparison, when Continental Illinois experienced a run in 1984, it took seven business days (ten days in total) for 30% of its deposits to be withdrawn.¹⁹⁵ In 2008, it took twelve business days (sixteen days in total) for 10.1% of Washington Mutual's deposits to be withdrawn.¹⁹⁶ Similarly, in 2008, 4.4% of Wachovia's deposits were withdrawn over fifteen business days (nineteen days in total).¹⁹⁷

The events on March 9 (when SVB unsuccessfully sought to obtain a \$20 billion liquidity loan from both the SF FHLB and Fed) seem to indicate that the FHLBs and the Fed were operationally unprepared for the unprecedented speed of a bank run in 2023. In July 2023, the Fed issued a statement encouraging banks "to incorporate the discount window as part of their contingency funding arrangements" and to ensure that they have the operational readiness to draw on discount window funding on short notice.¹⁹⁸ While this is a welcome statement, increased readiness on the part of banks must be matched by increased operational readiness on the part of the Fed.¹⁹⁹

1. Extended Operating Hours for Collateral Transfer Systems

Fedwire hours of operation prevented SVB from transferring the necessary collateral to obtain a liquidity loan from the Fed on March 9, perpetuating SVB's illiquidity while deposit withdrawal requests continued to mount. The next day, the Fed extended the Fedwire's normal 7:00pm ET cutoff until 11:30pm ET to facilitate a collateral transfer by Signature,²⁰⁰ indicating that it quickly realized that confining Fedwire to normal hours of operation was perpetuating the contagion. At the first sign

193. *Id.*

194. *Id.*

195. *Id.*

196. *Id.*

197. *Id.*

198. Press Release, Fed. Rsrv. et al., Addendum to the Interagency Policy Statement on Funding and Liquidity Risk Management: Importance of Contingency Funding Plans (Jul. 28, 2023), <https://perma.cc/ZF5V-PU4X>.

199. Then-Acting Comptroller of the Currency Michael Hsu recently described how banks could be required to conduct regular "test draws" from the discount window to better ensure their operational preparedness to access the discount window during a crisis. Michael J. Hsu, Acting Comptroller of the Currency, *Building Better Brakes for a Faster Financial World, Remarks at Columbia Law School* (Jan. 18, 2024), <https://perma.cc/8CL6-9GR2>. Such a requirement could form a part of the effort to improve the operational capabilities of the lender of last resort function.

200. N.Y. STATE DEP'T OF FIN. SERVS., INTERNAL REVIEW OF THE SUPERVISION AND CLOSURE OF SIGNATURE BANK 34 (2023), <https://perma.cc/CFL6-3EBS>.

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of a crisis, the operating hours of Fedwire and any other systems necessary to transfer collateral in support of liquidity lending should be extended as long as necessary. In 2024, the Fed proposed to extend Fedwire's operations to seven days a week (it is currently operational only on weekdays), but the proposal keeps the 7pm daily cutoff in place.²⁰¹

2. Improved Coordination Between the Board of Governors and Regional Banks

The run on SVB also showed that there may be critical deficiencies in the communication protocols and an unclear division of responsibility between the regional Fed banks and the Fed board and staff in the event of a liquidity crisis. Neither the Fed's Board of Governors nor the Treasury were aware that a bank run on SVB was in progress until 3:00 pm ET/12:00 pm PT on March 9.²⁰² The Chair of the FDIC was not aware until the evening of March 9.²⁰³ At this point, the crisis had been underway for nearly twenty-four hours. It is unclear how much earlier the regional (San Francisco) Fed bank became aware of the potential for a run at SVB and whether there was any delay in informing the Board of Governors.

This should be addressed in the Fed's needed report on its performance as a lender of last resort during the crisis. The fact that the Fed's top decisionmakers were not immediately aware of the ongoing run likely impaired the Fed's ability to respond effectively. When the Fed's supervisory chiefs first became aware of the run, it may simply have been too late for the decisionmakers to coordinate and make the necessary determinations.

Before the next crisis, the Fed should create a comprehensive operational plan with clear assignments of responsibilities and protocols for immediate notification of top decisionmakers. This plan should include a "war room" in Washington that convenes at the first sign of a potential bank run and coordinates the Fed's response.

3. Instant Collateral Transfer

One of the reasons for the delay in extending liquidity loans to SVB was that SVB had to transfer additional collateral to support the full amount of the discount window loan it required.²⁰⁴ Even assuming other operational shortcomings are addressed, any transfer of collateral via the current Fedwire system in a future crisis will take time,

201. Expansion of Fedwire® Funds Service and National Settlement Service Operating Hours, 89 Fed. Reg. 39613 (May 9, 2024).

202. *The Federal Regulators' Response to Recent Bank Failures: Hearing Before the H. Comm. on Fin. Servs.*, 118th Cong. 10 (2023) (statement of Michael S. Barr, Vice Chair for Supervision, Fed. Rsv.).

203. *Id.* at 9.

204. See *supra* note 61-63 and accompanying text.

which risks delaying the proper response to a run.

Pledging collateral in advance (i.e., prepositioning) to support potential discount window borrowing has been presented as a solution to the operational delays that doomed SVB: If collateral has already been pledged before a need for emergency liquidity arises, there is no need to complete the potentially time-consuming steps of pledging collateral in a crisis scenario.²⁰⁵ However, prepositioning as an operational improvement is obviated to the extent that an instant transfer capability can be incorporated into the lender of last resort process, which should be achievable with modern technology.

Such a solution, whereby collateral is pledged by the push of a button, could potentially avoid the delays seen in the SVB crisis without requiring a pre-commitment of collateral. Allowing banks to keep these assets unencumbered unless and until a discount window loan is required also gives banks more flexibility in managing how they satisfy their liquidity requirements.²⁰⁶

D. Emergency Lending to Banks Should Occur Only Through the Discount Window

To stem the contagion from the failure of SVB, the Fed created a new bank lending facility—the BTFP. This was the first time that section 13(3) has been used to create a facility that is limited to banks.²⁰⁷ But the use of section 13(3) comes with more requirements than those of section 10B, the most important of which is the approval of the Secretary of the Treasury. Treasury approval should not be a prerequisite for necessary liquidity loans to banks. In such cases, the Fed should act independently under section 10B to avoid political interference in the lending decision.

Several possible rationales have been advanced for the Fed's decision to use section 13(3) in the SVB crisis, but none of them are convincing. First, section 10B restricts loan terms to sixty days and Fed officials have suggested that establishing the new facility under section 13(3) was necessary to make loans available for longer terms, including the one year permitted by the BTFP.²⁰⁸ However, it is questionable why a loan issued for the purpose of stemming a bank run would require terms as

205. See *infra* note 294, GROUP OF THIRTY (2024) at xii.

206. The possibility of substantial improvements in transfer capabilities was first put forth by Eddie George in 1996, when technology was more limited. Edward George, Gov. of Bank of Eng., Risk Reduction in Payment and Settlement Systems (Oct. 22, 1996), <https://perma.cc/74KN-7UH9>.

207. See *supra* Part I.E. The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility ("AMLF") was generally limited to banks and bank holding companies, but bank holding companies are not banks, and the AMLF was also available to broker-dealer subsidiaries of bank holding companies. *Regulatory Reform: Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)*, FED. RSRV. (Mar. 20, 2020), <https://perma.cc/77LX-LFQD>.

208. Ostrander, *supra* note 167.

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long as one year. Even assuming such a term is necessary, the Fed could potentially provide for automatic rollovers for as many sixty-day intervals as necessary to avoid this restriction.²⁰⁹ And if policymakers believe that longer terms are indeed necessary, a better solution than creating new ad hoc lending facilities such as the BTFP in response to each new crisis would be for Congress itself to extend the maximum permissible discount window loan term to a year to avoid any issue of this kind.²¹⁰

Second, Fed officials have suggested that they wanted the ability to value collateral at par, and only section 13(3) allows this.²¹¹ But in fact, section 13(3) has stricter collateral requirements than section 10B: section 13(3) requires that loans be secured by collateral “sufficient to protect taxpayers from loss,”²¹² while section 10B requires only that loans be secured “to the satisfaction” of the Fed.²¹³ section 10B thus allows the Fed discretion to accept a wide range of collateral, and arguably even no collateral. It certainly permits the Fed to value HTM collateral at par.

Third, it is often asserted that banks associate borrowing from the discount window with stigma, and the desire to create a facility that superficially escapes this stigma may have prompted the creation of the BTFP. But section 13(3)’s more stringent disclosure rules, which require disclosure of borrowings to Congress within seven days (compared to two years for the discount window),²¹⁴ would, if anything, increase the prospect of stigma. Furthermore, the notion that banks are categorically opposed to discount window borrowing because of stigma appears to be an overstatement. Discount window borrowings have normally ranged between \$2 billion and \$4 billion over the past years.²¹⁵ 44.7% of banks with more than \$100 billion in assets borrowed at least once from the discount window during the Q4 2020 to Q3 2021 period.²¹⁶ Borrowings increased from \$4.6 billion on March 9, 2023, to \$152 billion as of March 15, 2023, indicating substantial borrowings in response to the crisis.²¹⁷

To the extent that stigma is an impediment to needed discount window borrowing, it is doubtful that mandating regular discount window test draws would

209. 12 U.S.C. § 347b(b)(2)(B).

210. While the 60-day limit may have been intended to prevent banks from growing too dependent on discount window funding, the Fed should be empowered to balance this consideration against the need to extend loans of longer terms to stem contagion, consistent with the Fed’s discretion over the discount window collateral policies.

211. Ostrander, *supra* note 167.

212. 12 U.S.C. § 343(3)(B)(i).

213. *Id.* § 347b(a).

214. *Id.* § 343(3)(C)(i).

215. See *Regulatory Reform: Discount Window Lending*, FED. RSRV. (Mar. 31, 2025), <https://perma.cc/8V5R-W565>.

216. Laura Suhr Plassman & Felipe Rosa, *Statistics on Collateral Pledged to the Discount Window*, BANK POL’Y INST. (Nov. 20, 2023), <https://perma.cc/5Z73-8LZC>.

217. Tim Sablik, *Central Bank Lending Lessons from the 2023 Bank Crisis*, FED. RSRV. BANK OF RICHMOND (2024), <https://perma.cc/5JVG-BSDA>.

mitigate it since the market would presumably distinguish borrowings that are routine test draws from those that are not. A recent Fed study concluded that mandatory randomized test draws would not significantly reduce stigma.²¹⁸

Furthermore, addressing stigma concerns by eliminating disclosure requirements for emergency lending would be both ineffective and inadvisable. First, even if the lending is anonymized, the identities of borrowers could potentially be inferred or narrowed down from the weekly public reporting of the Federal Reserve Banks of all discount window loans—within a Federal Reserve district, there may only be a limited number of banks that would seek a loan of a significant size. Second, there will always be the possibility of inadvertent or unauthorized disclosures. Third, the idea of hiding the identity of borrowers from the public potentially threatens the principle of accountability.

To mitigate any stigma associated with discount window borrowing, the Fed should consider setting the discount window rate using an auction mechanism whereby banks bid for the right to borrow at various rates. The Fed used such a mechanism when it established the Term Auction Facility (“TAF”) in December 2007.²¹⁹ An auction mechanism allows banks to present borrowings as economically attractive rather than a sign of weakness, while at the same time minimizing the arbitrage opportunity presented by the low rate under BTFP.

As illustrated in Figure 3, in November 2023, the rate that banks paid to borrow under the BTFP declined well below the discount window rate and the rate banks receive on Fed reserve balances. This created an arbitrage opportunity for banks whereby a bank could borrow under the BTFP, hold the proceeds in a Fed account, and receive a higher interest rate on the reserve balance than it pays on the BTFP loan.²²⁰

218. Olivier Armantier & Charles Holt, FED. RSRV. BANK OF N.Y. STAFF REPS NO. 1103, CAN DISCOUNT WINDOW STIGMA BE CURED? AN EXPERIMENTAL INVESTIGATION (2024), <https://perma.cc/7YKX-8C2E>.
219. *Regulatory Reform: Term Auction Facility (TAF)*, FED. RSRV. (Feb. 12, 2016), <https://perma.cc/QKM3-BJPU>.
220. David Benoit & Eric Wallerstein, *The Fed Launched a Bank Rescue Program Last Year. Now, Banks Are Gaming It.*, WALL ST. J. (Jan. 10, 2024), <https://perma.cc/T5TD-V9BM>.

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Figure 3 – Rates: BTFP; Discount Window; Reserve Balances; Fed Funds

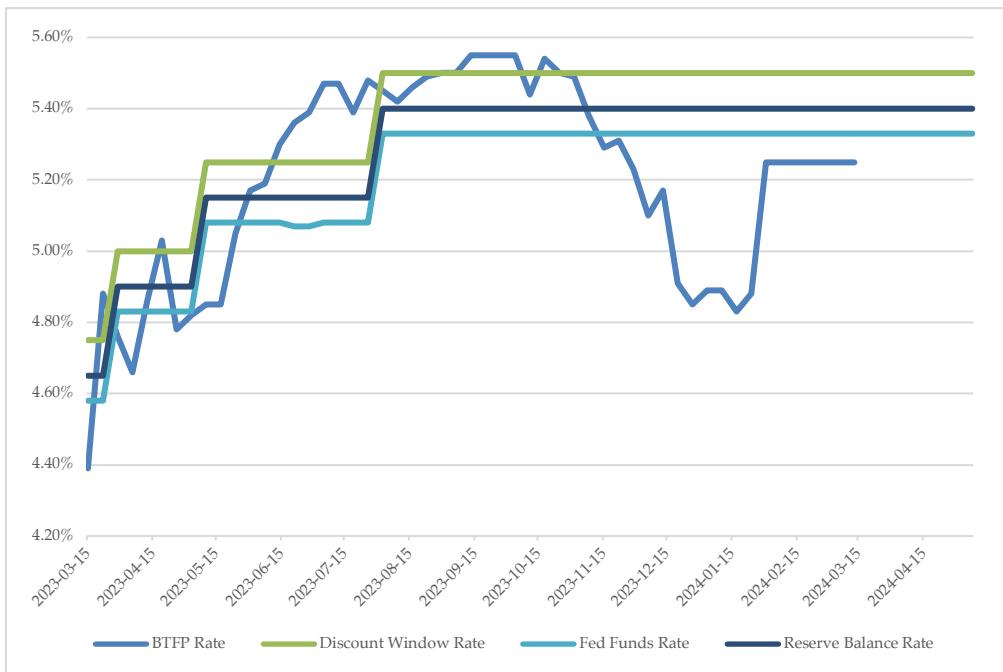


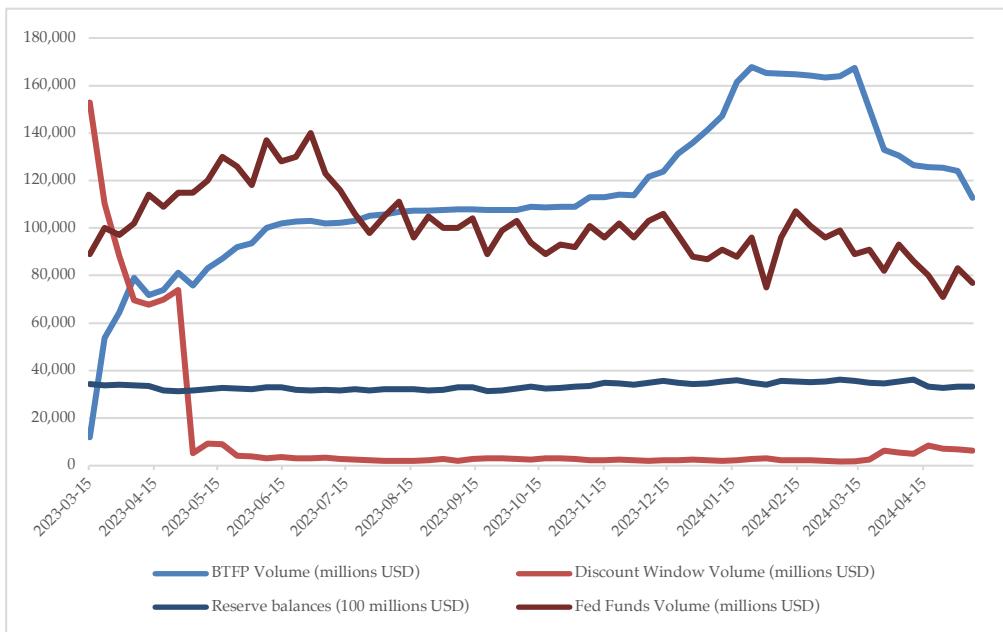
Figure 4 shows a noticeable increase in BTFP volumes that coincides with the beginning of the divergence in rates, indicating that banks responded to this arbitrage opportunity. Figure 4 also shows how total BTFP loans outstanding began to increase well above the Fed funds volume. While the size of this difference was not nearly enough to cause a problem for monetary policy, the potential to do so existed.

The reason for the divergence is that, whereas the Board of the Fed intentionally maintains the interest rate banks pay for discount window loans above the prevailing rate they pay to borrow reserve balances from other banks (the “Fed funds rate”),²²¹ the Fed did not apply the same policy to the interest rate on BTFP advances, which was instead equal to the one-year overnight index swap rate plus ten basis points. As a result, the BTFP rate could be lower than the Fed funds rate. The Fed could have alternatively set a fixed rate for BTFP loans or an auction procedure similar to the one used for TAF. As noted above, in January 2024, the Fed did establish a floor on the BTFP rate once the extent of the arbitrage opportunity resulting from the floating rate became apparent. As shown in Figure 4, BTFP usage leveled off at that point. Since the expiry of the program in March 2024, total usage has been declining as no new loans

221. *General Information: The Primary and Secondary Lending Programs*, FED. RSRV. DISC. WINDOW (June 7, 2024), <https://perma.cc/JKJ6-8ECJ>.

have been issued and outstanding loans roll off.

Figure 4 – Volumes: BTFP; Discount Window; Reserve Balances; Fed Funds



More generally, to the extent banks continue to look primarily to a lending facility that depends on Treasury approval, it may threaten the independence of the Fed as lender of last resort.

The real reason for the Fed's establishment of the BTFP under section 13(3) may be political pressure stemming from the Fed's role as lender of last resort during the 2008 global financial crisis and the COVID-19 crisis. In both cases, the Fed's policy decisions as an emergency lender suffered attacks from both major parties. In 2008, Republican legislators criticized the Fed for lending \$85 billion to avert the bankruptcy of failing insurance company American International Group.²²² Democratic legislators also criticized the Fed and Treasury's support for the financial sector in 2008.²²³ In 2020, both Republican and Democrat lawmakers criticized the Fed for various features of its Main Street Lending Program, which sought to supply liquidity to the corporate sector, arguing that the terms were too onerous to provide any real benefit to

222. Ted Barrett, Deirdre Walsh & Brianna Keilar, *AIG Bailout Upsets Republican Lawmakers*, CNN (Sep. 17, 2008), <https://perma.cc/4KKJ-VTFX>.

223. David M. Herszenhorn, *A Curious Coalition Opposed Bailout Bill*, N.Y. TIMES (Oct. 2, 2008), <https://perma.cc/W62E-E5QS>.

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businesses,²²⁴ and that the Fed modified the program's terms to favor particular industries.²²⁵

As a result, the Fed may be seeking to curtail its role as lender of last resort absent political cover from the Treasury. However, it needs to resist any such pressure and maintain independence as a liquidity provider to banks given its clear mandate under section 10B to act independently.²²⁶

E. Policymakers Should Reassess the Implications of Lending to Thinly Capitalized Bridge Banks

The traditional policy of the Fed has been that it does not lend to a bank that is in a receivership or insolvency procedure. This principle can be traced back to Bagehot's assertion that lending to an insolvent bank would increase moral hazard.²²⁷ The Fed has historically applied this principle even to bridge banks that, while functionally solvent, are in a receivership proceeding as a legal matter.²²⁸

In 2023, the Fed departed from this policy when it lent to the bridge banks for both SVB and Signature.²²⁹ In principle, this reversal is good: even though a bridge bank is in an insolvency procedure, it is often functionally highly solvent, since it typically assumes only a subset of the failed bank's liabilities (insured deposits) and acquires all of the failed bank's assets. But in these two real-world cases, the bridge banks assumed all deposits (i.e., those that were insured originally and those that became insured due to the application of the systemic risk exception). Thus, although the bridge banks were well capitalized if one valued the HTM assets at par, they were thinly capitalized if the HTM assets were valued at market value.

The sales of substantial portions of the bridge banks' assets and liabilities to private acquirers did not include the Fed's loans to the bridge banks. As a result, the Fed loans remained in the bridge bank receiverships until they were discharged using the bridge banks' remaining assets, which consisted primarily of the HTMs in which the Fed and FHLB each had a security interest equal to the value of its outstanding loans. According to the Fed, all discount window and BTFP loans to the SVB and

224. Jim Saksa, *Congressional Panel Slams Fed's Main Street Lending Program*, ROLL CALL (Aug. 7, 2020), <https://perma.cc/62Q4-MAWS>.

225. Jonnelle Marte & Michelle Price, *U.S. Fed's Main Street Lending Facility Likely to Start with a Whimper*, REUTERS (June 8, 2020), <https://perma.cc/MH8T-TKUS>.

226. Scott, *supra* note 88, at 6.

227. Paul Tucker, *The Lender of Last Resort and Modern Central Banking: Principles and Reconstruction*, BANK FOR INT'L SETTLEMENTS PAPERS, no. 79, 2014, <https://perma.cc/K69K-AEK6>.

228. MACRO MUSINGS WITH DAVID BECKWORTH: *Bill Nelson on the Fed's Discount Window Lending, the Overnight Reverse Repo Facility, and the Shifting Size of the Fed's Balance Sheet* (MERCATUS CTR., Apr. 10, 2023), <https://perma.cc/6PBR-VJU2>.

229. Kelly, *supra* note 116.

Signature Bridge Banks were fully repaid as of November 2023, though the precise transactions by which repayment was effected are not clear.²³⁰

The risks of the Fed's decision to lend through the discount window to bridge banks that are less than highly solvent, and thereafter to become a creditor of a receivership, as well as the use of the DIF to guarantee such loans, need to be further studied and evaluated. In particular, if the bridge bank receivership's assets were insufficient to pay off the loans to the Fed, the Fed would have borne losses that would be covered by the FDIC guarantee. In that case, the DIF would have had to fund the shortfall, and the costs of the replenishment of the fund would be passed onto the banks and potentially to the banks' customers. Furthermore, the Fed has reported that the interest rate charged on its loans to the bridge banks was 100 basis points higher than the prevailing discount window rate.²³¹ The Fed has not explained the reasons for this premium, though one possible explanation is that it reflects concerns about credit risks. It has also been suggested that the bridge banks' alternative sources of funding, including the DIF or the FDIC's Treasury line of credit, would have imposed lower interest costs and thus lowered the costs of resolving the banks.²³² Another factor that may have influenced policymakers' decision to cause the Fed to lend instead of the Treasury was the debt ceiling. Treasury lending to SVB would have added to the U.S. debt, but Fed lending did not. On January 19, 2023, the U.S. surpassed the then-operative debt ceiling of \$31.4 trillion, at which point the Treasury had to begin relying on "extraordinary measures" (e.g., suspending payments to some government employee savings programs) until, in June 2023, Congress voted to suspend the ceiling until January 2025.²³³ As such, there was no room under the ceiling when the Fed was lending to SVB and Signature throughout 2023.

F. Policymakers Should Reassess the Role of the OLA

In response to the 2008 financial crisis, the Dodd-Frank Act created a new FDIC-administered bank resolution process known as the Orderly Liquidation Authority ("OLA"). The OLA is applied when the Fed and FDIC recommend, and the Treasury subsequently determines, that the resolution of a non-bank financial firm (including a bank holding company) via normal insolvency procedures would pose "serious adverse effects" to U.S. financial stability.²³⁴ This test is very similar to the one required

230. *Federal Reserve Balance Sheet Developments: Additional Information on Other Credit Extensions*, FED. RSRV. (Jan. 4, 2024), <https://perma.cc/CA3B-GPV7>.

231. FED. RSRV., COMBINED Q. FIN. REP. 21 (2023), <https://perma.cc/S25L-Q827>.

232. Jeff Huther, *The FDIC's Unusual Loan from the Federal Reserve*, AM. BANKERS ASS'N BANKING J. (Mar. 5, 2024), <https://perma.cc/X5CJ-3MHY>.

233. DEP'T OF THE TREASURY, FINANCIAL REPORT OF THE UNITED STATES GOVERNMENT: FISCAL YEAR 2023 6 (Feb. 15, 2024), <https://perma.cc/87PF-772V>.

234. 12 U.S.C. § 5383(b)(2).

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to trigger the systemic risk exception, which was most recently used to protect all depositors in an FDIC receivership proceeding.

Under the OLA, the FDIC is permitted to borrow on a line of credit from the Treasury, limited by the amount of assets of the failed entity that are available for repayment.²³⁵ The FDIC may lend these funds to a bank holding company in receivership.²³⁶ The holding company may then contribute the funds as capital to its bank and non-bank subsidiaries as liquidity support. If the OLA resolution results in a net cost to the FDIC such that the FDIC does not receive back the full amount necessary to repay the loan to the Treasury, the FDIC requires bank holding companies with at least \$50 billion in assets and any Fed-supervised non-bank financial company to contribute to cover the shortfall.²³⁷ However, if the Fed is now prepared to lend to bridge banks through the discount window, albeit with an FDIC guarantee, it calls into question whether the OLA is still necessary to provide emergency liquidity.

The OLA was designed to accommodate the resolution of holding company structures that include substantial nonbank components,²³⁸ but its application is not practically or legally limited to such structures. Therefore, it would not be inconsistent for the OLA to be applied to SVB, even though substantially all of the value of SVB's holding company structure was attributable to the SVB bank entity.

A defining feature of an OLA resolution is single point of entry, whereby only the bank's holding company is placed in a receivership.²³⁹ Under a normal FDIC-administered resolution, as occurred with SVB, it is instead the bank entity beneath the top tier holding company that is placed in receivership.²⁴⁰ In a hearing before the House Financial Services Committee, Fed Chairman Powell suggested that the Fed could not deploy the OLA in response to the SVB crisis because events moved too quickly.²⁴¹ But there may have been additional factors that dissuaded regulators from using the OLA. In particular, total loss absorbing capacity ("TLAC") requirements are commonly regarded as an essential element of a resolution under the OLA.²⁴² TLAC requirements require that a bank holding company's capital structure contain a

235. *Id.* § 5390(n)(5).

236. *Id.* § 5390(n).

237. *Id.* § 5390(o).

238. Aaron Klein, *A Primer on Dodd-Frank's Orderly Liquidation Authority*, BROOKINGS (June 5, 2017), <https://perma.cc/M6BJ-5K57>.

239. FDIC, OVERVIEW OF RESOLUTION UNDER TITLE II OF THE DODD-FRANK ACT 1 (2024), <https://perma.cc/UB44-B42H>.

240. *Id.*

241. *Hearing on Semiannual Monetary Policy Report Before the H. Comm. on Fin. Servs.*, 118th Cong. 110-11 (2023) (statement of Jerome H. Powell, Chairman, Fed. Rsrv.) (transcript on file with authors).

242. DEP'T OF THE TREASURY, ORDERLY LIQUIDATION AUTHORITY AND BANKRUPTCY REFORM 16 (2018), <https://perma.cc/JRQ3-62NW>.

minimum amount of extra equity capital, usually provided by debt that can be converted to equity in a receivership proceeding, thereby lessening the likelihood that government support will be required.²⁴³ But such requirements do not apply to banks the size of SVB. The absence of a required TLAC buffer may have dissuaded regulators from relying on the OLA.²⁴⁴

The SVB crisis also raises questions about the operational readiness of the OLA. If the OLA could not be deployed rapidly enough in SVB's case, it raises further questions about whether it can be effectively deployed in the event of future bank runs that could occur just as quickly. While the SVB crisis itself does not recommend the abrogation of the OLA, the Fed and FDIC should provide a clear accounting of why they did not deploy the OLA in response to the crisis, so that policymakers can better understand what reforms, if any, are necessary to ensure that the OLA remains a useful resource.

G. The FHLBs Should Not Be Lenders of Last Resort

The original mission of the FHLB system, when founded in 1932, was to support mortgage lending by thrifts and insurance companies.²⁴⁵ In 1989, following the savings and loan crisis, FHLB membership eligibility was expanded to any bank with more than 10% of its assets in residential mortgages and related assets.²⁴⁶ The FHLBs provide loans to their members with the intention that the proceeds will support mortgage lending. But over time, FHLB member banks have come to rely increasingly on FHLB loans as general short-term liquidity. The FHLBs have thus become de facto general lenders to the banking system and alternative lenders of last resort alongside the Fed.

But the events of March 2023 show that two lenders of last resort create a coordination problem: SVB sought first to obtain liquidity loans through the FHLBs, and only when it could not do so did it approach the Fed.²⁴⁷ SVB's rationale for approaching the FHLBs first is unclear, but it may have stemmed from a combination of avoiding stigma and convenience. In either case, its decision caused a delay, which

243. *Id.*; Paul Kupiec, *Why Did Regulators Ignore Dodd-Frank and Orderly Liquidation for Failed Banks?* THE HILL (Mar. 13, 2023), <https://perma.cc/9TTK-5T8F>.

244. A currently pending proposal by the FDIC, Fed, and the OCC would extend the long-term debt provisions of the TLAC rule to banks with at least \$100 billion in assets. *See* Long-Term Debt Requirements for Large Bank Holding Companies, Certain Intermediate Holding Companies of Foreign Banking Organizations, and Large Insured Depository Institutions, 88 Fed. Reg. 64524 (Sep. 19, 2023) (to be codified at 12 C.F.R. pts. 3, 54, 216, 217, 238, 252, 324, 374), <https://perma.cc/DAW5-JCUU>.

245. Stefan Gissler & Borghan Narajabad, *The Increased Role of the Federal Home Loan Bank System in Funding Markets, Part 1: Background*, FED. RSRV. (Oct. 18, 2017), <https://perma.cc/R9HL-ZQX2>.

246. *Id.*

247. *See supra* Part I.C.

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likely exacerbated the run. A Fed analysis indicates that the practice of first seeking emergency liquidity from the FHLBs before approaching the Fed was typical among the twenty-two banks that were subject to bank runs in March 2023.²⁴⁸

More generally, FHLBs are less effective than the Fed as emergency lenders to banks, because unlike the Fed, they must first issue debt to finance advances. Furthermore, the Federal Home Loan Bank Act requires that any lien a bank issues to an FHLB, with limited exceptions, takes priority over the claims of other lenders.²⁴⁹ This lien can delay the Fed in obtaining the perfected security interest it needs to extend a discount window loan to the same bank when timing is critical.²⁵⁰ Following the SVB crisis, the Federal Housing Finance Agency, the agency responsible for oversight of the FHLB system, released a report concluding that FHLBs should no longer act as emergency lenders.²⁵¹ Lender of last resort responsibilities should henceforth be confined to the Fed.²⁵²

H. Reevaluate the Deposit Insurance Regime

Deposit insurance at sufficient levels protects depositors and has a stabilizing effect that can act in concert with an effective lender of last resort function to stem contagion.²⁵³ As former Treasury Secretary Tim Geithner has noted, deposit insurance is one of several parts of the safety net that capital markets rely upon.²⁵⁴ Deposit insurance thus had a key role in stemming contagion during the 2007-2008 crisis and

- 248. Marco Cipriani, Thomas Eisenbach & Anna Kovner, *Anatomy of the Bank Runs in March 2023*, LIBERTY ST. ECON. (Dec. 20, 2024), <https://perma.cc/5P2T-KLRN>.
- 249. 12 U.S.C. § 1430(e).
- 250. Greg Baer et al., *Improving the Government's Lender of Last Resort Function: Lessons from SVB and Signature Bank*, BANK POL'Y INST. (Apr. 24, 2023), <https://perma.cc/688F-ASH8>; *see also* Letter from Cornelius Hurley, Lecturer, B.U. L. Sch., to Subcomm. on Fin. Insts. & Monetary Pol'y and H. Comm. on Fin. Servs. (Feb. 18, 2024).
- 251. FED. HOUS. FIN. AGENCY, FHLBANK SYSTEM AT 100: FOCUSING ON THE FUTURE 31 (2023), <https://perma.cc/78JM-5T9F>. A 2024 FHLB advisory bulletin also suggests that the FHLB intends to apply more rigorous risk management criteria when lending to troubled banks in the future. FED. HOUS. FIN. AGENCY, AB 2024-03, FHLBANK MEMBER CREDIT RISK MANAGEMENT (2024), <https://perma.cc/9Y55-5FYY>.
- 252. *See also* Kathryn Judge, *The Unraveling of the Federal Home Loan Banks*, 41 YALE J. ON REG. 1011, 1015 (2024), <https://perma.cc/KQX7-48E2> ("Making matters worse, [the FHLB system] became a 'lender of next to last resort' to banks and thrifts. . . . [I]t is in this capacity that it continues to allow financial institutions to tap government-backed financing while avoiding the accountability that comes with going to the nation's designated lender of last resort, the Federal Reserve.").
- 253. SCOTT, *supra* note 1, at 146.
- 254. Timothy F. Geithner, *The Early Phases of the Financial Crisis: Reflections on the Lender of Last Resort*, 1 J. FIN. CRISES (2019), <https://elischolar.library.yale.edu/cgi/viewcontent.cgi?article=1011&context=journal-of-financial-crisises>.

supporting not only the banking sector, but also “other markets that were as critical to the broader economy.”²⁵⁵ Since the introduction of federal deposit insurance in 1934, the number of bank failures has decreased significantly.²⁵⁶

Since 1990, the percentage of insured deposits in the U.S. banking system has decreased—from roughly 80% in 1990 to 53.4% in 2021²⁵⁷—and with it, the capacity of deposit insurance to stem contagion. Indeed, withdrawals by large uninsured depositors were instrumental in spurring the runs on SVB and Signature. The ad hoc protection of uninsured depositors pursuant to the systemic risk exception does not provide the same protection against contagion as higher deposit insurance limits that assure depositors in still-solvent banks of repayment. Congress should therefore consider increasing the current general deposit insurance limit (\$250,000), or more targeted modifications such as increasing the limit for payment accounts specifically.²⁵⁸

On the other hand, if deposit insurance is too high, it can undermine the market discipline exerted on banks by uninsured depositors.²⁵⁹ Though some have argued for unlimited deposit insurance as a means to prevent future crises,²⁶⁰ the unlimited exposure of the government to banks’ deposit liabilities would entail that the government must play a more critical and wide-ranging role in determining which activities and risks banks are permitted to undertake.

Proponents of unlimited deposit insurance have recognized that unlimited deposit insurance would necessitate major restrictions on banks and money markets to counteract moral hazard, including effectively reinstating the Glass-Steagall Act (1933) by tightening deposit bank portfolio constraints and reintroducing the prohibition under former Regulation Q on banks paying interest on checking accounts.²⁶¹ Furthermore, it would be necessary to eliminate the existence of uninsured

255. Press Release, Dep’t of the Treasury, Remarks by Treasury Secretary Tim Geithner to the International Monetary Conference (June 6, 2011), <https://home.treasury.gov/news/press-releases/tg1202>; Ben S. Bernanke, Timothy F. Geithner & Henry M. Paulson, Jr., *What We Need to Fight the Next Financial Crisis*, N.Y. TIMES (Sept. 7, 2018), <https://perma.cc/BYM5-PZZW>.

256. Eduardo Dávila & Itay Goldstein, *Optimal Deposit Insurance*, 131 J. POL. ECON. 1676, 1677 (2023) (“[M]ore than 13,000 banks failed between 1921 and 1933, of which 4,000 banks failed in 1933 alone. In contrast, a total of 4,057 banks failed in the United States between 1934 and 2014.”).

257. See FDIC, *supra* note 107, at 10 (Fig. 2.1).

258. *Id.* at 41; see also Samuel G. Hanson et al., *The Evolution of Banking in the 21st Century: Evidence and Regulatory Implications*, 55 BROOKINGS PAPERS ON ECON. ACTIVITY 343, 374-75 (2024).

259. Brian A. Johnson & Hal S. Scott, *Controlling the Long-Term Problem of Short-Term Funding*, 5 J. FIN. REG. 101, 130 (2019); SCOTT, *supra* note 1, at 148; Dávila & Goldstein, *supra* note 256, at 1724-25.

260. Lev Menard & Morgan Ricks, *Scrap the Bank Deposit Insurance Limit*, WASH. POST (Mar. 15, 2023), <https://perma.cc/9NZU-6UDS>.

261. Johnson & Scott, *supra* note 259, at 142.

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money-like claims in the shadow banking sector by restricting the issuance of short-term liabilities to regulated banks. This would entail banning money market funds and potentially other forms of mutual funds.²⁶²

Unlimited deposit insurance would also result in much higher insurance premiums for banks, which could be passed onto customers in the form of higher service fees.²⁶³ A recent empirical analysis suggests that a total deposit insurance regime would have no practical benefits because uninsured depositors generally already behave with the expectation that they will be bailed out in the event of a bank failure.²⁶⁴ Given that bank runs still occur, this finding also suggests that depositors still prefer to move their deposits from a bank in distress to a safer bank, even if they believe they will not suffer losses in resolution, presumably because they prefer to avoid the resolution process completely and moving deposits is relatively costless.

The FDIC had the authority to increase deposit insurance limits before Dodd-Frank, and it was restored on a temporary basis during COVID-19.²⁶⁵ Allowing banks to fail and then rescuing uninsured depositors as part of the resolution process is not an optimal solution. Indeed, according to one estimate, the protection of uninsured depositors in resolution may have imposed an additional \$45 billion in resolution expenses on the DIF over the past fifteen years.²⁶⁶ In addition, obtaining the joint resolution of Congress that is currently necessary for the FDIC to guarantee non-interest bearing transaction accounts before a bank's failure during the SVB crisis would have been impracticable, and would be similarly impracticable in a future crisis. Appropriately calibrated deposit insurance coverage should be sufficient to effectively stem contagion if it works in conjunction with a strong lender of last resort function that reflects the needed reforms discussed herein.²⁶⁷

Congress should consider whether deposit insurance should take on more of the burden of preventing runs relative to the lender of last resort, including (1) whether deposit insurance limits should be raised without undermining market discipline (including potentially higher limits for business payment accounts, which the FDIC proposed in a report following the SVB crisis),²⁶⁸ and (2) restoring, in some form, the

262. *Id.*

263. FDIC, *supra* note 107, at 45-46; Telis Demos, *Unlimited Deposit Insurance Can't Solve Everything*, WALL ST. J. (Mar. 24, 2023), <https://perma.cc/72TT-V5R4>.

264. N. Aaron Pancost & Roberto Robatto, *Bailing Out (Firms') Uninsured Deposits: A Quantitative Analysis* 37 (Aug. 30, 2023), <https://perma.cc/933R-JQ2A>.

265. Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020 § 4008; FDIC, *supra* note 107, at 19.

266. Michael Ohlrogge, *Why Have Uninsured Depositors Become De Facto Insured?*, PROMARKET (Dec. 7, 2023), <https://perma.cc/XN8S-S9ES>.

267. SCOTT, *supra* note 1, at 147; Dávila & Goldstein, *supra* note 256, at 1725; see also FDIC, *supra* note 107, at 47-48.

268. FDIC, *supra* note 107, at 46.

authority of the FDIC to raise deposit insurance limits generally for non-interest-bearing transaction accounts in a crisis.

I. The FDIC Should Hold Grossly Negligent Executives Accountable

SVB failed in large part as a result of gross mismanagement by the bank's executives, including their failure to manage the bank's interest rate risk despite clear warning signs that it threatened the bank's viability.²⁶⁹ SVB's failure has imposed costs on the banking system. Holding grossly negligent executives accountable would serve as an incentive to avoid such conduct in the future.

The FDIA authorizes the FDIC to recover damages from the executives of a failed bank in cases of gross negligence.²⁷⁰ The FDIC should be prepared to exercise this authority to claw back compensation received by executives of a failed bank if, due to their gross negligence, a bank (1) must rely on loans from the Fed to avert insolvency, (2) receives loans from the Fed in insolvency, or (3) otherwise receives government support to avoid failure (e.g., the Troubled Asset Relief Program (2008)) or in connection with its failure, and thereby imposes costs or substantial risk of loss on the Fed, the DIF, or taxpayers more generally.²⁷¹ In December 2024, the board of the FDIC voted unanimously to authorize FDIC lawsuits under section 11(k) to collect damages from former SVB officers and board members for gross negligence during the period preceding SVB's failure.²⁷²

Following the SVB crisis, lawmakers have proposed bills that would give the FDIC additional powers to hold executives accountable, some of which would impose a standard of strict liability.²⁷³ This goes too far. Strict liability or an ordinary negligence standard would likely dissuade capable individuals from managing banks, especially in crisis scenarios where their services are most needed.²⁷⁴

269. FED. RSRV., *supra* note 6, at 1.

270. 12 U.S.C. § 1821(k).

271. Charles W. Calomiris et al., *Establishing Credible Rules for Fed Emergency Lending*, 9 J. FIN. ECON. POL'Y 260, 264-65 (2017).

272. Memorandum and Resolution from Martin J. Gruenberg, Chairman, FDIC, on Request for Authority to Sue Six Former Officers and Eleven Former Directors of Silicon Valley Bank (Dec. 17, 2024), <https://perma.cc/CQM7-2MAX>.

273. See Recovering Executive Compensation Obtained from Unaccountable Practices (RECOUP) Act, S. 2190, 118th Cong. (2023); Failed Bank Executives Clawback Act, S. 1790, 118th Congress (2023).

274. See Randall D. Guynn et al., *Davis Polk Discusses RECOUP Act's Clawbacks of Failed-Bank Executives' Compensation*, COLUM. L. SCH. BLUE SKY BLOG (Apr. 11, 2024), <https://perma.cc/T47P-ARAC>.

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J. Reevaluate the Liquidity Framework

Current U.S. banking regulations seek to ensure that large banks can withstand a surge in withdrawals by requiring a bank to allocate a percentage of its assets to cash or securities that can be quickly liquidated or pledged as collateral. More specifically, the “liquidity coverage ratio” (“LCR”) requires banks with more than \$250 billion in assets to hold “high-quality liquid assets” (“HQLA”) such as Treasury securities and deposits at the Fed at least equal to an estimate of a severe deposit outflow occurring over a thirty-day period.²⁷⁵ For banks with \$100 billion to \$250 billion in assets, including SVB at the time of its failure, HQLA is broadened to include additional low-risk assets approved by the Fed.²⁷⁶ The combination of these “private” liquidity buffers and the “public” liquidity backstop supplied by the lender of last resort seeks to ensure that a bank’s inability to meet short-term deposit liabilities does not catalyze a system-wide crisis.

The SVB crisis provides strong evidence that this framework warrants fundamental reconsideration. First, the case of SVB indicates that if a bank run is severe enough, even the largest store of a bank’s own liquid assets will be exhausted.²⁷⁷ In early 2023, SVB held sufficient HQLA to meet the LCR,²⁷⁸ but SVB’s liquid assets were still quickly overwhelmed by the speed and size of withdrawals.²⁷⁹ Although the Fed has suggested that SVB was at times in technical breach of its liquidity requirements, there was no evidence to indicate that this failure related to an insufficient store of liquid assets.²⁸⁰ To the contrary, according to one estimate, SVB’s liquid assets were sufficient to comply with the more stringent LCR applicable to larger banks.²⁸¹ The run on SVB also suggests that better proxies for liquidity risk are depositor concentration and uninsured deposits.²⁸²

275. *FEDS Notes: The Liquidity Coverage Ratio and Corporate Liquidity Management*, FED. RSRV. (Feb. 26, 2020), <https://perma.cc/MV7T-5YQL>.

276. *Id.*

277. Erica Xuewei Jiang et al., *Monetary Tightening and U.S. Bank Fragility in 2023: Mark-to-Market Losses and Uninsured Depositor Runs?* (Nat'l Bureau of Econ. Rsch., Working Paper No. 31048, 2023), <https://perma.cc/QGY2-K3HS>.

278. Bill Nelson, *Silicon Valley Bank Would Have Passed the Liquidity Coverage Ratio Requirement* BANK POLICY INSTITUTE (Mar. 14, 2023, <https://perma.cc/WBJ3-VGZ3>).

279. See BASEL COMM. ON BANKING SUPERVISION, THE 2023 BANKING TURMOIL AND LIQUIDITY RISK: A PROGRESS REPORT 6 (2024), <https://perma.cc/G36U-EJZZ>; see also BASEL COMM. ON BANKING SUPERVISION, REPORT ON THE 2023 BANKING TURMOIL 9 (2023), <https://perma.cc/3MSM-P4CF>.

280. Quarles, *supra* note 147; CHRISTOPHER RUSSO, TAILORING LIQUIDITY RULES DID NOT CAUSE THE FAILURE OF SILICON VALLEY BANK 5 (2023), <https://perma.cc/XVH6-6PRV>.

281. Greg Feldberg, *Lessons from Applying the Liquidity Coverage Ratio to Silicon Valley Bank*, YALE PROGRAM ON FIN. STABILITY (Mar. 27, 2023), <https://perma.cc/TQH8-5MN4>.

282. See, e.g., *supra* notes 26 & 33.

Second, if a bank's ability to withstand a run on deposits is contingent on its store of liquid assets, depositors could be incentivized to withdraw at the first sign of trouble, before the bank's liquid assets are exhausted.²⁸³

Third, if a bank delays borrowing from the lender of last resort because it initially sought to stem a liquidity crisis by selling its liquid assets, the delay may allow a run to accelerate past the point at which lender of last resort lending is effective.²⁸⁴

Fourth, by requiring banks to hold a minimum amount of liquid assets, liquidity requirements had the unintended effect of reducing the supply of liquid assets available to banks that need liquidity from banks that do not.²⁸⁵

Fifth, by incentivizing banks to hold large quantities of government securities, liquidity requirements can distort banks' management of interest rate risks. SVB was exposed to interest rate risk as a result of its large holdings of government securities—in fact, it was the revelation of the severity of this risk, combined with the sale of a portion of its liquid portfolio to fund withdrawals, that triggered the run on SVB.²⁸⁶

Sixth, liquidity requirements impose economic costs since every dollar that banks must allocate to low-yielding liquid assets is one less dollar that they can lend to productive enterprises.²⁸⁷

Policymakers should therefore consider a redesign of liquidity requirements that (1) measures liquidity risk not by a bank's leverage ratio but by the concentration of a bank's depositors, its mix of retail and wholesale depositors, and insured and uninsured deposits, and (2) requires a bank to meet this risk not by holding government securities on its balance sheet but rather by maintaining a certain amount of discount window borrowing capacity.²⁸⁸ For example, banks could be required to have assets available to pledge with the Fed to support discount window loans sufficient to withstand a sudden withdrawal of a given percentage of its "runnable liabilities"—essentially uninsured demand deposit liabilities—over a very short period. This requirement could be paired with an enhanced commitment from the Fed to provide banks with discount window loans at stipulated haircuts and above-market

283. SCOTT, *supra* note 1, at 183-84.

284. *Id.*

285. *Id.*

286. *See supra* Part I.B.

287. Bill Nelson, Exec. Vice President & Chief Economist, Bank Pol'y Inst., Exploring Conventional Bank Funding Regimes in an Unconventional World, Remarks at the Federal Reserve Banks of Dallas and Atlanta Event (July 18, 2024), <https://perma.cc/UDQ2-YFW2> ("The ideal choice would be increased capacity to borrow from the discount window, which, like reserves, provides immediate funding but allows banks to devote more of their balance sheets to lending to businesses and households.").

288. Quarles, *supra* note 147; *Bank Capital and Liquidity Regulation: Hearing Before the S. Comm. on Banking, Hous., & Urb. Affs.*, 114th Cong. 8-9 (2016) (written testimony of Hal S. Scott, Dir., Comm. on Cap. Mkts. Regul.), <https://perma.cc/C7MD-HUGU>.

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interest rates, akin to the “committed liquidity facility” proposals set forth by former Bank of England Governor Mervyn King and the Bank Policy Institute.²⁸⁹

Recent findings provide further support for reorienting liquidity requirements around discount window borrowing capacity. Armantier and Holt, using an experimental approach, concluded that requiring banks to borrow randomly from a new discount window facility could prevent stigma from forming around such borrowing.²⁹⁰ Furthermore, Beyhaghi and Gerlach, using a confidential set of discount window borrowing data, found that banks were more willing to borrow through the TAF during the 2008 crisis than through the discount window due to the lesser degree of stigma associated with TAF borrowing.²⁹¹

A Fed borrowing capability requirement based on runnable liabilities would need to consider whether illiquid loans can be used to meet the requirement. As of now, a substantial portion of the collateral that banks voluntarily preposition at the Fed consists of loan assets: as of Q3 2021, the total value of pledged collateral was \$917 billion, equal to approximately 4% of the total assets of U.S. commercial banks, and about 60% of the value of this collateral consisted of loan assets.²⁹² Loans are not HQLA under the LCR and thus cannot be used to meet that requirement. However, they should be eligible under a borrowing capability requirement to the extent they are eligible to be pledged to the discount window.²⁹³ The requirement would need to track changes to the value of eligible loans over time to monitor banks’ continued compliance. The Fed has already developed procedures and methodologies for the monthly valuation of loan collateral pledged to the discount window. Since a borrowing capability requirement would seek to avert bank runs that could develop within days, these procedures would probably need to be enhanced to permit at least weekly revaluations of loan collateral.

There have been several preliminary proposals for borrowing capacity requirements that have been centered around the prepositioning of collateral.²⁹⁴ But as

- 289. Mervyn King, *We Need a New Approach to Bank Regulation*, FIN. TIMES (May 12, 2023), <https://www.ft.com/content/43b926a6-b1ba-47a6-91f7-9ad5f776f8f8>; Bill Nelson, *Seasonal Credit and Committed Liquidity Facilities*, BANK POL’Y INST. (Apr. 11, 2023), <https://perma.cc/JH4J-7TX4>.
- 290. Armantier & Holt, *supra* note 218, at 22-23.
- 291. Mehdi Beyhaghi & Jeffrey R. Gerlach, *Discount Window Borrowing 2003-2019* 32-33 (Soc. Sci. Rsch. Network, Working Paper No. 4507612, 2024), <https://perma.cc/32TG-N8YL>.
- 292. Plassman & Rosa, *supra* note 216; *Assets and Liabilities of Commercial Banks in the United States – H.8*, FED. RSRV. (Dec. 30, 2021), <https://perma.cc/SUK2-XDH3>.
- 293. The Bank Policy Institute similarly recommends that the Fed should provide banks, for a fee, with a committed line of credit collateralized by loans that count as HQLA. Baer et al., *supra* note 250.
- 294. For example, then-Acting Comptroller of the Currency Hsu described a liquidity regime that requires banks to “identify ex ante the assets that will be pledged to the discount window as collateral” and “pre-position[] them accordingly.” Hsu, *supra* note 199, at 5; see also GROUP OF THIRTY, BANK FAILURES AND CONTAGION: LENDER OF LAST RESORT,

described above, prepositioning should be unnecessary if it is possible to pledge collateral to the Fed without delay at the first sign of a crisis. Furthermore, if a new borrowing capability requirement is adopted, it should replace rather than supplement the LCR. If banks are required to have enough collateral to support discount window borrowings to cover all of their runnable liabilities, the LCR becomes “largely irrelevant” during stress times.²⁹⁵

K. The Fed’s Section 13(3) Lending Facilities Should Be Limited to Financial Companies Without Substantial Credit Risk

The events of 2023 also provide an opportunity for a more comprehensive reassessment of the Fed’s emergency lending powers. In particular, as a counterpart to limiting the Fed’s discount window lending to section 10B, past events show that the Fed’s section 13(3) lending authority should henceforth be limited to loans to financial companies without substantial credit risk.

During the COVID-19 pandemic, the Fed used its emergency lending powers under section 13(3) to create temporary credit facilities under which it loaned to non-financial corporations and small businesses.²⁹⁶ During both the 2008 financial crisis and COVID, the Fed leveraged its section 13(3) lending authority to effect indirect purchases of private securities that it could not purchase directly, thereby acting as a “market maker of last resort” with respect to non-government securities.²⁹⁷

The Fed’s assumption of these roles raises significant policy issues.²⁹⁸ In particular, both instances entailed potentially significant credit risk to the Fed.²⁹⁹ In the case of direct or indirect purchase of private debt securities, the risks are greater than in the

LIQUIDITY, AND RISK MANAGEMENT 12 (2024), <https://perma.cc/ZQ6G-5Y3E>.

295. *Id.*

296. Press Release, Fed. Rsrv., Federal Reserve Takes Additional Actions to Provide up to \$2.3 Trillion in Loans to Support the Economy (Apr. 9, 2020), <https://perma.cc/8CBY-E5CB>.

297. See, e.g., PERRY MEHRLING, THE NEW LOMBARD STREET: HOW THE FED BECAME THE DEALER OF LAST RESORT 2 (2011); Stephen G. Cecchetti & Kermit L. Schoenholtz, *Central Banks’ New Frontier: Interventions in Securities Markets, MONEY & BANKING* (Aug. 24, 2022), <https://perma.cc/SNL3-VVP3>; Alexander Mehra, *Legal Authority in Unusual and Exigent Circumstances: The Federal Reserve and the Financial Crisis*, 13 U. PA. J. BUS. L. 221 (2010).

298. COMM. ON CAP. MKTS. REGUL., REVISING THE LEGAL FRAMEWORK FOR NON-BANK EMERGENCY LENDING 13-18 (2021), <https://perma.cc/5KQ7-DW5P>.

299. Scott, *supra* note 166, at 1. To effect the outright purchase of private securities, the Fed leveraged its section 13(3) lending authority to effect indirect purchases that avoided the restriction of section 14(2)(b) of the Federal Reserve Act, which generally limits the Fed’s direct purchases of securities to Treasuries and other government-guaranteed debt. 12 U.S.C. § 355. The Fed established special-purpose vehicles (“SPVs”) and loaned funds to those SPVs under Section 13(3). Scott, *supra* note 166, at 2 n.1; see also JAY B. SYKES, CONG. RSCH. SERV., LSB10435, THE FEDERAL RESERVE’S LEGAL AUTHORITIES FOR RESPONDING TO THE ECONOMIC IMPACTS OF COVID-19 2-3 (2020), <https://perma.cc/PJE8-7UY2>. The Fed then caused the SPVs to purchase private securities, including risky corporate debt. *Id.*

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case of loans collateralized by private debt securities, since in the case of loans, haircuts can be applied to guard against the possibility of decreases in market value, and additional collateral can be demanded from the debtor during the course of the loan.³⁰⁰ Although such credit risks do not present a risk of bankruptcy, because the Fed can create money, they could put the Fed's reputation and credibility at risk, especially if the losses were high.³⁰¹

Fiscal policy, including any interventions in private securities markets, should be the sole role of the Treasury and not the Fed, since decisions about fiscal policy should be made by elected government officials that are accountable to voters, not independent agencies such as the Fed. Additionally, jointly tasking two institutions with the execution of emergency lending decisions for both banks and non-banks, as is currently the case under section 13(3), with no clear division of responsibility, means that it is difficult to decide where decision responsibility actually lies.

The Fed's lending facilities should be limited to providing liquidity to financial institutions where there is no substantial credit risk. Lending within these parameters should be the decision of the Fed, and Treasury approval should not be necessary for the Fed to engage in any such lending necessary to stem a bank run. By contrast, lending to non-financial institutions, or to financial institutions where there is substantial credit risk, should be extended only by the Treasury through pre-funded appropriations or guarantee authority. This includes loans to insolvent bridge banks, which should be funded by the Treasury either through their credit line to the FDIC or through use of the OLA, if justified. Congress should therefore grant the Treasury the authority to establish emergency lending facilities for non-financial institutions where significant credit risk is involved and limit the Fed's involvement in any such lending to operational support.³⁰² The amendments to section 10B and section 13(3) that are necessary to limit the Fed's lending authorities to financial institutions without substantial credit risk should also make clear that neither the Fed's lending authorities nor its asset purchase authorities under section 14 may be used to accomplish similar direct or indirect purchases of private securities.

CONCLUSION

The fundamental cause of the failure of SVB was the failure of its management to control the bank's liquidity and interest rate risk. However, once such a failure threatens the broader banking system with contagion, the function of the lender of last resort is to provide emergency liquidity as necessary and appropriate to address the threat. Our estimates indicate that SVB was solvent despite the run and could likely have fully collateralized a discount window loan equal to the size of its outstanding

300. Cecchetti & Schoenholtz, *supra* note 297.

301. Scott, *supra* note 166, at 2.

302. *Id.* at 10.

withdrawal requests. But the Fed and FHLB did not act successfully as lenders of last resort to stem the March 2023 run on SVB. SVB's failure set off a contagion in the U.S. banking system that brought down two other large banks. These failures came at a cost to the banking system: The FDIC's DIF has incurred an estimated \$38.3 billion in losses associated with the resolutions of SVB and Signature and the sale of First Republic. The causes of these failures were several. First, the Fed's discount window lending procedures and operations were unprepared for the speed and size of the run on SVB. Second, the existence of a second, *de facto*, lender of last resort in the form of the FHLBs exacerbated delays in delivering liquidity at critical moments during the crisis. Third, the Fed has not grappled with or made clear to the public how it should leverage its wide discretion to vary collateral requirements for discount window lending to optimize lending decisions in moments of crisis.

The events of March 2023 indicate that improvements are necessary if the lender of last resort lending is to serve as an effective tool in preventing the recurrence of future crises. In this Article, we have made eleven recommendations to that end. We have identified several operational improvements that can be made to quicken the provision of necessary liquidity, called for lender of last resort responsibilities to be confined solely to the Fed, and urged the Fed to reconsider how it can more effectively exercise its discretion to set collateral requirements to appropriately balance credit risks with the primary goal of a lender of last resort: preventing contagion in the banking system. We have also called on policymakers to reconsider how deposit insurance and liquidity requirements can be optimized to coordinate most effectively with lender of last resort lending to avert and respond to crises. In particular, we have argued that the events of 2023 cast serious doubt on the effectiveness of the current liquidity regime in ensuring banks are able to respond to a run, and suggested serious consideration of the potential utility of an alternative liquidity regime based on discount window borrowing capacity.