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Federal Reserve: Conflicts between Monetary Policy and Bank Regulation in Tackling Inflation

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Federal Reserve: Conflicts between Monetary Policy and Bank Regulation in Tackling Inflation

*Aaron Klein*¹

Abstract

COVID-19 was a worldwide economic shock, creating a global recession later followed by widespread inflation. The United States's response to COVID was particularly aggressive across three dimensions: monetary, fiscal, and markets. The US economy generally outperformed other nations similarly impacted by COVID. However, the US experienced substantial instability in its banking sector in the spring of 2023. Multiple banks failed, resulting in the Federal Reserve and other government agencies invoking emergency authority designed to protect financial stability.

This paper argues that the Federal Reserve has unique responsibility for this banking crisis from its multiple roles as (1) conductor of monetary policy; (2) financial stability regulator; (3) lender of last resort; (4) bank supervisor; and (5) payment system regulator and operator. These roles should in theory produce economies of scope allowing the Fed to more effectively perform each function. The spring 2023 US banking crisis instead shows that the Fed's current implementation of these roles causes substantial contradictions and problems resulting in unnecessary financial instability and bailouts of creditors. The promise of the financial reforms undertaken after the 2007–09 Global Financial Crisis, which resulted in increased regulatory power for the Federal Reserve, was greater financial stability and the end to financial bailouts. Yet, 15 years later, the Federal Reserve invoked its systemic risk authority in March 2023, citing a threat to financial stability emanating from the failure of institutions it supervised. These mistakes will result in slower economic growth and greater income inequality. Policymakers should question whether these roles should be separated, narrowing the Federal Reserve's mandate.

Keywords: central banking, crisis management, general outlook, macroeconomic aspects of public finance, macroeconomics and monetary policy

JEL Classifications: E5, E6, and H12

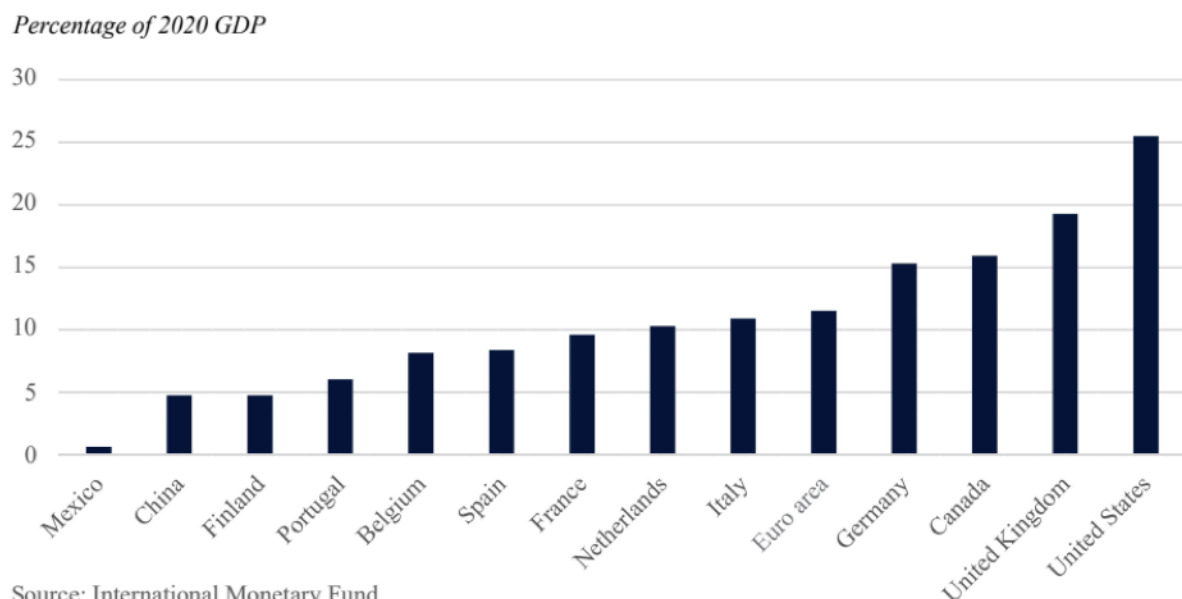
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I. The 2020s Economy: COVID-19 Shock, Inflation Rebound

The COVID-19 pandemic generated similar economic shocks around the world, with lockdowns, supply chain disruptions, and breakdowns in domestic economic activity and global trade. Central banks globally responded with sharp decreases in interest rates (Vallence and Wallis 2020). Fiscal stimulus was broadly enacted, with different mechanisms attempting to achieve similar results: targeting assistance to those most directly impacted and vulnerable to the subsequent recession while stabilizing the macroeconomy until the pandemic could recede (de Soyres, Santacreu, and Young 2022). Lenders-of-last-resort authorities were activated, with support provided to a broad array of participants including banks, broker-dealers, and in many cases owners of debt and other investors (Vallence and Wallis 2020).

The size and distribution of US fiscal stimulus was among the largest (CEA 2022). While the United States historically has a smaller social safety net than most other developed economies (Gould and Wething 2012), the US fiscal response was significantly larger. Figure 1 shows the US fiscal response amounting to more than 25% of GDP; no other country listed broke 20%, and the euro area average was just above 10% (CEA 2022, 102).

Figure 1: Discretionary Fiscal Response as a Percentage of GDP, 2020, for Selected Countries, Q1–Q3, 2021



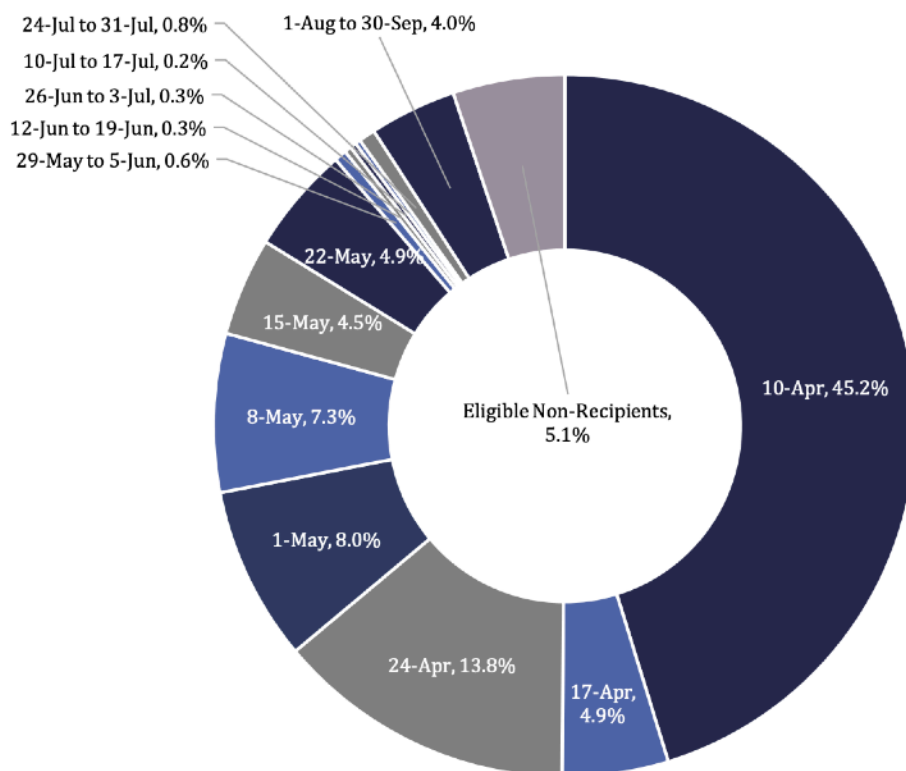
Source: CEA 2022, 102; IMF 2021.

The fiscal response consisted of large direct payments to individuals and businesses (CBPP Staff 2023). Direct individual and family support was provided to a large proportion of the

public—228 million individuals (about 70%) of Americans were eligible for the first COVID payments of \$1,200 for individuals, \$2,400 for married couples, and an additional \$500 for each child, with these amounts being reduced for individuals making more than \$75,000 annually (Clark et al. 2023, 5; US Treasury n.d.).

Although enactment of these payments was swift, delivery lagged. Despite divided government with a Democratically controlled Congress clashing with President Donald Trump, agreement was forged quickly to provide generous benefits. Congress enacted the Coronavirus Aid, Relief, and Economic Security (CARES) Act in March 2020, faster than economic indicators such as unemployment and GDP captured the magnitude of the pandemic's impact. However, payment was substantially slower. Payments were not sent out until two weeks after the law was passed and then only to a minority of Americans for whom the government had accurate bank data. By May 1, 34% of eligible families still did not have access to their initial payments, which continued to trickle out for months as shown in Figure 2.

Figure 2: Disbursement of Economic Impact Payments to Eligible Recipients, by Period, March–September 2020



Sources: Financial Health Network analysis of GAO reports from 9/21/2020 and 11/30/2020; Murphy 2021, 10.

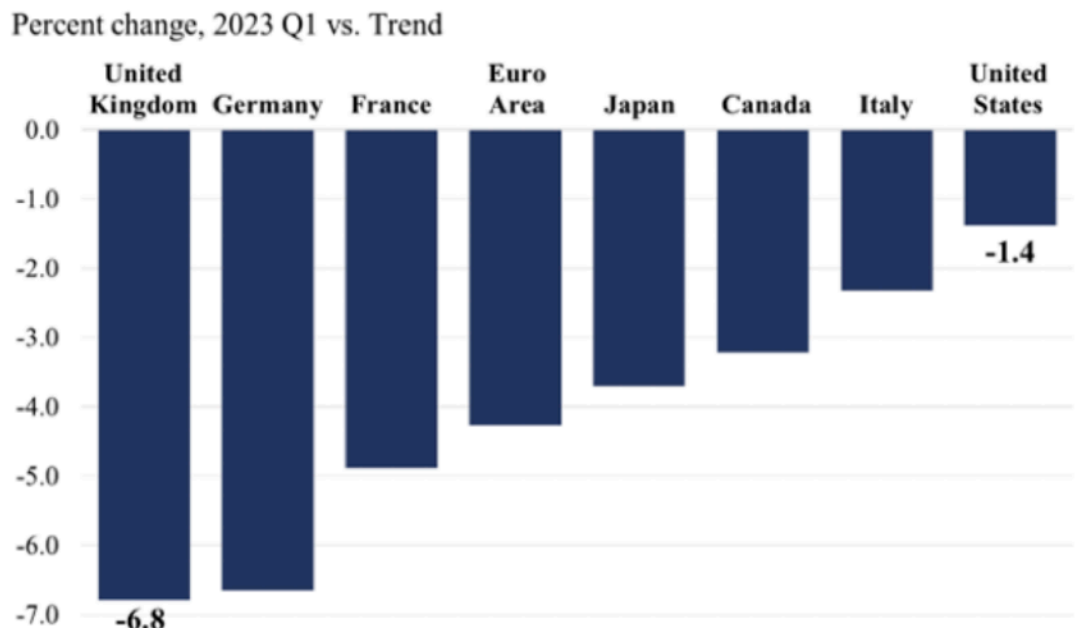
While business payments were often labeled as attempts to provide support to workers, such as the Paycheck Protection Program (PPP), they were largely transfers to owners with relatively little requirement that funds go to workers (Klein 2020). The US also uniquely

used the banking system as a conduit to reach business owners (Baker, Judge, and Klein 2022). The Federal Reserve supplemented banks' ability to liquify PPP "loans" that banks provided as they were turned in to grants through an emergency conduit known as the PPP Liquidity Facility (Schulhofer-Wohl 2020). As a result, aid skewed toward companies that had stronger relationships with banks (Glancy 2023; Li and Strahan 2021). Given the long US history of racial discrimination and existing differences in banking relationships, the result was also a disproportionate provision of aid toward white-owned businesses and away from those owned by women and minorities, particularly in the first round of PPP funding (Chernenko et al. 2023; Chernenko and Scharfstein 2021; Fairlie 2022).

Other countries, such as Germany, structured payments directly to workers through fiscal authorities such as taxation agencies rather than through banks (Gotbaum 2020). This approach resulted in more equitable distribution of assistance and improved targeting to workers. It also may account for the order of magnitude less fraud experienced in Germany compared to the US. In the US, \$67 billion (about 8%) of funds from PPP loans and \$136 billion of Economic Injury Disaster Loans (about 33%) were distributed to fraudulent actors, while a news report estimated German fraud in only the hundreds of millions (Deutsche Welle 2021; OIG 2023a).

Analysis is already underway studying the efficacy of the responses (OECD 2020). Some, including economist Jason Furman, have argued that "the US will come out of this economically better than any country that was similarly affected by the virus" (Matthews 2021). The US's GDP gap was the smallest relative to other advanced economies, as shown in Figure 3 (Harris and Sinclair 2023).

Figure 3: Real GDP Shortfall for G-7 Countries and the Euro Area Relative to Pre-pandemic Trends



Source: Haver Analytics, authors' calculations. Pre-pandemic trend is estimated over 2015-2019.

Note: Pre-pandemic trend is estimated over 2015-19.

Source: Harris and Sinclair 2023.

II. The US Mini Bank Panic of March 2023

The US suffered a bout of financial instability when four banks failed in a short time span starting in early March 2023. Bank failures alone are not a mark of financial instability in the US. To the contrary, banks routinely fail, with almost every year having at least one bank failure (Klein 2018b). However, in response to the bank failures in March 2023, the Federal Reserve and Federal Deposit Insurance Corporation (FDIC), with the support of the Biden administration, invoked exceptional authority designed only to address financial instability. This included the FDIC's invocation of its systemic risk authority and the Federal Reserve's creation of the Bank Term Funding Program that was capitalized by funds from the US Treasury (Fed 2023a).

This US financial instability should be considered in greater detail given that most of the rest of the Group of Seven (G-7) world did not likewise destabilize (with the important exception of Switzerland, which also experienced financial instability with the merger of Credit Suisse and UBS). To understand the root causes, it is important to begin with an overview of some of the unique aspects of the United States banking system. We will then incorporate the consequences of US pandemic response for the banking system. Finally, we will turn to the Federal Reserve's role as bank regulator in this crisis and connect dots to its

conduct as a monetary policy authority. This portion will include an analysis of the Fed's unique structure as a central bank comprising both a government institution (Board of Governors) and private entities (regional Reserve Banks).

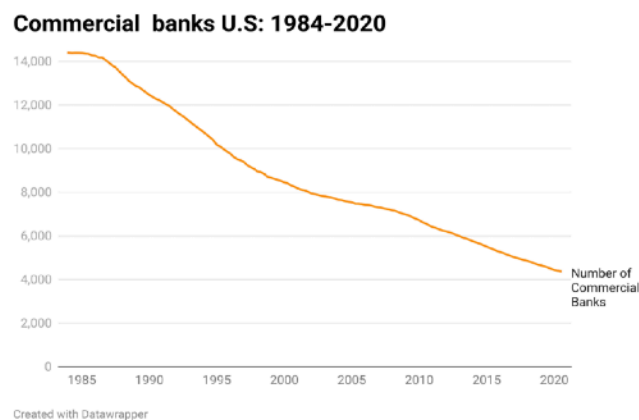
The US's Large and Diverse Banking System

The US banking system is globally unique on many dimensions, one of which is the sheer number of banks. The US has more than 4,000 banks, the largest number of any country (Vanek Smith 2023). The US also has more than 4,600 credit unions, bringing the total number of insured depository institutions to almost 9,000 as of the second half of 2023 (NCUA 2023).

The US has so many banks today because it had even more in the past. The US had more than 14,000 banks in 1986 (Emmons 2021). The country's fractured banking system was the result of legal structures that for much of its first two centuries precluded national chartering and for more than the next century functionally made multistate branching extremely difficult. Consolidation nonetheless took off during the late 1980s with a combination of technological changes benefiting scale and significant structural problems through the savings and loan system, which resulted in large public bailouts, depositor losses, and a massive wave of bank failures (Emmons 2021). Subsequent legislation (the Financial Institutions Reform, Recovery, and Enforcement Act of 1989 and the FDIC Improvement Act of 1991) reformed regulation and deposit insurance while the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 functionally removed prohibitions on interstate branching.

As Figure 4 shows, bank consolidation has been a hallmark of the US banking system since the mid-1980s. This long-term trend presents evidence counter to the argument that new legislation and regulation following the 2007–09 Global Financial Crisis caused bank consolidation, as some, such as Lux and Greene (2016), have claimed.

Figure 4: No. of US Commercial Banks, 1984–2020



Source: Adapted from FFIEC and St. Louis Fed 2023.

III. Fractured Regulatory System and Fractured Federal Reserve System

The US regulatory regime remains fractured along historical lines. The majority of US banks are state chartered, so they can choose their federal regulator between the Federal Reserve (so-called member banks) and the FDIC (nonmember banks). Nationally chartered banks are regulated by the Office of the Comptroller of the Currency (OCC). All banks are required to have federal deposit insurance, which gives the FDIC secondary backup regulatory authority and primary responsibility for resolutions. Finally, the US separates banking and commerce. That separation is enforced through a requirement that banks owned by an entity that owns multiple enterprises must be a bank or financial holding company. All banks and financial holding companies are regulated by the Federal Reserve.

The Fed's regulatory authority is both deep and broad. As the holding company regulator, the Fed has substantial authority over the largest, most complex financial institutions even if they operate nationally chartered banks. As a primary bank regulator and supervisor, the Fed has direct responsibility for many of the nation's state-chartered banks, most of which are small. Broadly speaking, regulation is the writing of rules and policies, while supervision is their enforcement. As Conti-Brown and Vanatta (2021) eloquently put it: "If regulation sets the rules of the road, supervision is the process that ensures obedience to these rules."

The Federal Reserve System is headed by a Board of Governors. The Fed Board has seven appointed governors, with three secondary appointments as chair, vice chair, and vice chair for supervision. The chair serves as the agency's head and, as discussed later, the leader of the Federal Open Market Committee (FOMC) that conducts monetary policy. The vice chair is the second in command of the Board. The supervision vice chair is essentially the head of the Board's bank regulation; the role was created as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 in response to Congress's conclusion that the Fed had failed in its role as bank regulator in what caused the financial crisis (Conti-Brown 2021). The Board is based in Washington, DC, as part of the federal government. Board governors are appointed by the president and confirmed by the Senate.

The Federal Reserve has 12 regional Reserve Banks, located in cities throughout the country, which are not part of the government.² Chartered by Congress in the Federal Reserve Act of 1913, the Reserve Banks are owned by their member banks and run by a president selected by the Reserve Bank boards of directors with approval by the Fed Board. The hybrid public-private nature of the Fed was designed to maximize political independence and allow for regional and banker input into the conduct of monetary policy (Conti-Brown 2021). Although the system has been altered over time, the Reserve Bank-Board structure has remained largely intact.

² The 12 cities that have Federal Reserve Banks are Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta, Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco.

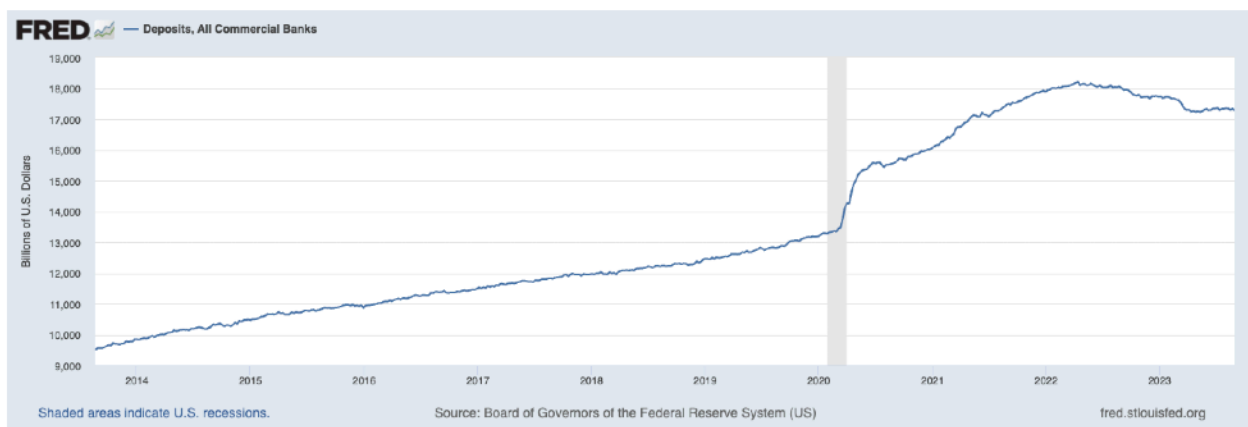
The Federal Reserve carries out its bank regulatory and supervisory responsibilities in a fractured manner. The Board of Governors is responsible for all regulation. Supervision is primarily a responsibility of the Reserve Banks. However, when banks or financial institutions become large enough, portions of that supervisory authority are transferred back to the Board. Thus, the Fed's internal supervisory structure relies on both the Board and the Reserve Banks to work collectively with coordination and similar judgment.

The hybrid regulatory and supervisory system of bank regulation and supervision mirrors the hybrid conduct of monetary policy. Monetary policy is established not by the Board but by the Federal Open Market Committee (FOMC). The FOMC consists of all Board governors and Reserve Bank presidents; however, voting membership on the FOMC consists of just the governors, the president of the Federal Reserve Bank of New York, and four of remaining 11 Reserve Bank presidents on a rotating basis. Thus, when fully constituted, the governors have seven votes to the Reserve Bank presidents' five. As a matter of custom, but not law, the chair of the Board is voted by the FOMC members as chair and the president of the Federal Reserve Bank of New York (FRBNY) as vice chair.

Sharp Rise in Deposits

The US banking system experienced a sharp rise in deposits as a result of response measures taken during the COVID pandemic. As Figure 5 illustrates, the trend line of commercial bank deposits was stable for years leading up to the pandemic but then jumped sharply and remained elevated for several years. Deposits rose by \$2.25 trillion between March 11 and September 16, 2020, as fiscal policy flooded consumers, businesses, and state and local governments with stimulus funds. Calculating from the data in Figure 5, this was a 17% increase in the existing deposit base. To put that in perspective, it took three years, from January 1, 2014, to January 4, 2017, to achieve a 17% deposit increase over the 2014 level.

Figure 5: Deposits, All US Commercial Banks, 2014–2023

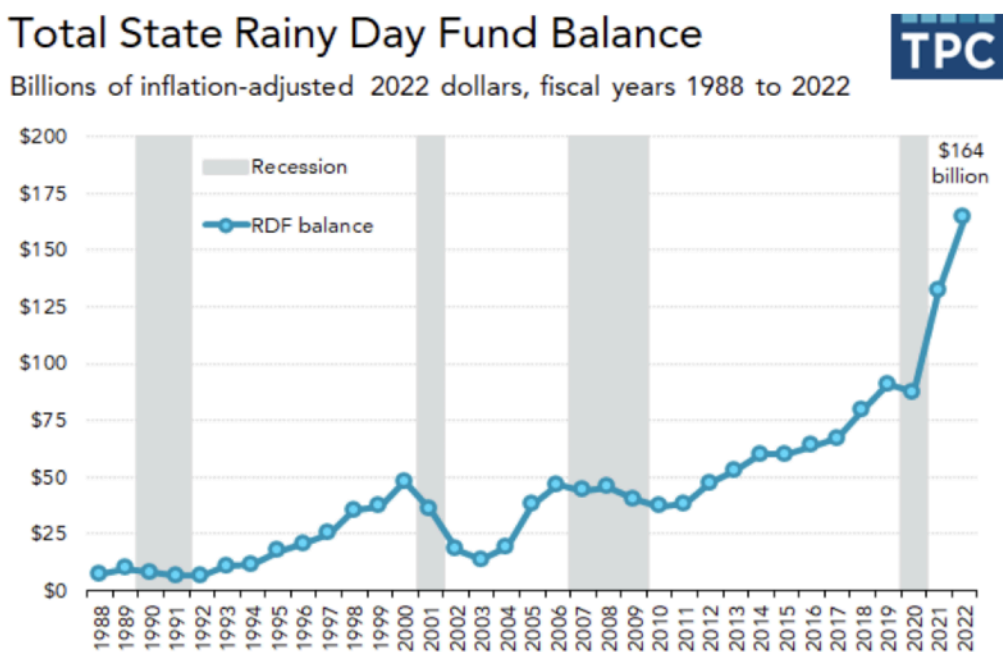


Source: Fed n.d.a.

The rapid growth in bank deposits in the US is plausibly explained in large part by the US's larger fiscal response than other nations (Castro, Cavallo, and Zarutskie 2022). The federal government flooded households, businesses, and state and local governments with cash. While some funding was directly spent to replace lost income, much was saved. Savings were likely particularly high given uncertainty regarding the length of COVID shutdowns and the recession.

State and municipal governments received larger surpluses of federal assistance than they could spend. State governments are required to run annual balanced operating budgets and use "rainy day" reserve funds to handle excess revenue and prepare for recessions.³ Forty-one states increased their rainy-day funds in 2022, owing in part to historic federal aid (Theal and Fleming 2022). Figure 6 shows the sharp increase of state rainy-day funds, nearly \$100 billion.

Figure 6: Total State Rainy Day Fund Balance



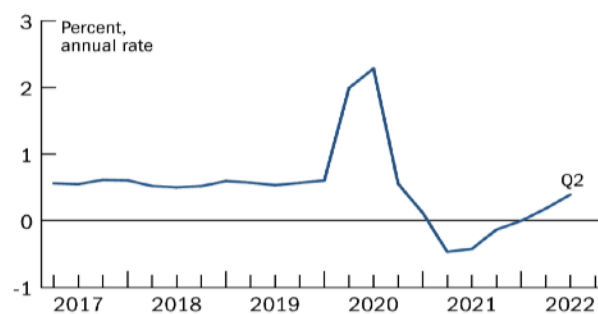
Sources: Boddupalli 2023; Bureau of Labor Statistics, Consumer Price Index, "R-CPI-U-RS Homepage: Updated R-CPS-URS, All items, 1977–2022;" National Association of State Budget Officers, State Rainy Day Fund Balances Historical Data Set, 1988–2024.

As seen in Figure 5, COVID policy responses resulted in the deposit base achieving three years of growth in a six-month time span. This left banks with a simple but important question: what to do with the excess deposits?

³ Technically, only 49 states have balanced operating budget requirements (Vermont is the outlier) (Boddupalli 2023).

Banks' traditional role is to take deposits and make loans (Gobat 2012). Thus, as deposits rise so too should lending. However, the pandemic changed both demand and supply for lending in multiple ways, most of which pointed toward reduced lending. First, there was a sharp recession. Economic contractions reduce the supply of bank credit as banks tighten lending standards and have reductions to capital in the form of increased loan loss reserves (Chen, Hanson, and Stein 2017). This happened in the United States, as illustrated in Figure 7 from the Federal Reserve's banking systems condition report, which shows the large increase in loan loss reserves in 2020 (Fed 2022, 5). Although this trend was reversed in 2021, the initial experience in 2020 resulted in lower availability of credit.

Figure 7: Provisions for Loan and Lease Losses as a Share of Average Loans and Leases, 2017–Q2 2022

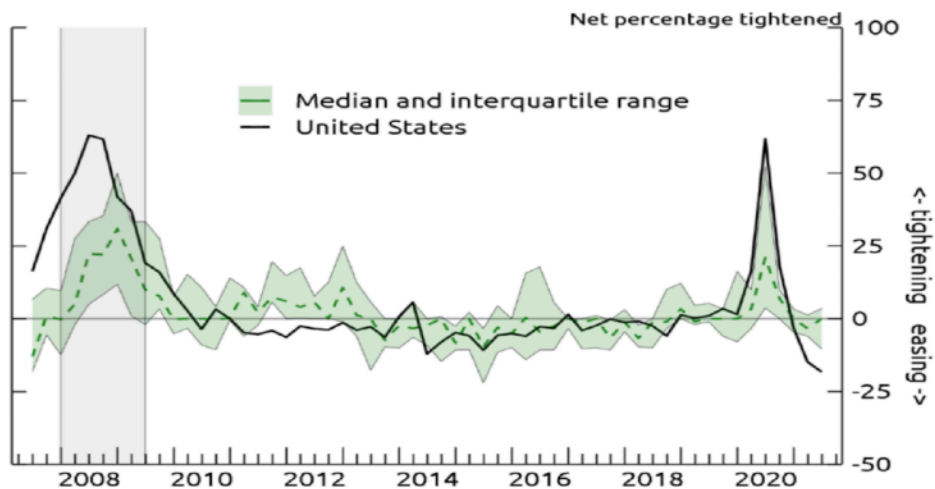


Sources: Call Report and FR-Y-9C; Fed 2022.

Additionally, high levels of uncertainty impact lending. Increased uncertainty about the future of individuals' financial status and businesses' ability to execute their plans generally leads to less lending (Buch, Buchholz, and Tonzer 2015; Raunig, Scharler, and Sindermann 2017). Banks should therefore tighten lending criteria and reduce total lending.

Banks reduced lending standards in the United States. Figures 8, 9, and 10 show changes in lending standards in the US against changes in loan demand. All show lending standards rising sharply in the US, even more so than in other countries. Figure 8 shows lending for households, the Figure 9 for all firms, and Figure 10 for a subsection of loans, commercial and industrial, that are closely followed (Bodovski et al. 2021).

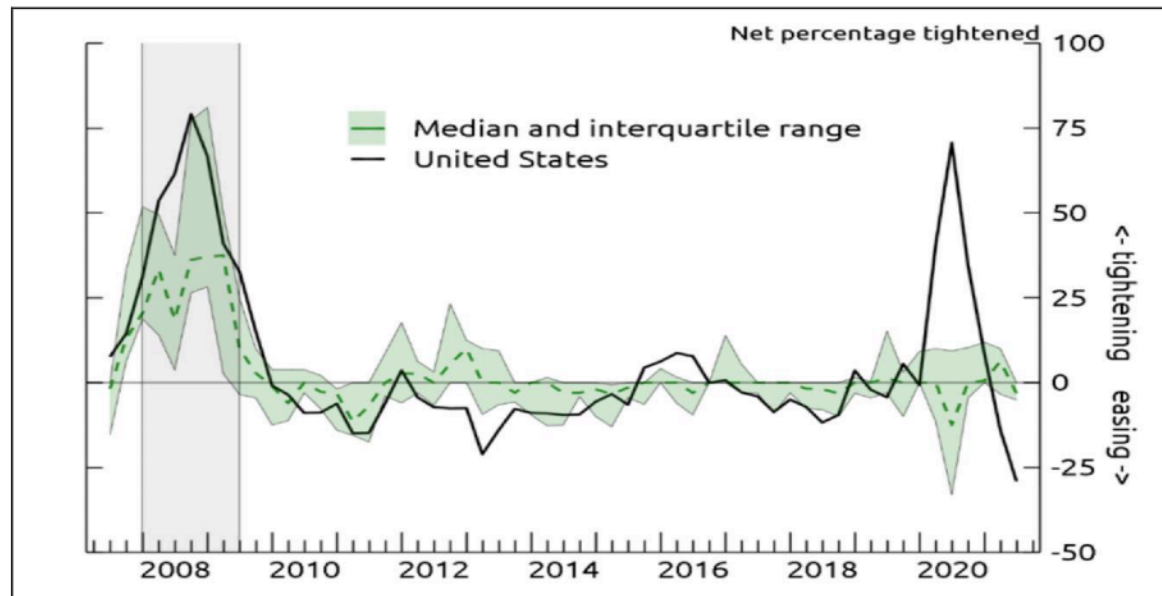
Figure 8: Changes in Lending Standards for Households in the US, 2007–2021



Note: The sample range is the interquartile range of lending standards for France, Germany, Italy, Japan, Netherlands, Poland, South Korea, Spain, United Kingdom, and United States. The shaded area denotes the Global Financial Crisis.

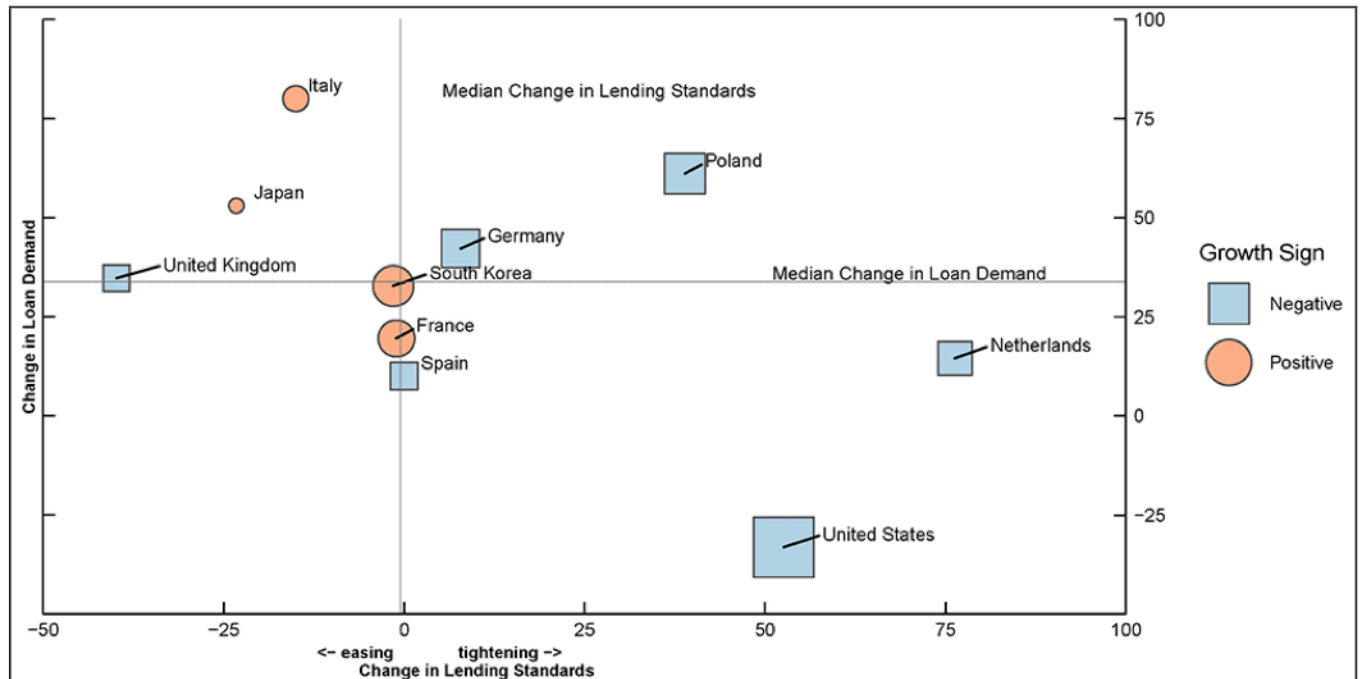
Sources: Bank of England; Bank of Japan; Bank of Korea; Bodovski et al. 2021; European Central Bank; Federal Reserve Board; National Bank of Poland.

Figure 9: Changes in Lending Standards for Firms in the US, 2007–2021



Source: Bodovski et al. 2021.

Figure 10: Changes in Commercial and Industrial Loans, Credit Standards, and Loan Demand in Selected Countries, 2020



Notes: Tightening Credit Standards refers to the net percentage of banks reporting a tightening of credit standards. Increase in Loan Demand refers to the net percentage of banks reporting an increase in the demand for loans over Q2–Q3 2020. C&I loans are commercial and industrial loans made to corporations not individuals.

Source: Bodovski et al. 2021.

The US economy recovered faster and at a greater level than other countries (Milesi-Ferretti 2021). All else equal, faster macroeconomic growth would be likely to correlate to faster lending. However, US banks tightened lending standards at a greater rate than observed in other countries. This created even greater excess deposits than observed internationally. The investing of these excess deposits created an important seed that led to the financial instability in the US banking system in the spring of 2023.

Monetary Policy and Bank Regulation: Increasingly Conflicting

US banks were awash in deposits during COVID, substantially driven by COVID-related fiscal policy. Lending opportunities declined during the pandemic, an expected outcome given the recession and rising uncertainty (Buch, Buchholz, and Tonzer 2015; Raunig, Scharler, and Sindermann 2017). The result was that banks needed to put their deposits in something. The Federal Reserve had cut rates to near zero, so parking excess reserves at the Fed would not be profitable. Investing excess deposits into securities became the option.

Banks purchased substantial amount of assets during the immediate COVID era. These assets were purchased during periods of very low interest rates, given the sharp reduction

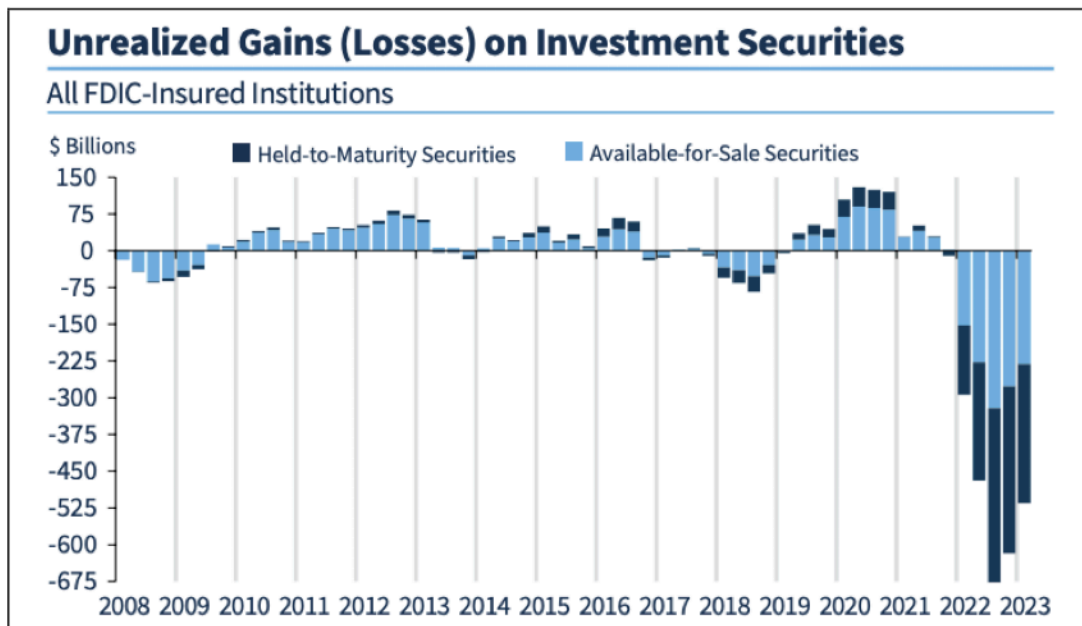
in interest rates by central banks globally in response to the crisis. Further, the flight to safety pushed down interest rates on US Treasuries and agency debt that is perceived by the market to have varying levels of government support, aka agency debt issued by US government-sponsored enterprises (GSEs).

Bank regulation, largely rewritten post financial crisis, places differing capital weights on different types of assets banks hold on their balance sheets. Risk-weighted capital requirements influence which assets banks hold (BPI Staff 2023). In addition, banks may choose to maximize safer assets for their own purposes to reduce risk. The main sources of risk in debt purchases are credit and interest rate. Banks devote substantial resources to analyzing credit risk in their lending businesses. That should provide an economy of scope in terms of risk analysis on holding debt originated by others. It may also incentivize a bank to hold lower-risk third-party-originated assets so that it can concentrate credit risk on loans it originates, which again should be a bank's comparative advantage.

As seen in Figure 11, the result was a massive purchase by banks of US Treasuries and agency debt. This debt was purchased yielding historically low interest rates. Thus, while credit risk of this debt was minimal, interest rate risk was substantial. As soon as the Federal Reserve raised interest rates, the value of these assets began to fall. The quicker interest rates rose, the sharper the decline in asset value.

The Federal Reserve began a historically fast cycle of interest rate tightening in 2022. Beginning in March 2022, the Fed raised interest rates by more than 500 basis points, as Figure 12 shows. By September 2023, interest rates were the highest they had been in more than 20 years.

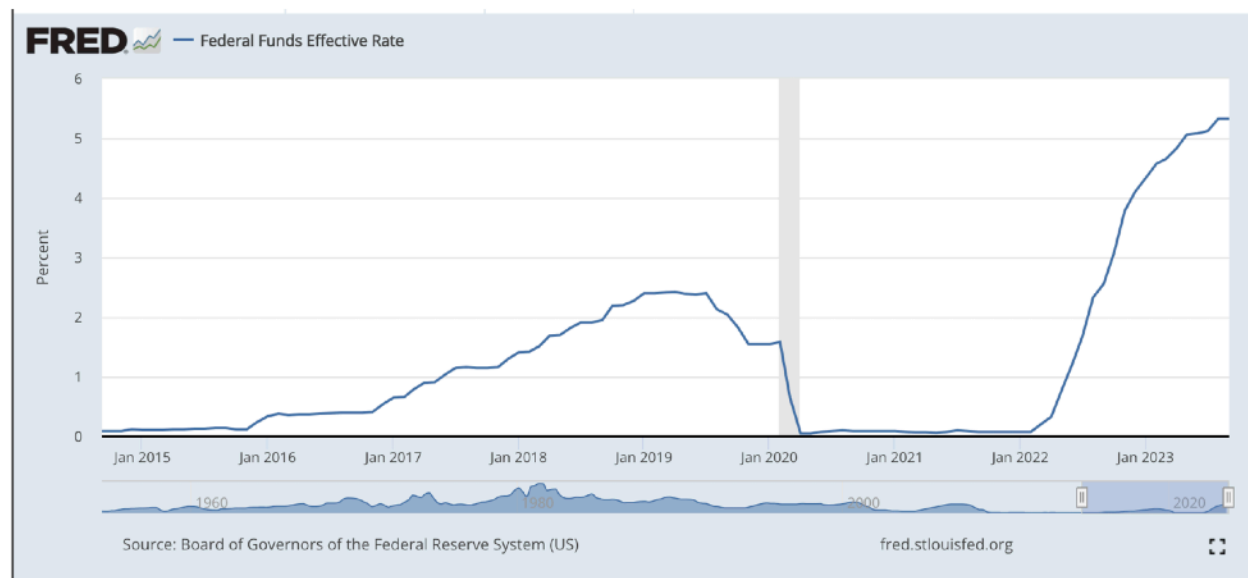
Figure 11: Unrealized Gains (Losses) on Banks' Investment Securities, 2008–2023



Note: Insured Call Report filers only. Unrealized losses on securities reflect the difference between the market value as of quarter end and the book value of nonequity securities. This calculation does not account for any unrealized gains or losses in “accumulated other comprehensive income” because they cannot be derived from Call Reports for the industry.

Source: FDIC 2023b.

Figure 12: Federal Funds Effective Rate, January 2015–September 2023



Source: Fed n.d.b.

The predictable result of the Fed's interest rate tightening was massive losses by banks on assets they had purchased with their excess deposits. Figure 11 shows losses greater than \$600 billion on these assets. Note, these losses occurred at rates not seen since the Global Financial Crisis, precisely because of the magnitude and speed of the Federal Reserve's movement of interest rates.

The FDIC chart in Figure 11 is color coded between the two accounting types of security assets a bank holds: held to maturity and available for sale. The sale of any asset that has been elected as held to maturity triggers an immediate reaccounting for the value of all assets in that category. This reaccounting would require the bank to mark to market the value of the entire held-to-maturity portfolio, bringing forward any embedded losses, draining earnings and regulatory capital. As a consequence, banks are further incentivized to hold assets they initially elected as held to maturity, even as their value falls, lest the entire pool be reaccounted for.

Banks disclose the value of both of these aspects of their balance sheets. And while the bank does not necessarily directly disclose the change in mark-to-market valuation of the assets, it can be easy to deduce the timing of the purchase of these assets and impute their value. For example, Figures 13 and 14 are Silicon Valley Bank's (SVB's) regulatory filings on its agency debt (mortgage-backed securities by Fannie Mae, Freddie Mac, and Ginnie Mae) in its filings for December 31, 2019 (Figure 13) and December 31, 2022 (Figure 14). At the end of 2019, the bank had just more than \$11 billion in these assets (row 13a) split roughly \$7 billion to \$4 billion between held to maturity and available to sale. After the onset of the pandemic, by December 2022, that amount had risen by more than 600% to upward of \$64 billion with more than 95% of the increase having been designated as held to maturity.⁴

⁴ A careful reader of the charts will see a similar increase of more than 6x in held-to-maturity securities issued by states and local governments (row 12) and a rough doubling of holdings of US Treasuries. Treasuries are held as available to sale column for SVB, an important distinction as that changed their accounting treatment. It also fights against the narrative that purchase of US Treasuries sank SVB; rather, the facts are that a much higher concentration in mortgage-backed securities issued by the GSEs was the culprit.

Figure 13: Silicon Valley Bank—Selected Balance Sheet Items Reported to Regulators in 2019

Dollar amounts in thousands	(Column A) Amortized Cost of Held-to-Maturity Securities		(Column B) Fair Value of Available-for-Sale Securities		
10. U.S. Treasury securities.....	RCON0211	0	RCON1287	6,778,868	10.
11. U.S. Government agency obligations (exclude mortgage-backed securities).....	RCON8492	518,728	RCON8495	99,547	11.
12. Securities issued by states and political subdivisions in the U.S.....	RCON8496	1,785,951	RCON8499	0	12.
13. Mortgage-backed securities (MBS):					13.
a. Mortgage pass-through securities:					13.a.
1. Issued or guaranteed by FNMA, FHLMC, or GNMA.....	RCONG389	6,992,008	RCONG390	4,148,791	13.a.
2. Other mortgage pass-through securities.....	RCON1709	0	RCON1713	0	13.a.
b. Other mortgage-backed securities (include CMOs, REMICs, and stripped MBS):					13.b.
1. Issued or guaranteed by U.S. Government agencies or sponsored agencies ¹	RCONG393	4,546,259	RCONG394	2,863,532	13.b.
2. All other mortgage-backed securities.....	RCON1733	0	RCON1736	0	13.b.
14. Other domestic debt securities (include domestic structured financial products and domestic asset-backed securities).....	RCONG397	0	RCONG398	0	14.
15. Other foreign debt securities (include foreign structured financial products and foreign asset-backed securities).....	RCONG399	0	RCONG400	0	15.
16. Investments in mutual funds and other equity securities with readily determinable fair values ²			RCONA511	NR	16.
17. Total held-to-maturity and available-for-sale securities (sum of items 10 through 16).....	RCON1754	13,842,946	RCON1773	13,890,738	17.

Source: SVB 2020.

Figure 14: Silicon Valley Bank—Selected Balance Sheet Items Reported to Regulators in 2022

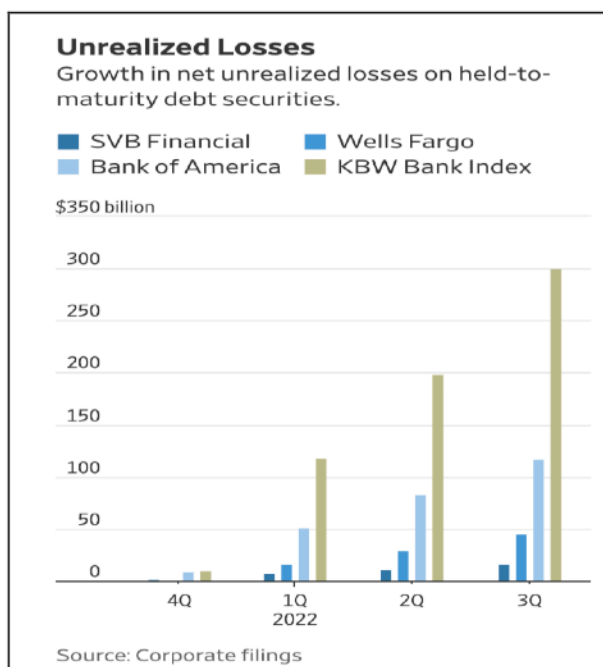
Dollar amounts in thousands	(Column A) Amortized Cost of Held-to-Maturity Securities		(Column B) Fair Value of Available-for-Sale Securities		
10. U.S. Treasury securities.....	RCON0211	0	RCON1287	13,130,000	10.
11. U.S. Government agency obligations (exclude mortgage-backed securities).....	RCON8492	486,000	RCON8495	101,000	11.
12. Securities issued by states and political subdivisions in the U.S.....	RCON8496	7,417,000	RCON8499	0	12.
13. Mortgage-backed securities (MBS):					13.
a. Mortgage pass-through securities:					13.a.
1. Issued or guaranteed by FNMA, FHLMC, or GNMA.....	RCONG389	57,705,000	RCONG390	6,603,000	13.a.1.
2. Other mortgage pass-through securities.....	RCON1709	0	RCON1713	0	13.a.2.
b. Other mortgage-backed securities (include CMOs, REMICs, and stripped MBS):					13.b.
1. Issued or guaranteed by U.S. Government agencies or sponsored agencies ¹	RCONG393	25,011,000	RCONG394	2,141,000	13.b.1.
2. All other mortgage-backed securities.....	RCON1733	0	RCON1736	0	13.b.2.
14. Other domestic debt securities (include domestic structured financial products and domestic asset-backed securities).....	RCONG397	708,000	RCONG398	0	14.
15. Other foreign debt securities (include foreign structured financial products and foreign asset-backed securities).....	RCONG399	0	RCONG400	0	15.
16. Not applicable.					16.
17. Total held-to-maturity and available-for-sale debt securities (sum of items 10 through 15).....	RCON1754	91,327,000	RCON1773	21,975,000	17.

Source: SVB 2023.

At this point, it is clear those assets purchased over that time span had lost significant value on a mark-to-market bases. Figure 15, from a *Wall Street Journal (WSJ)* November 2022 article, captures the losses accumulating in real time. Note that SVB was highlighted, along

with two much larger globally significant banks, well before SVB entered the market crisis (Weil 2022).

Figure 15: Growth in Net Unrealized Losses on Held-to-Maturity Debt Securities Owned by SVB, Bank of America, Wells Fargo, and KBW Bank Index, Q4 2021–Q3 2022



Source: Weil 2022.

In a separate article that reads as almost prophetic, the *WSJ* highlighted the disconnect between equity markets' view of SVB's health and the underlying financial health of the bank: "The stock market's failure to anticipate SVB's results highlights the enduring confusion about how banks and their clients will react to the Fed's supersize rate moves. . . . The turbulence in SVB's stock may be a harbinger of what is to come for banks when those increases cause unexpected twists" (Benoit 2022). The article's subtitle accurately focused on the two largest banks that would fail less than six months later: "Lending profits are under pressure at niche firms like Silicon Valley Bank and First Republic."

Bank regulation meant to reduce risk in the banking sector in combination with monetary policy meant to fight inflation led to banks' purchasing huge amounts of interest-rate-exposed assets that plummeted in value once the Fed raised rates. This illustrates the potential incompatibility of two of the Fed's responsibilities: regulating banks and conducting monetary policy. A closer look at Federal Reserve's role as the primary regulator of SVB further demonstrates this contradiction.

IV. Federal Reserve's Failure of Oversight and SVB's Failure of Management

The Federal Reserve was SVB's primary federal regulator owing to SVB's status as a state-chartered member bank. The Federal Reserve Bank of San Francisco carried out that regulatory role for much of this period. The Federal Reserve had multiple points of regulatory failure through this period. Problems include classic examples of regulatory neglect, misunderstanding of risk, and the failure of the regulator to take more forceful action quickly. Another set of problems relate to the structural relationship between SVB and the Federal Reserve.

Before examining the Federal Reserve's role in SVB's failure, it is important to start with the entity most responsible: SVB itself. The main reason for this bank's failure, like most bank failures, is poor management. The purpose of regulation is not to prevent bank failure; the US economic system is designed to allow banks to fail. The opposite would be the creation of thousands of perpetuities of banks guaranteed to survive regardless of the consequences of their economic actions. That is hardly capitalism.

The regulator's goal then is not to prevent failure. The regulator's goal is to make failure unlikely through prudent rules, regulation, and timely supervision to highlight problems at the bank before they metastasize and threaten the viability of the bank. If the bank's management makes bad judgements, violates the rules, and/or ignores the supervisory actions to the point that it fails, then the regulator must ensure that the failure of that institution does not jeopardize the stability of the broader financial system.

Thus, it is entirely consistent to acknowledge that the fault lies with SVB's management while also admitting that the Federal Reserve made significant errors. These errors failed to prevent SVB's collapse and the systemic consequences that caused the regulators to invoke financial stability exceptions and bail out creditors. The Fed's first paragraph of its SVB report does just this: "Silicon Valley Bank (SVB) failed because of a textbook case of mismanagement by the bank. Its senior leadership failed to manage basic interest rate and liquidity risk. Its board of directors failed to oversee senior leadership and hold them accountable. And Federal Reserve supervisors failed to take forceful enough action, as detailed in the report" (Barr 2023, 1).

Regulatory Neglect and Misunderstanding of Risk: Stress Tests Fail

Banks across the board, and SVB acutely, accumulated large interest rate risks as a result of purchasing low interest rate, low credit risk assets. Banks pursued this strategy in a manner that was approved by the Federal Reserve and other regulators. The Fed has developed a series of stress tests designed to ensure that banks are not individually or in a correlated fashion developing vulnerability to a shock. The Fed states its stress tests "are intended to capture how firms' net income and other components of regulatory capital would be affected by the macroeconomic and financial conditions" under different scenarios (Fed 2023b, 3). These scenarios are designed by Federal Reserve staff, and while specifics are confidential, broader trends can be understood.

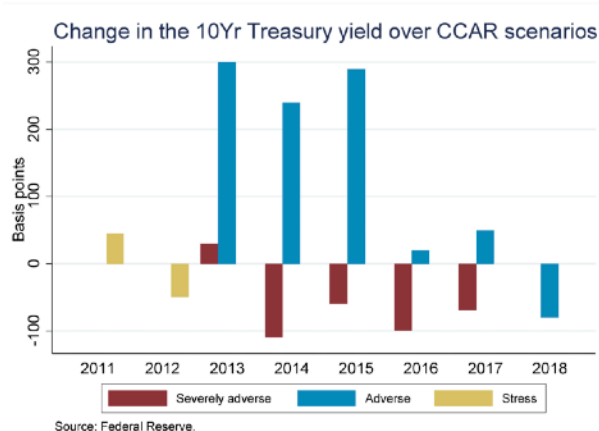
Two types of stresses can occur: those that can be reasonably foreseen and those that cannot. The COVID pandemic is one that would be difficult to have foreseen. As former Fed Governor Daniel Tarullo, who was deeply involved with the creation of stress testing, put it: “Precisely because a severely adverse scenario arising from the COVID shock was so different from the 2008-2009 shock, neither the Fed nor the banks had systematically worked through the implications for bank balance sheets” (Tarullo 2020). Having been unable to reasonably predict the macroeconomic consequences of the COVID pandemic, stress tests were unlikely to model such a scenario. Tarullo, in a June 2020 paper, draws the conclusion that stress tests were declining in value, stating that

the annual stress test had already shown signs of ossification . . . the world of stress testing has been turned upside down. Instead of a dynamic annual stress test, we have increasingly predictable compliance exercises. Instead of building on the 2009 SCAP and using stress testing to estimate the losses that could ensue from an extended COVID crisis, a stale scenario is used to allow banks to continue paying dividends. Instead of transparency around meaningful stress test results, the public has only aggregate numbers from a sensitivity analysis whose influence on bank capital policies remains unclear. (Tarullo 2020)

Some have drawn the opposite conclusion, that the short-lived success of banks during the COVID pandemic serves as an example of the success of stress testing. A March 2021 paper from researchers at the Federal Reserve, “COVID-19 as a Stress Test: Assessing the Bank Regulatory Framework,” concludes: “The overall robust capital and liquidity levels resulted in a resilient banking system, which maintained lending through the early stages of the pandemic” (Abboud et al. 2021, 2). Almost exactly two years later, this optimism proved deeply misplaced, and Tarullo’s concern proven correct.

The second type of scenario, that which can be foreseen, should be simpler. Interest rate risk is foreseeable. The Federal Reserve devotes considerable resources to understanding the impact of interest rates on the broader economy and the banking system. To some extent, the Fed controls market interest rates through its conduct of monetary policy. The Fed also controls, to some extent, the incentive for banks, particularly larger systemically important banks, to hold assets that have credit or interest rate risk. Changes to bank capital models alter economic incentives to hold assets of different risk natures. The Fed’s stress test is one of the most important such models (Baer 2018).

The Federal Reserve’s stress tests left banks vulnerable to a rising interest rate environment, according to a 2018 article written by former Federal Reserve then Bank Policy Institute economists Bill Nelson and Francisco Covas (see Figure 16). They find that: “For the past four years, with the exception of Comprehensive Capital Analysis and Review (CCAR) 2018, the Fed’s annual stress tests have been based on the assumption that long-term interest rates will fall, not rise. While banks are currently extraordinarily safe, with capital and liquidity levels at record highs, it is hard to see how banks could not have responded to the incentives created by the Fed’s stress tests by protecting themselves from rising rates by less than they would have otherwise” (Nelson and Covas 2018).

Figure 16: Change in 10-Year Treasury Yield over CCAR Scenarios, 2011–2018

Source: Nelson and Covas 2018.

The Fed’s stress tests thus drove banks to a certain type of asset. As Nelson and Covas (2018) states, “[T]he more the Fed cranks up the severity of the scenario to make it produce acceptable levels of stress even as banks adjust to pass the previous year’s test, the stronger are the incentives driving the banks to choose portfolios correlated to do well in that specific set of conditions, portfolios without loans to small businesses or loans to middle class households, but with an abundance of longer-term fixed-rate securities.”

Long-term fixed-rate securities were exactly what banks invested in. These securities then lost value as interest rates rose. This decline hollowed out bank capital, creating the conditions by which banks were vulnerable to runs. As former FDIC Chair Sheila Bair points out: “Unfortunately, the Federal Reserve’s recently completed ‘stress tests’ gave high grades to banks for passing exams that fail to prepare them for the biggest risk that likely awaits them: a prolonged period of high and rising interest rates . . . The assumptions within the Fed’s stress tests do not assess banks’ ability to withstand these very real challenges. Instead, the tests make those challenges magically go away by assuming that interest rates will return to zero fairly quickly if there is an economic downturn” (Bair 2023).

The inefficacy of these stress tests and capital allocation can cause bank failures regardless of the liquid nature of these assets. Much has been written on liquidity as a cause of bank runs (for example, Diamond and Rajan 2005; Williamson 1988). However, when highly liquid assets lose value, this can lead to rapid loss of capital and also cause a bank to fail. The Federal Reserve has correctly determined that “[w]hile the proximate cause of SVB’s failure was a liquidity run, the underlying issue was concern about its solvency” (Barr 2023, 2).

One recent paper analyzing the 2023 banking crisis creates a model that “illustrates that interest rate increases can lead to self-fulfilling solvency bank runs even when banks’ assets are fully liquid. The model identifies banks with asset losses, low capital, and

critically, high uninsured leverage as being most fragile” (Jiang et al. 2023, 1). This model presents troubling broader results: “Even if only half of uninsured depositors had decided to withdraw, almost 190 banks with assets of \$300 billion are at a potential risk of insolvency, meaning that the mark-to-market value of their remaining assets after these withdrawals would be insufficient to repay all insured deposits” (4). More recent concerns have risen after Bank of America acknowledged more than \$100 billion of losses on its asset portfolio in October 2023 (Gandel 2023). This spurs the question: Were the March 2023 problems only a precursor to a bigger quake to follow?

Regulatory Neglect and Delay

A second issue has to do with the Fed’s failure to act in a quick or forceful manner when problems are recognized. This criticism falls under bank supervision more than regulation. The Fed acknowledges it failed as a supervisor of SVB, stating that “supervisors did not fully appreciate the extent of the bank’s vulnerabilities, or take sufficient steps to ensure that the bank fixed its problems quickly enough” (Barr 2023, 2). The Fed argues that part of its failure as supervisor was owing to a different approach put in place as a result of a combination of legal and personnel changes enacted during the Trump administration. This includes both legal changes enacted in 2018 and regulatory rollbacks instituted by Vice Chairman Randall Quarles, who was appointed by President Trump. It is worth noting this critique is from a report authored by Fed Vice Chairman for Bank Supervision Michael Barr, who helped lead drafting of the Dodd–Frank Act under President Barack Obama and was then appointed to the Fed under President Joe Biden.

One aspect this critique of supervision highlights is that supervisory standards change over time, and those changes are correlated with and caused by differences in politically appointed personnel. Elections have consequences, and while the Fed as an institution has independence from the executive branch, the Fed is not immune from politics or political change. Presidents and Congresses that pursue increased levels of regulation will lead to greater regulatory oversight and tighter supervision. Presidents and Congresses that pursue deregulation will produce the opposite effect. Some have described this as a pendulum, although that somewhat assumes both a fixed and “correct” center that policy wobbles around (Péretié, 2011).

The Fed’s supervisory weakness had another element: its structure. Supervision of banks at the Fed is split between Washington and the Reserve Banks, as described earlier. The Fed uses a size threshold of \$100 billion after which a bank changes categorization from regional banking organization (RBO) to large and foreign banking organization (LFBO). Although both are supervised by the Federal Reserve Banks: “LFBO supervision is also delegated to the Reserve Banks but with greater Board staff involvement on substantive topics than in RBO supervision”(Barr 2023, 30). According to the Fed, SVB crossed that threshold in February 2021, and that transition between groups created problems: “Staff describe a sharp shift and “cliff effect” as SVB Financial Group rapidly went from RBO supervision to LFBO supervision, requiring building of a new supervisory team, implementation of horizontal examination processes, establishment of more intense continuous monitoring routines, and phasing in of EPS [(earnings per share)]” (35).

The Fed acknowledges its internal processes were too slow to recognize problems from SVB, too bifurcated between San Francisco and Washington, and dominated by a supervisory culture that was too timid. The Fed's own report does not discuss the conflict of interest between SVB's CEO and the Federal Reserve Bank of San Francisco (FRBSF), but its inspector general does, which is the subject of the next section of this paper.

Structural Considerations

Federal Reserve Banks have nine-member boards of directors, which include three bankers who are members of that Reserve Bank. Those bankers serve multiyear terms. Having bankers on the board of their regulators is a legal requirement and a clear conflict (US GAO 2011). Congress has failed to remedy this problem, taking only a minor step in the Dodd-Frank Act of removing the banker board members from a voting role in selecting the president of the bank (US GAO 2011, 10). This conflict of interest was apparent in SVB's regulatory treatment.

SVB's CEO was a member of the FRBSF's board of directors. The Federal Reserve's Office of Inspector General (OIG), in its material review of SVB's failure, notes that this "created an appearance of a conflict of interest for the [Federal Reserve] System" (OIG 2023b, 46). At one point during SVB's problems, the FRBSF considered removing the CEO from this position but was concerned that doing so would "reveal confidential supervisory information and potentially signaling to the market the bank's declining condition" (46).

The FRBSF concluded internally that it could not remove a bank's CEO from its board during a period of stress at that bank because doing so would signal to the market the bank's problematic health. This logic means that once a banker is appointed to a Fed bank board, the Fed is unable to remove the banker when the bank has problems. This exacerbates the appearance of a conflict, as a bank CEO's board role signals sound management of the bank to markets.

The Federal Reserve has supported the status quo, with Federal Reserve officials arguing to keep bankers on their boards. Former Federal Reserve Bank of Kansas City President Esther George argues that these bankers provide value in setting monetary policy: "Bankers provide valuable banking expertise regarding credit conditions, the payments system and the local economy, and I strongly defend the role of bankers as Reserve Bank directors" (George 2012).

Federal Reserve Bank presidents who vote on monetary policy rely on anecdotal insights from their board members, particularly their bank board members. This belief is also held by the bank CEOs who serve on these boards, as Federal Reserve Bank of St. Louis board member and Planters Bank CEO Elizabeth McCoy states: "[W]e are in a position to influence how the Federal Reserve feels about local economies and especially about rural America, and I think it's invaluable to the Fed as they try to develop monetary policy" (Smith 2021).

Bank CEOs serving on Federal Reserve Bank boards also create conflicts of interest in regulation. This is in both appearance to the market and in terms of the inability to remove such a director even when the bank is troubled. The Fed's preference for bankers to stay

relates to the bankers' input through the Reserve Bank presidents for their conduct of monetary policy. This is an example of the conflict between the monetary policy function and bank regulatory function of the Federal Reserve.

A policy recommendation from this conflict is simple: remove bank CEOs from Federal Reserve Bank boards. This requires an act of Congress, which has been proposed by Senator Bernie Sanders (I-VT) (Sanders 2023). However, according to the Fed's defense of the status quo, this would result in a lower quality conduct of monetary policy. If this is correct, then the banker CEOs selected must be adding value to the FOMC that results in a course of action different than it would have taken without their position as Reserve Bank board members. That means that monetary policy is influenced by the bankers selected as Class A directors, giving those bankers an outsized voice in the conduct of monetary policy. If the bankers do not meaningfully impact monetary policy, then the Fed's argument is logically false.

V. Additional Factors That Contributed (or Not) to Bank Instability

This paper's hypothesis is centered on the role the Federal Reserve played in capacities as central bank that contributed to the banking failures the US experienced in the spring of 2023. However, activities beyond the Fed's role played a meaningful role and deserve exploration. This paper considers three possible additional factors: crypto, changes in payment technology, and social media. It finds that crypto played a meaningful role in several of the bank failures, while payment technology and social media did not.

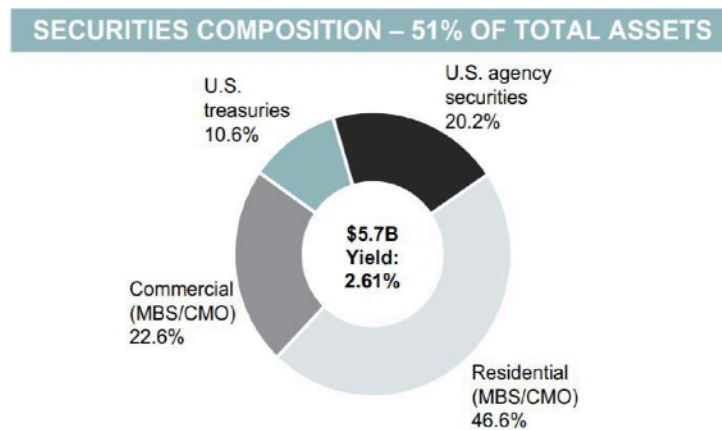
Crypto: Unique but Important Role

Many of the banks that failed in the United States in spring 2023 were exposed to cryptocurrency, and that exposure played a meaningful role in their failure. Four banks failed during this time period, the first of which was Silvergate Bank. Silvergate's failure did not result in the invocation of special systemic risk exemptions, nor were significant portions of the bank sold to other banks as was the case with the other three. Silvergate self-liquidated, a relatively rare method of failure resolution (Silvergate 2023a). Silvergate was heavily exposed to cryptocurrency, particularly FTX: as FDIC Chairman Martin Gruenberg stated in congressional testimony, Silvergate's "business model focused almost exclusively on providing services to digital asset firms" (Gruenberg 2023a, 5). Focusing on crypto clients is a theme common between Silvergate and Signature Bank (Gruenberg 2023a, 9). While both banks shared significant crypto business models, Signature bank was much larger, and crypto was a significantly smaller proportion of Signature's customer base (Tierno 2023, 1).

Silvergate experienced a sharp outflow in deposits as crypto crashed in the wake of FTX's collapse toward the end of 2022. This caused the bank to have to sell securities that had lost value as a result of rising interest rates (Silvergate 2023b). The securities were 70% residential and commercial mortgage-backed securities that were either directly issued by

the US government or issued by GSEs (Silvergate 2023b, 6). As of the end of 2022, these assets were earning a combined 2.61%, as shown in Figure 17 from Silvergate’s fourth quarter 2022 earnings. By that point, the Federal Reserve’s fed funds effective rate was already 4.33% with expectations in the market (supported by Federal Reserve statements) that it would continue to rise (Fed n.d.b).

Figure 17: Silvergate’s Assets as of Year-end 2022



Source: Silvergate 2023a.

Silvergate’s announcement on March 8 of its intention to wind down operations played a meaningful role in sparking the contagion that resulted in Silicon Valley Bank’s failure two days later (Gruenberg 2023a). Signature Bank in New York had substantial exposure to crypto. Signature Bank’s failure, the same weekend as SVB’s, played a substantial role in financial regulators’ invoking systemic risk authority to conduct broad-based bailouts of uninsured depositors at both institutions (Gruenberg 2023b).

In examining the cause of the failure of Signature Bank, the FDIC concluded that it “failed to understand the risk of its association with and reliance on crypto industry deposits or its vulnerability to contagion from crypto industry turmoil that occurred in late 2022 and into 2023” (FDIC 2023a, 2). Signature developed a digital payment platform, Signet, which it “touted as the first to market for an FDIC-insured bank [to enable its] clients to settle US dollar payments globally 24 hours a day/7 days a week/365 days a year within the bank” (13). The FDIC’s report found Signature had significant exposure to FTX, Alameda, and Silvergate Bank, whose own crypto problems caused its demise. These connections were broadly known in the market, as one CNBC article described Signature and Silvergate as “the two main banks for crypto companies” (Sigalos 2023). As Allen finds, “while most banks have eschewed crypto business, Signature Bank and Silvergate . . . had aggressively pursued business models based on providing banking services to crypto businesses” (Allen, forthcoming). As banking turmoil mounted with SVB’s and Silvergate’s earlier failure and Signature’s known exposure, depositors fled, and Signature quickly failed.

Exposure to crypto played a direct and meaningful role in the failures of Signature and Silvergate banks. Signature being the first failure and Silvergate's failure creating something of a tipping point for extraordinary government intervention, including bailing out uninsured depositors, lay a strong predicate for crypto playing a meaningful role in creating the turmoil in the US banking sector experienced that spring. Further, the only bank to fail since the spring, a small bank in Kansas, appears to have failed because ownership fell for a cryptocurrency scam (Albright 2023; Kline 2023).

Cryptocurrency regulation is not part of the Federal Reserve's mandate and is contradictory evidence to the core thesis of this paper. One could view cryptocurrency as a more traditional source of financial instability, that of a new asset whose value is not well understood. Despite substantial appreciation since its launch in 2008, crypto valuations have fluctuated widely, with long periods of bear markets, and some well-known failures of specific cryptocurrencies (FTT, Terra Luna, etc.). Financial crises require both asset valuation uncertainty and leverage (Klein 2022). That the banking system would have some level of exposure to crypto is perhaps predictable despite attempts by regulators to safeguard the system.

However, an alternative analysis attempts to link crypto speculation not to the emergence of a new asset such as internet presence or social media followers, but rather as an attempt by capital to chase yield in a structurally low interest rate environment. Hillary Allen, a well-known crypto skeptic, goes further than simply blaming exposure to crypto as the cause for these bank failures (Allen 2022). She argues crypto exposure was a symptom of a larger phenomenon driven by low interest rates. Her central argument is that "when policy makers respond to financial crises with prolonged periods of low interest rates, that can sow the seeds for the next round of financial instability – and those seeds may sprout in unexpected ways" (Allen 2022, 33). In this context, crypto is an example of the unexpected sprout of venture capital (VC) firms and other investors searching for higher yield as a result of prolonged periods of low interest rates stemming from the Global Financial Crisis. Thus, the magnitude of the crypto frenzy (she would argue bubble that will burst) is not completely an endogenous event, but rather related to the conduct of monetary policy by the central bank.

The False Narratives: Payment Speed and Social Media

The speed at which the spring 2023 banking failures occurred has been ascribed by some to changes in payment speed and by others to social media (Barr 2023, 4, 15, 24; Lopatto 2023). Attributing these changes to these external factors obviates the central bank from fault of judgement of poor supervision or the consequences of monetary or other regulatory policy. Incorrectly identifying the cause leads to policy solutions that are likely to fail to correct the problem.

Both of these arguments, faster movement of money and faster spread of information on social media, start with the argument that banks failed faster in 2023 than in the past. Figure 18 shows the share of outflow from the recent bank failures was similar to those in the past, while the share of deposits that were covered by insurance was also similar to

Continental Illinois's share.⁵ However, what was different was the speed of outflows, with depositors withdrawing their money more quickly. This speed of outflow change is one that is made to argue that bank failures are faster because of technology (Cookson et al. 2023; Neuman 2023; Sweet and Chloe 2023; Welburn 2023).

Figure 18: Selected Deposit Runs on US Banks, 1984–2023

Selected Deposit Runs from 1984 to 2023				
Bank	Date run started	Deposit insurance coverage (%)	Total outflow (%)	Duration of outflow
Continental Illinois	May 7, 1984	15	30	10 days (7 bus. days)
Washington Mutual	Sep. 8, 2008	74	10.1	16 days (12 bus. days)
Wachovia	Sep. 15, 2008	61	4.4	19 days (15 bus. days)
Silvergate	2022 Q4	11	52	Possibly 7 days or less
Silicon Valley Bank	Mar. 9, 2023	6	25 + 62*	1 day + expected next day
Signature Bank	Mar. 10, 2023	10	20 + 9*	1 day + expected next day
First Republic	Mar. 10, 2023	32	57	About 7-14 days (5-10 bus. days)

Note: Figures with asterisks are the expected amount of outflows that were scheduled to go out the next business day but did not actually occur because the banks were closed.

Source: Rose 2023.

However, careful analysis shows that the speed at which money actually moves out of banks is not faster today than it was in 2007–08 or even for Continental Illinois. Bank outflows are typically handled by bank payment networks (for example, ACH, Fedwire, etc.), which have remained batch systems operating only on working days. Although technology has allowed retail depositors the ability to initiate deposit movements from their homes or phones, retail depositors were not the ones moving funds. Furthermore, the United States, unlike much of the rest of the world, has not adopted faster or real-time payments for consumers (Klein 2023a). The Federal Reserve's faster FedNow payment system was not operational in March 2023 (it came online later in July). Nor had the Fed used its regulatory authority to force banks to move customer funds quickly, despite the legal authority to do so (Klein 2018a). Simply put, money did not move out faster because the speed at which money moves between banks in the United States has remained largely constant.

The real question is whose money is moving: the answer is predominantly large depositors'. As Figure 18 shows, 94% of SVB's depositors had accounts greater than \$250,000. The top 10 depositors at SVB had more than \$13 billion in deposits (Gruenberg 2023a, 13). Silvergate and Signature similarly were focused on institutional, corporate, and

⁵ The Continental Illinois failure in 1984 gave rise to the term "too big to fail" and is considered a benchmark in US bank failures for multiple reasons (Nurisso and Prescott 2017). One reason is that Continental was an early adopter of electronic banking and in fact did network its depositors and funds using the newly available computing power (see Rose 2023 for more). Given that it is nearly 40 years since Continental's failure and the widespread adoption of computing did change the way money moved, the analysis uses that as a benchmark.

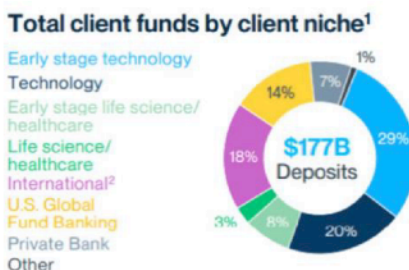
in many cases crypto-related clients. These banks did not have retail footprints the way that Washington Mutual or Wachovia, true regional banks that failed in 2008, had. Only First Republic had a somewhat larger retail deposit core, although its business model was more skewed toward wealthier individuals. However, First Republic limped along in terms of its depositors sticking. Figure 18 shows a time horizon for First Republic similar to those of previous bank failures.

As the Federal Reserve Bank of Chicago’s Jonathan Rose concludes: “there is little indication that depositors waited several days in 1984 or 2008 to make withdrawals because of technological limitations . . . [T]echnological changes since the 1970s appear capable of speeding up withdrawals for smaller uninsured depositors by a matter of hours or a day or two. But it is difficult to view depositors in 1984 or 2008 as delayed by several days by the technology of the time” (Rose 2023, 3).

The bank failures were the first systemic tremor to the banking system during the age of social media. Social media did light up around bank failures. One paper quickly produced after the bank failures in April 2023 goes so far as to try to ascribe a more causal relationship, arguing that: “negative sentiment tweets in the run period translate into immediate stock market losses” for these banks, speculating that social media played a meaningful role in these bank failures (Cookson et al. 2023). This analysis is flawed for several reasons.

The logic behind social media playing a role is that “greater exposure to social media increases communication during the run, which amplifies bank run risk by increasing” depositors’ willingness to pull their money, also known as a depositor run (Cookson et al. 2023, 1). This stated model logic is that depositors’ expectations of bank health influence their behavior, which is a logical starting part. However, in the case of SVB, we are not dealing with a random sample of depositors. SVB’s depositors were 94% uninsured, heavily corporate. The 10 largest controlled upward of \$13 billion in deposits, with the largest identified as Circle, a stablecoin currency. Figure 19 is a look at how SVB identified its depositors in Q3 2022 (SVB 2022, 10).

Figure 19: Silicon Valley Bank—Total Client Funds by Sector, Q3 2022



Source: SVB 2022b.

Analysis of SVB’s depositor base shows it to be heavily corporate, with a skew toward technology and start-up companies, which makes sense given its location and business

model. About 50% of US venture-backed technology and life science companies were depositors at SVB (Baker 2023). Specific companies included BILL Holdings (financial services technology) at \$670 million, Roku at \$487 million, ZoomInfo at \$284 million, Roblox at \$149 million, Vit Biotechnology at \$220 million, Oak Street Health at \$106 million, and many more corporations (Gilbert et al. 2023).

The logic behind the model states that corporate treasurers make decisions on the basis of changing their companies' bank accounts on the basis of tweets. This social media argument is not based on specific tweets by leading authorities but rather on total X (then Twitter) traffic. The article claims that the "severity of bank runs increases markedly when banks are in a Twitter conversation," without regard to who is engaged in the conversation (Cookson et al. 2023, 28). Estimates are that 5% to 15% of Twitter accounts are not people but rather bots (Dang, Paul, and Chmielewski 2022). Further, since Elon Musk's takeover of Twitter, the verification process for factual information has fallen. The logic behind this paper is not that retail investors get nervous because of what they see on social media and pull their money. The logic is that sophisticated corporate treasurers of large, often multibillion businesses, change their banks on the basis of the quantity of tweets and the conversation occurring between people on Twitter, regardless of their validation or reputation.

Who were corporate treasurers listening to? Venture capitalists who often had equity stakes in their companies. As the *Wall Street Journal* reported on March 9 as the bank run was taking place, Garry Tan, president of Y Combinator, a large Silicon Valley VC firm, posted this message to companies his firm invested in:

We have no specific knowledge of what's happening at SVB. But anytime you hear problems of solvency in any bank, and it can be deemed credible, you should take it seriously and prioritize the interests of your startup by not exposing yourself to more than \$250K of exposure there. As always, your startup dies when you run out of money for whatever reason (Weil and Eisen 2023).

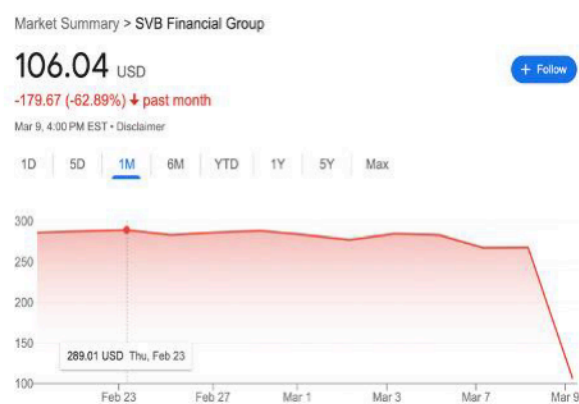
Tan was hardly alone, and SVB management took the threat of VC calls for companies to pull deposits so seriously that then-SVB CEO Gregory Becker held a video call on March 9 with VCs and SVB depositors urging them to keep their money with SVB (Baker 2023). That call did not work as depositors pulled more than \$40 billion, and the bank failed the next day.

The question then is what is more likely: that corporate treasurers listened to their VC investors and were not assured by personal interaction with the bank's CEO, or that they were monitoring unverified Twitter accounts and were moved by Twitter sentiment from strangers?

This flaw ought to be enough to question the paper's claims of causality. However, the paper goes further to try to relate bank equity price as an indication of bank health and then equity price to Twitter traffic. As Figure 20 shows, SVB's equity price was trading

stably for weeks before its failure. The week of its failure, it started in that same range, only falling sharply two days before its failure.

Figure 20: SVB Financial Group Stock Price, February–March 2023



Source: Google Finance.

Bank equity price was not a meaningful signal of SVB’s solvency. SVB’s assets did not change materially over this week. Using SVB’s equity price as an indication of the underlying health of the bank would lead an observer to argue the bank was healthy. Instead of a falling equity price causing depositors to run, it was the other way around. Depositor runs caused equity prices to react. A contemporaneous report argued that “the panic surrounding SVB kicked off Wednesday [March 8], when the company said it would book a \$1.8 billion after-tax loss on the sales of investments and see to raise \$2.245 billion by selling a mix of common and preferred stock” (McCabe 2023). Equity reacting to plans of dilution is a more logical explanation than Twitter traffic.

The equity pattern of SVB is not unique in bank failures. Signature Bank’s equity price hovered around \$110 per share from March 1 through 6, falling below \$100 only on March 9, two days before its failure (Yahoo! Finance n.d.). Lehman Brothers’s and Bear Stearns’s equity prices were substantially higher the weeks of their failures in 2008. Bank equity price is not a reliable indicator of a bank’s potential for sudden failure.

VI. Conclusion

The Federal Reserve was at the epicenter of the US episode of financial instability in March 2023. Banks were awash in deposits as a result of a combination of fiscal and monetary policy during the pandemic. Given troubled lending environments and regulatory rules focused on credit risk, banks invested in low-credit-risk long-duration assets, heavily mortgage-backed agency securities. The Fed’s shift to raising interest rates to combat inflation had the predictable impact of devaluing these securities. Losses grew on bank balance sheets, hidden in plain sight to regulators and investors.

The Federal Reserve was in the pole position as bank regulator. Silicon Valley Bank was so closely linked to Fed supervision that its CEO was on the board of the Reserve Bank that regulated it. SVB's business model screamed a series of risks that should have been caught by basic supervision and regulation: rapid asset growth, overreliance on Federal Home Loan Bank borrowing, declining asset valuation, heavy reliance on uninsured deposits that worse yet were highly correlated to venture capital, and poor management. Yet the Fed missed these obvious warning signs and allowed SVB to continue until it was far too late. SVB's demise was rapid, also catching the Fed off guard.

The most immediate, proximate cause of SVB's failure was the failure of Silvergate, another bank under the Federal Reserve's regulatory purview. Silvergate was much smaller than SVB but shared similar bad business practices of overreliance on uninsured deposits and concentration in depositors among the tech sectors. Federal Reserve supervision and regulation was problematic and insufficient in both cases (Jarsulic and Thornton 2023).

In the fractured US regulatory system, it is ironic that the bank whose failure started a crisis so severe regulators judged it a systemic threat to the financial system, the central bank's monetary policy choices would be the mechanism by which the bank's asset quality would degrade. That the Federal Reserve would be unable to detect this vulnerability brings in to question the Fed's competence as a bank regulator.

Other countries have split the role of monetary policy and bank regulation. This model is often referred to as "twin peaks" and has been tried in many countries, often with successful results (Schmulow 2018). Regardless of the structural model pursued, regulators and supervisors must act with independence and quality judgement. Both were lacking in the oversight of the banks that failed.

The Federal Reserve, like many central banks globally, gained greater authority after the Global Financial Crisis (Calvo et al. 2018). This authority included macroprudential and microprudential tools. As it relates to the March 2023 crisis, the Fed's failure as a microprudential regulator and supervisor resulted in its use of macroprudential systemic risk tools designed to bail out and stabilize the broader US financial system.

The modest reforms to the Federal Reserve Bank structure under Dodd-Frank appear to have been insufficient. As the Bank for International Settlements finds in its review of regulators across the Group of 20: "enhanced supervisory effectiveness may require some institutional changes" (Calvo et al. 2018, 3). The conflict of interest from having the SVB CEO on the board of the FRBSF limited the Fed's response to problems at the institution and gave the appearance (at the least) of greater supervisory and regulatory approval.

Removing all bankers from the boards of the Federal Reserve Banks is one recommendation that addresses some of the structural problems inherent at the Federal Reserve. It is perhaps the least aggressive change. A more aggressive change would be to move bank regulation out of the Fed to one of the two other main bank regulators (OCC or FDIC). This move is justified based on the Fed's track record as the supervisor. Further,

such a move could enhance the freedom and flexibility of the Fed to conduct monetary policy.

Monetary policy is the Federal Reserve's top priority, as it should be (Klein 2023b). Every organization can only have one number one priority. Ancient Greek philosophy called this top priority *telos*, the one North Star guiding goal. Adding responsibilities and goals to the Federal Reserve requires them to be secondary objectives to the organization's *telos*. This may be okay. Organizations can achieve multiple objectives. Objectives can be complementary, benefit from economies of scope, and even improve each other's understanding.

Bank regulation and monetary policy have the potential to create many benefits through coexisting in a single institution. They also have the potential to be in conflict. The financial instability episode of March 2023 is a clear example of their conflict. To prevent similar failures in the future, reforms of the Federal Reserve System are needed.

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