

# Policy Paper

## THE CURRENT BANKING CRISIS AND U.S. MONETARY POLICY

By Hinh T. Dinh

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The current banking crisis in the United States began with the Silicon Valley Bank (SVB) run in March 2023 and was followed by other bank failures, raising concerns about the health and stability of the financial sector. This Policy Paper traces the root causes of these bank failures and examines the U.S. monetary policy decisions during this period. These bank failures were caused by the poor risk management practices of the failed banks, the sector's weak regulatory structure, and the failure of bank supervisors. However, a key factor that contributed to the extent and speed of the current bank crisis is the U.S.

Federal Reserve's (Fed) actions. The Fed's decisions to keep zero or near-zero interest rates over the long period of 2009-2022, to continue with the zero-reserve requirement for banks after the pandemic, and to delay raising the Federal Funds rate in 2021, despite emerging inflationary signs, have contributed to the risk-taking behavior of the banks and to the current banking crisis. The Fed's decision in 2021 also diverged from Taylor rule prescriptions, which it had adhered to since 1995. Given the long lag between Fed decisions and actual results on the ground, a question may be asked if it is time to go back and rely more on rules-based monetary policy, as Milton Friedman (1968) suggested over half a century ago.

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## INTRODUCTION

On May 1, 2023, the U.S. Federal Deposit Insurance Corporation (FDIC) placed First Republic Bank (FRB) in receivership. On the same day, most of FRB's assets were bought by JPMorgan Chase. With \$212 billion in assets, FRB is the second largest U.S. bank to fail since Washington Mutual in 2008, and the third U.S. major bank<sup>1</sup> failure in 2023, after Silicon Valley Bank and Signature Bank. All three banks had faced mark-to-market losses on treasuries and had risky structures for their deposit base. On Thursday, May 4, 2023, public trading of the stocks of two regional bank, California-based PacWest and Arizona's Western Alliance, had to be halted following a dramatic drop in their share prices<sup>2</sup>. While most economists agree that these bank failures will not affect the overall health of the U.S. financial sector, which remains sound after measures taken post-Global Financial Crisis (GFC) 2007–2009 to boost the capital and reserves of financial institutions, public confidence in small and medium regional banks has eroded, and bank runs remain a threat to the banking sector's stability.

Confidence is the foundation of the banking business, and a lack of confidence, facilitated by the internet and electronic banking, which allows large deposits to be withdrawn at short notice, could make self-fulfilling prophecies a reality. Regardless of how the government comes to the aid of the regional banks, it is widely expected that the resulting tightening of banking regulations will lead to cutbacks in lending, and slower economic growth. Furthermore, just like these three failed banks, other firms in the economy will also be squeezed by rising interest rates and falling asset values. Unlike banks, they are unlikely to be bailed out by the government, but their impact on the real economy is important, nonetheless.

This Policy Paper traces the root causes of these bank failures and the U.S. monetary policy decisions that partially led to this crisis. Details regarding the first bank failure, Silicon Valley Bank (SVB), were analyzed in a Policy Brief dated March 22, 2023, by this author (Dinh, 2023), and will not be repeated here. Briefly, SVB was a classic bank run. In a low-interest rate environment, SVB had invested the rapidly growing deposits of its clients, mostly venture capital firms, in long-term securities hoping to get higher yields. In 2021, over 95% of total deposits in SVB were demand deposits (Annex 1), meaning they could be withdrawn at any time, and 90% of the deposits exceeded the \$250,000 limit insured by FDIC. When interest rates rose and SVB depositors withdrew money to seek higher returns elsewhere, SVB could not meet this demand and had to sell its securities at a big loss, because the value of these assets had declined in the context of increasing interest rates. This caused a loss of confidence, prompting more withdrawals, and, given the speed of internet banking, led to a bank run on SVB.

In that Brief, we identified four major factors behind the SVB crisis: i) sharp interest rate increases by the U.S. Federal Reserve (Fed), which adversely affected SVB's income and balance sheet; ii) the failure of SVB's management to manage maturity mismatches; iii) the failure of the regulatory and supervisory agencies in discovering the problems and fixing them; and iv) the failure of the 2018 revised Dodd-Frank regulations to subject mid-size banks such as SVB to the same rigorous

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1. The first bank failure was actually California-based Silvergate, with assets of about \$11 billion, with 90% of deposits tied to cryptocurrency businesses.

2. Shares of the former fell by 60% on May 3 and another 50% on May 4, while those of the latter fell by 45% on May 4, 2023. *The Guardian* <https://www.yahoo.com/finance/news/trading-halted-shares-two-more-163731991.html>.

requirements that large banks have to meet, such as stress tests. Most of these factors have recently been confirmed by other studies, including a comprehensive post-mortem review by the Board of Governors of the Federal Reserve (2023). More anecdotal details that have emerged recently also show that not only did SVB not have a Chief Risk Management Officer in position in 2022, but most staff in that office were also working from home.

## What happened to First Republic Bank?

Following the SVB failure, many depositors in small and medium U.S. banks began to transfer their uninsured deposits<sup>3</sup> to larger banks. First Republic Bank (FRB), a commercial bank catering to high-net-worth individuals based in California, experienced this phenomenon. By the end of March 2023, depositors had withdrawn about \$105 billion from the bank, roughly half of its \$213 billion assets. About 68% of the bank's deposits were uninsured, compared to 90% of SVB. In mid-March, the bank's credit rating was downgraded by Standard and Poor's, leading to the establishment of a consortium of 11 large banks, including JPMorgan Chase and Bank of America, to rescue it. The consortium shored up FRB's capital with a \$30 billion deposit, but this did not prevent the bank stock prices from dropping further. The bank was also unable to make use of the Fed's newly established Bank-Term Funding Program, because almost 60% of its investment securities were in municipal bonds (Annex 2) and as such did not qualify as collateral. So, like SVB, on April 28, 2023, FRB began to sell its long-term assets at a loss in order to raise equity. When it was announced that the FDIC was taking over the bank that day, its stock price dropped by 43%. When the stock price dropped further in after-hours trading, the FDIC approached various banks and gave them two days to place bids for FRB. On May 1, the FDIC announced that FRB had closed and its assets seized by the FDIC. JPMorgan Chase then won the bid auction, paying \$10.6 billion for most of FRB's assets.

FRB shared many features with SVB (Annexes 1 and 2). First, both had a large base of uninsured depositors who could withdraw their money at short notice via electronic banking. Second, both held most of their assets in long-term bonds and/or loans, which created the duration gap risk that the banks did not hedge (through derivatives, for example). Third, both banks had a rather specific groups of clients as depositors: venture capitalists with SVB and high-net-worth individuals with FRB. Fourth, both had faced collapses in their stock prices before the FDIC took over. The major difference between the two seems to be that SVB's portfolio was more liquid than FRB's. A large proportion of FRB's assets consisted of net loans (78% of total assets compared to 35% for SVB), particularly mortgage loans (64% for FRB compared to 6% for SVB). Most of SVB's assets were in the form of securities, including 43% in mortgage bank securities (Annex 1).

Beyond U.S. borders, and following SVB's collapse, Credit Suisse (CS), one of Switzerland's most venerable institutions, was bought out by UBS, the largest bank in the country, to prevent its collapse. Credit Suisse's assets at the end of 2022 amounted to some \$1.5 trillion and it employed over 50,000 people in 150 offices in 50 countries worldwide. However, the root cause of CS's failure was different from that of SVB and FRB. CS had faced a series of scandals and mismanagement leading to serious losses prior to the buy-out by UBS. In 2020, CS's CEO resigned following a spying scandal, and in 2021, CS experienced a \$1 billion loss because of the collapse of Archegos. In 2022, the Board chairman resigned and by late summer, there was a rumor that the bank was about to fail, leading to clients withdrawing \$119 billion in the last quarter of 2022. In early 2023, it planned to borrow money to shore up liquidity and boost investor confidence. But when the bank's top backer, Saudi National Bank, could not fund it, the country's regulatory authorities allowed UBS to take over without shareholder approval.

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3. Defined as individual accounts with a balance higher than the maximum \$250,000 insured by the FDIC.

In the aftermath of SVB's failure, the Fed conducted a comprehensive post-mortem<sup>4</sup> of the Fed's supervision and regulation of SVB (2023). This review was published on April 28, 2023, and points to four factors: i) failure of SVB's board and management in managing risks; ii) Fed supervisors not fully appreciating the seriousness of problems in SVB's governance, liquidity, and interest rate risk management; iii) once the Fed's supervisors identified the vulnerabilities, they did not take sufficient measures to make sure SVB fixed them; and iv) over the last few years, the Federal Reserve Board changed its regulatory and supervisory policies in response to a combination of external statutory changes and internal policy choices. The Fed report is both candid and thorough. The four factors it noted were also those we pointed out in March, except for the Fed's decisions to raise interest rates.

Absent from the Fed report is any mention of the key trigger for SVB's failure and the subsequent regional bank failures. This trigger was the Fed's decision to hold interest rates at a near-zero level over a long period, from 2009 to 2022, and the repeated and large interest rate increases in the 12-month period beginning in March 2022. Between March 17, 2022, and March 2, 2023, the Fed raised the federal funds rate (FFR) nine times, from a range of 0-.25% to 4.75%-5.0%. Most recently, on May 3, 2023, it raised the FFR by another 25 basis points (bps) to a range of 5.0%-5.25%, the highest in 16 years. Table 1 shows the dates and the ranges of interest rate increases. The Fed's actions have been grounded in concerns about inflation, which has its roots in the rising fiscal deficit to cope with the pandemic, supply chain bottlenecks following the pandemic, and the Ukraine war.

**Table 1**

### Fed Rate Increases 2022–2023

FOMC Meeting Date	Rate Change (bps)	Federal Funds Rate
May 03, 2023	+25	5.00% to 5.25%
Mar 02, 2023	+25	4.75% to 5.00%
Feb 01, 2023	+25	4.50% to 4.75%
Dec 14, 2022	+50	4.25% to 4.50%
Nov 02, 2022	+75	3.75% to 4.00%
Sep 21, 2022	+75	3.00% to 3.25%
Jul 27, 2022	+75	2.25% to 2.50%
Jun 16, 2022	+75	1.50% to 1.75%
May 05, 2022	+50	0.75% to 1.00%
Mar 17, 2022	+25	0.25% to 0.50%

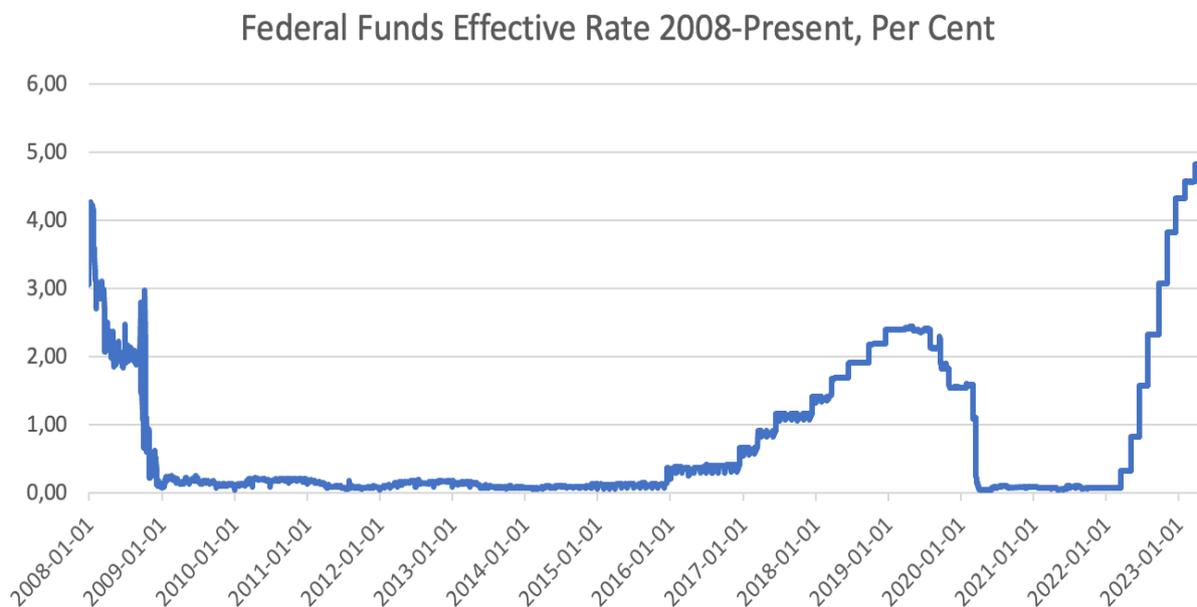
Source: Tepper, T. 2023. Federal Funds Rate History 1990 to 2023,

<https://www.forbes.com/advisor/investing/fed-funds-rate-history/>.

4. Board of Governors of the Federal Reserve System. Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank, April 2023.

**Figure 1**

Shows the frequency and intensity of these rate increases over the entire period since the Great Financial Crisis of 2007–2009.



Source: Board of Governors of the Federal Reserve System (US), Federal Funds Effective Rate [DFF], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DFF>, May 6, 2023.

As shown in Figure 1, the 2009–2022 period was marked by very low interest rates. The FFR was near zero between 2009 and 2016, less than 2.5% between 2016–20, and zero between 2020 and 2022. At least in the last 60 years, there has never been such a long period in which interest rates were so low. Prior to 2009, the lowest FFR was 0.63% in May 1958, and this only lasted for a short period. The long period of low interest rates, along with the quantitative easing (below) created a general expectation that interest rates would remain low, and had two effects on the U.S. economy.

First, in a low interest rate environment, there was a large increase in demand deposits, which the banks used to purchase long-term securities with higher yields in order to maximize profit. Second, following this long period, the banks and the public were led to believe that any interest rate increases in 2022 and thereafter were temporary, just like in the 2016–2019 period (Figure 1). At the same time, advances in technology, such as electronic banking, enhanced the speed of deposit withdrawals, which means that now a bank run can happen much more quickly than a decade ago. In order to understand further the Fed decisions from 2021 to 2023, we first review how the Fed has conducted its monetary policy.

## How Does the Fed Conduct Monetary Policy?

Since the Great Financial Crisis of 2007–2009, the Fed has changed the way it conducts monetary policy<sup>5</sup>. Instead of relying on open market operations, it now relies on interest rates on reserve

5. Jane Ihrig and Scott A. Wolla. 2020. "The Fed's New Monetary Policy Tools," August <https://research.stlouisfed.org/publications/page1-econ/2020/08/03/the-feds-new-monetary-policy-tools>

balances as its primary tool. Under the old framework, the Fed did not pay any interest to financial institutions on the reserves they were required to hold at the Fed, and the excess reserves then constituted the funds that banks borrow and lend to meet their business demands. The market rate determined by the demand for, and the supply of, these funds is called the Federal Funds Rate (FFR), and is the policy rate that the Federal Open Market Committee (FOMC) used to set its monetary policy. This rate varies between the discount rate, which is the interest rate the Fed charges banks at the discount window when they borrow reserves, and the market-determined rate, which resulted from the Fed's supply of reserves through purchases or sales of U.S. Treasury securities in the open market. Thus, the Fed used daily open market operations to fine-tune the location of the reserves supply curve and keep the FFR close to the desired target.

After the Great Financial Crisis in 2008, the Fed shifted the single FFR target to a range of upper and lower limits, 25 basis points (bps) apart. This target range was originally set at 0 to 25 bps. When this range was deemed insufficient to meet the needed stimulus, rather than bringing interest rates into negative territory as the European Central Bank (ECB) had done, a correct decision in retrospect given the problems that ECB faced later on, the Fed began to lower longer-term interest rates through quantitative easing (QE), i.e., purchasing long-term securities issued by the government and/or guaranteed by government-affiliated agencies such as Fannie Mae and Freddie Mac. This process increased the Fed's balance sheet and also raised the balance sheet of the banking sector as a whole, leading to a large number of uninsured deposits. Thus, the Fed's total assets increased from \$0.9 trillion in 2008 to \$8.9 trillion in March 2022, while the banking sector's total assets rose from \$10.9 trillion to \$22.7 trillion over the same period. Figure 2 shows the evolution of Fed's total assets over this period.

**Figure 2**

### Total Assets of the US Federal Reserve, 2004 to Present.

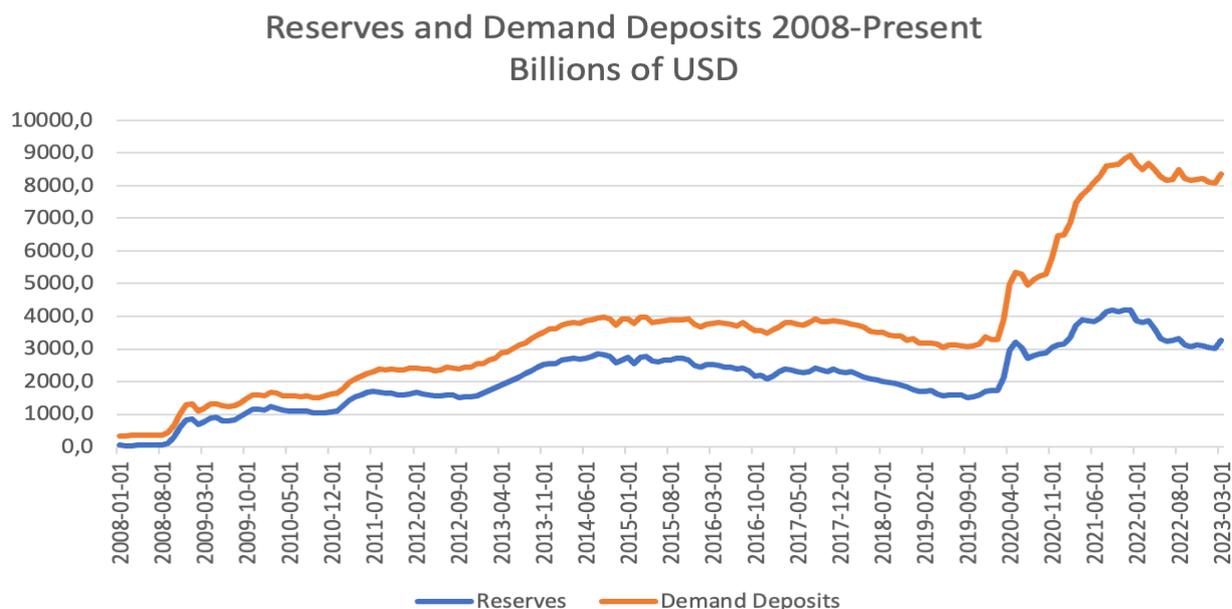


**Source:** Board of Governors of the Federal Reserve System (U.S.), Assets: Total Assets: Total Assets (Less Eliminations from Consolidation): Wednesday Level [WALCL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WALCL>, May 3, 2023.

Under QE, the Fed also increased the reserves (deposits at the Fed) of the banking system so that reserves reached a peak of \$4.2 trillion in December 2021, from \$46 billion in August 2008 (Figure 3). Since 2020, when the Fed abolished the required reserve requirement for banks, there has been no relationship between reserves and total demand deposits (and therefore the money supply). Figure 3 shows the evolution of reserves and demand deposits since 2008. It can be seen that during the low interest rate period, demand deposits rose rapidly, especially during 2020-

2021. The mirror image of this growth is in the demand deposits of both SVB and FRB. As shown in Annex 1 and 2, demand deposits of SVB grew by 62% in 2020 and 90.4% in 2021. In 2021, over 95% of total deposits in SVB were demand deposits, meaning they could be withdrawn at any time. For FRB, demand deposits grew by 42.8% in 2020 and 41.3% in 2021, accounting for about 85% of total deposits. By 2022, when the Fed raised interest rates, demand deposits declined in both banks: SVB by 26.5%, and FRB by 2.1%.

Figure 3



Source: Board of Governors of the Federal Reserve System (U.S.), Demand Deposits [WDDNS], Reserves of Depository Institutions: Total [TOTRESNS], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/WDDNS>, May 7, 2023.

The Fed also changed its monetary tools after the Financial Crisis. With Congress's authorization, the Fed began to pay banks for their reserves (first for both required reserves and excess reserves and then, beginning in March 2020, only the latter) held at the Fed.

But in an environment of ample reserves, the Fed cannot effectively target FFR by using open market operations to change the quantity of reserves. So, it relies on interest on reserve balance (IORB) to guide FFR. IORB is a safe overnight investment option for the banks. Therefore, banks will not lend reserves in the federal funds market for less than IORB, i.e., IORB acts as a reservation rate for banks — the lowest banks accept to lend. FFR is not expected to fall far below the IORB because banks can borrow from the Federal Funds rate and earn higher interest from IORB (arbitrage). Since the Fed sets IORB directly it can steer the FFR to follow this rate. As not all institutions can earn interest on reserves or have accounts at the Fed, in 2014, the FOMC began to use overnight reverse repurchase agreements (ON RRP) to set a reservation rate below IORB. In ON RRP, large money market funds can deposit reserves at the Fed overnight, receive a security as collateral, and the following day the Fed buys back the security at a profitable rate for the institution. Because this is a risk-free investment option, the given institutions will likely never be willing to lend funds for lower than the ON RRP rate. Thus, ON RRP also serves as a reservation rate which the Fed set below IORB and it hopes to steer the FFR in between these two rates (Ihrig and Wolla 2020).

## The Decision to Eliminate Reserve Requirements

In March 2020, in the midst of the COVID-19 pandemic, and with the actual inflation rate below the 2% long-run rate, the Fed decided to provide stimulus to the economy by lowering the FFR target range and the primary credit rate (to 0 to 0.25 % and 0.25% respectively), and by further purchasing U.S. Treasury and agency mortgage-backed securities<sup>6</sup>. To encourage banks to lend to households and businesses affected by the pandemic, the Fed eliminated the reserve requirements for banks<sup>7</sup>. In addition, the Fed coordinated with other central banks in developed economies to maintain liquidity in the dollar swap markets. This decision was appropriate at that time and no doubt helped the U.S. cope with the pandemic and recover more quickly, but it entailed risks because the banks were under no obligation to hold any portion of their deposit liabilities in cash or in reserves at the Fed. Bank runs, therefore, could happen more frequently under this regime. Moreover, it broke the only direct link between the Fed and the money supply, leaving the FFR as the only indirect instrument to control the interest rate and inflation rate in the economy.

Reserve requirements were first established in the U.S. in 1863, long before the Fed came into existence in 1913, and were seen as a way to ensure the liquidity of bank notes and deposits<sup>8</sup>. However, it became clear that these requirements could not guarantee liquidity, as their existence did not prevent bank runs and financial panics, which took place from time to time. Under the old monetary regime, these requirements could help supplement open market operations, the primary monetary policy tool. But, as discussed above, since 2008, the Fed no longer uses open market operations to fine-tune the supply of reserves. Instead, it switched directly to using IORB and ON RRP to guide the FFR. The elimination of reserve requirements by itself could increase the volatility of reserves, as shown in Figure 3, and make it difficult for the Fed to control the money supply. In addition, it could encourage banks to take excessive risks because it flooded banks with demand deposits (Figure 3), reflected in the balance sheets of individual banks (Annexes 1 and 2).

How did this new monetary policy tool perform in guiding the FFR? Figure 4 shows effective FFRs and their target range over the period. The actual FFR has stayed mostly on the lower limit side, but it is clear that the Fed had to raise the target range successively higher and higher until February 2023.

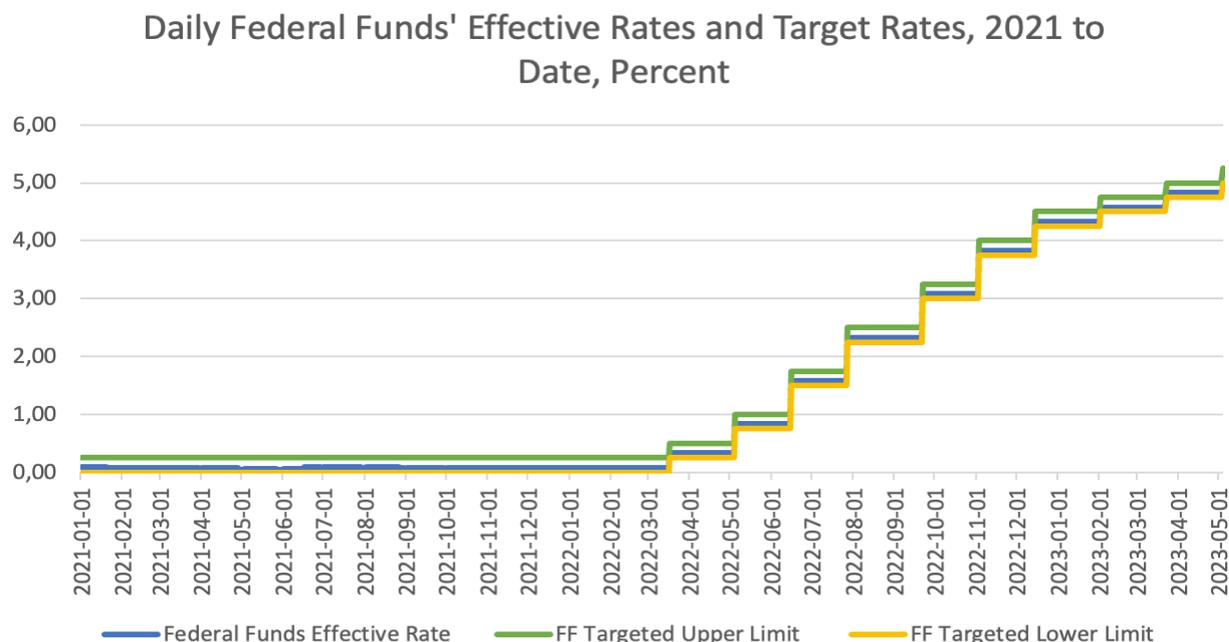
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6. <https://www.federalreserve.gov/newsevents/pressreleases/monetary20200315a.htm>

7. <https://www.federalreserve.gov/monetarypolicy/reservereq.htm>

8. Feinman, J.N. Reserve Requirements: History, Current Practice, and Potential Reform. Federal Reserve Bulletin. June 1993, pp. 569-589. <https://www.federalreserve.gov/monetarypolicy/0693lead.pdf>

Figure 4



Source: Board of Governors of the Federal Reserve System (U.S.), Federal Funds Target Range - Upper Limit [DFEDTARU], Federal Funds Effective Rate [DFF], Lower Limit [DFEDTARL], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/DFEDTARU>, May 6, 2023.

## How Did the Fed Set the FFR?

Within the Fed, the Federal Open Market Committee (FOMC) is responsible for setting the FFR. The FOMC's mandate is to promote maximum employment, stable prices, and moderate long-term interest rates. To promote maximum employment, it considers a range of indicators to assess the employment shortfalls from its maximum level. It sets the long-run inflation target at 2% and states very clearly:

*"...following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time"<sup>9</sup>.* The long-term equilibrium interest rate was also set at 2%.

Many central banks have followed the so-called Taylor rule in targeting nominal, short-term interest rates. Even China follows this rule in its monetary policy, according to its Central Bank Governor<sup>10</sup>. Indeed, the Fed has followed the Taylor rule since 1995<sup>11</sup>. In an article in the Carnegie-Rochester Conference Series on Public Policy in 1993, John Taylor (1993) suggested a simple rule of thumb:

$$r = p + .5y + .5(p - p^*) + r^*$$

9. 2021 FOMC Statement on Longer-Run Goals and Monetary Policy Strategy. [https://www.federalreserve.gov/monetarypolicy/files/FOMC\\_LongerRunGoals\\_202101.pdf](https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals_202101.pdf)

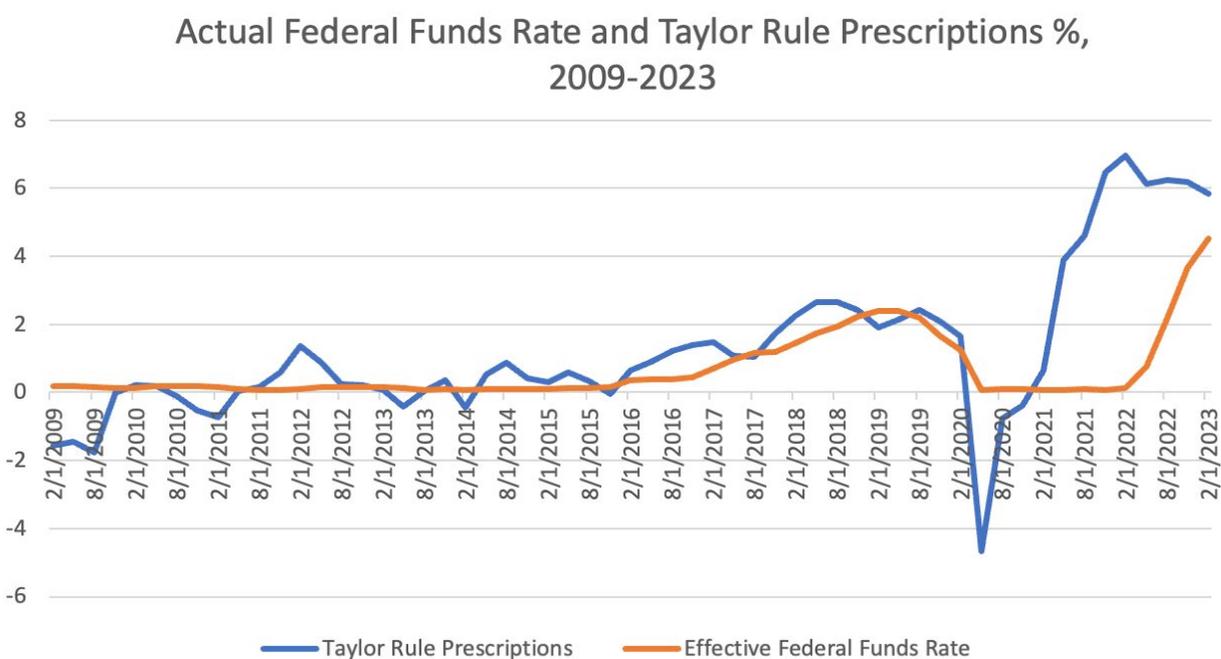
10. <https://www.youtube.com/watch?v=VrkZP2niZ18>

11. Asso, P.F., Kahn, G.A., and Leeson R. The Taylor Rule and the Transformation of Monetary Policy. Federal Reserve Bank of Kansas City, Economic Research Department. RWP 07-II December 2007.

where  $r$  is the (nominal) Federal Funds rate,  $p$  is the actual inflation rate (over the previous four quarters),  $y$  is the percent deviation of real GDP from the trend (potential GDP),  $p^*$  is the target inflation rate (2% in Taylor's original article), and  $r^*$  is the real, natural interest rate (also 2% in Taylor's article). Thus, if actual inflation rises above the target inflation rate, or if real GDP rises above trend GDP, then the FFR rises. If both the inflation rate and GDP are on target, then the FFR becomes 4%, or 2% in real terms.

Until now, the Fed has retained the 2% value for  $p^*$  and  $r^*$  in its calculation of the Taylor rule, although it uses more sophisticated data for the actual inflation rate to output gap than the above equation shows<sup>12</sup>. Figure 5 from the Federal Reserve Bank of Atlanta shows a fairly close association between actual FFRs and Taylor rule prescriptions over 2009–2020, but increasing divergence thereafter.

Figure 5



Source: Federal Reserve of Atlanta. Center for Quantitative Research.

<https://www.atlantafed.org/cqer/research/taylor-rule?panel=1>.

The main advantage of a rules-based monetary policy such as Taylor's is that it provides certainty and transparency to market participants, which can help anchor inflation expectations and reduce uncertainty. This can help promote long-term economic stability and growth. On the other hand, discretionary monetary policy involves giving the central bank more flexibility to adjust policy in response to changing economic conditions. This approach allows the central bank to respond more quickly and effectively to unexpected shocks, or changes in the economic environment. Discretionary monetary policy can be more adaptable to changing economic conditions, which can help minimize the severity of economic downturns and promote more rapid recoveries.

12. For a detailed explanation of how the Fed actually calculates Taylor's rule, see <https://www.atlantafed.org/cqer/research/taylor-rule?panel=3>

## Rules Versus Discretionary Monetary Policy

The debate over rules versus discretionary monetary policy is not new. More than 55 years ago, in his famous article<sup>13</sup> on the role of monetary policy, Milton Friedman (1968) argued that monetary policy cannot peg interest rates or unemployment rates for more than very limited periods. But what it can do is: i) prevent money from “being a major source of economic disturbance”; ii) peg the exchange rates by changing the money supply in response to free balance of payments flows (free from policy interferences such as sterilizing imbalances, foreign exchange control, or tariffs/quotas); and iii) contribute to offsetting disturbances arising from other sources (e.g. when there is a high budget deficit, slow the rate of monetary growth to cut down inflationary pressures), although Friedman himself doubted the authorities would know enough to execute this last function. To carry out these objectives, Friedman believed monetary policy should be guided by two criteria. First, the authorities must know what they can control and what they cannot. According to him, the central bank can control three variables: the exchange rate, the price level, and the money supply. For the U.S., Friedman believed the price level was the most important. But there, he claimed:

*“... The link between the policy actions of the monetary authority and the price level, while unquestionably present, is more indirect than the link between the policy actions of the authority and any of the several monetary totals. Moreover, monetary action takes a longer time to affect the price level than to affect the monetary totals and both the time lag and the magnitude of effect vary with circumstances ... Attempting to control directly the price level is therefore likely to make monetary policy itself a source of economic disturbance because of false stops and starts.”*

The second criterion is that monetary authorities must avoid sharp swings in policy. Friedman believed that too late and too much had been the general practice of monetary policy because of the failure to account for the delay between their actions and subsequent results on the ground. Consequently, Friedman recommended:

*“... monetary authority should go all the way in avoiding such swings by adopting publicly the policy of achieving a steady rate of growth in a specified monetary total ... steady monetary growth would provide a monetary climate favorable to the effective operation of those basic forces of enterprise, ingenuity, invention, hard work, and thrift that are the true springs of economic growth ...”*

Thus, Friedman called for a rules-based monetary policy based on specifying a steady growth rate for the money supply. His wise advice of avoiding the use of monetary policy to control the price level because it is likely to “make monetary policy itself a source of economic disturbance because of false stops and starts” rings truer today than ever.

Figure 5 shows clearly the major divergences between Taylor’s rule and the actual movement of the FFR. In the first half of 2020, Taylor’s formula began to yield a negative interest rate prescription and the Fed did not want to follow that route, although the European Central Bank did<sup>14</sup>. Thus, the crucial period that explains the intensity and frequency of the Fed’s policy actions after March 2022 is the Fed’s inaction during 2021. This is the period when Taylor’s prescriptions indicated the need for a rapid rise in the federal funds rate, while the FOMC statements declared the need to hold interest rates low.

Why did the Fed not take any policy action at any point during 2021? In its January 2021 statement, the FOMC said<sup>15</sup>:

13. Friedman, Milton. 1968. “The Role of Monetary Policy,” *American Economic Review*, Vol. 58(1), March, 1–17.

14. Given the subsequent experience of the ECB with negative interest rates, the Fed’s decision seemed to be the right one.

15. [https://www.fedsearch.org/board\\_public/search?text=FOMC+statements&Search=](https://www.fedsearch.org/board_public/search?text=FOMC+statements&Search=)

*“The Committee judges that the level of the federal funds rate consistent with maximum employment and price stability over the longer run has declined relative to its historical average. Therefore, the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past. Owing in part to the proximity of interest rates to the effective lower bound, the Committee judges that downward risks to employment and inflation have increased.”* Throughout 2021, the FFR was kept at zero. That decision was understandable for the first half of the year when the post-COVID-19 recovery was still underway and the pandemic situation was still uncertain. In its February Monetary Report to Congress (2021a), the Fed stated that *“payroll employment in January was almost 10 million jobs below pre-pandemic levels, while the unemployment rate remained elevated at 6.3 percent and the labor force participation rate was severely depressed”*. As for inflation, the Fed stated the 12-month measure of PCE inflation was 1.3% in December, below the pre-pandemic levels and the FOMC’s long-term objective of 2%, while *“indicators of longer-run inflation expectations are now at similar levels to those seen in recent years”*.

However, it is difficult to agree with the Fed’s decision in the second half of 2021, when the Taylor rule again called for short-term interest rates to rise while the Fed remained committed to low interest rates. It claimed that both the rise in inflation and inflation expectations were *“transitory”* and would soon be brought back down to the 2% level. Thus, in its September Monetary Report to US Congress (2021b), the FOMC noted:

*“Inflation is elevated, largely reflecting transitory factors. Overall financial conditions remain accommodative, in part reflecting policy measures to support the economy and the flow of credit to U.S. households and businesses.”*

The Fed then proceeds to keep the FFR at almost 0 percent:

*“The Committee seeks to achieve maximum employment and inflation at the rate of 2 percent over the longer run. With inflation having run persistently below this longer-run goal, the Committee will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. The Committee expects to maintain an accommodative stance of monetary policy until these outcomes are achieved. The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee’s assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time.”*

In retrospect, this decision led to the delay in raising interest rates, which only occurred six months later (March 2022). Once the policy action started, it caused an acceleration in the pace and intensity of policy actions, such that the FFR was raised by 5 percentage points in 14 months, reaching its highest level in 16 years.

## CONCLUSION

In summary, there are three areas in which the Fed contributed to the current banking crisis. First, it kept interest rates near zero for a very long period, from 2009 until 2022. The decade-long low interest rate environment encouraged the growth of demand deposits in banks, and led banks to seek higher returns, and therefore take greater risks, that were not commensurate with their short-term liabilities.

Second, the Fed decided to eliminate the reserve requirements for banks in 2020. While this decision was understandable in the midst of the COVID-19 crisis to encourage bank lending, it led to higher reserve volatility and made it difficult for the Fed to control the money supply after the crisis was over, while encouraging excessive risk-taking by banks. Third, the delay by the Fed in raising interest rates in 2021 only prolonged the expectation of a low interest rate environment, which then required the Fed to raise interest rates repeatedly to gain credibility, a process that, as pointed out by Joe Stiglitz<sup>16</sup>, in fact undermined its credibility. The Fed's decision in 2021 also diverged from the prescriptions of Taylor's rule, which it had adhered to since 1995. Given the lag between Fed decisions and actual results on the ground, perhaps it is time to go back and rely more on rules-based monetary policy, as Milton Friedman suggested over half a century ago.

Should monetary policy be conducted independently of financial stability? *A priori* the case for this independence can be made. After all, monetary policy has specific objectives, and should not be influenced by other policy goals. According to Tinbergen's principle of effective policy, one cannot tackle two objectives with one instrument. On the other hand, ignoring the consequences of monetary policy for financial stability will imperil monetary policy itself. For instance, if the banking crisis deepens to the point that the central bank has to resort to money printing to rescue the banks, the objective of reducing inflation becomes lost. The Fed faces a dilemma in this case. If it raises the FFR repeatedly in an environment in which banks assume low rates will prevail, then bank runs are bound to happen unless the regulatory and supervision framework is adequate. If it does not raise the FFR, it will lose credibility as inflation continues to rise, making it difficult to fight in the next stage.

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16. Joe Stiglitz, "No Confidence in the Fed", Project Syndicate, April 26, 2023.

## Annex 1

## Silicon Valley Bank Balance Sheet 2019–2022

<b>Assets</b>				
Fiscal year is January–December. All values USD millions.	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Total Cash & Due from Banks	9,116	7,887	14,448	4,392
Cash & Due from Banks Growth	15.58%	-45.41%	228.93%	95.66%
Investments - Total	125,127	134,512	54,620	32,289
Federal Funds Sold & Securities Purchased	722	607	227	289
Securities Bought Under Resale Agreement	722	607	227	289
Treasury Securities	17,223	15,911	4,494	6,903
Federal Agency Securities	587	805	640	618
State & Municipal Securities	7,416	7,156	3,635	1,786
Mortgage Backed Securities	91,461	100,838	38,736	18,551
Other Securities	735	823	281	59
Other Investments	6,983	8,372	6,608	4,082
Investments Growth	-6.98%	146.27%	69.16%	25.36%
Net Loans	73,614	65,854	44,734	32,860
Commercial & Industrial Loans	58,459	52,245	35,450	28,428
Consumer & Installment Loans	-	-	-	490
Real Estate Mortgage Loans	13,128	11,456	4,940	4,247
Unspecified/Other Loans	2,663	8,648	4,792	-
Loan Loss Allowances (Reserves)	(636)	(422)	(448)	(305)
Investment in Unconsolidated Subs.	886	970	570	376
Loans - 1 Yr Growth Rate	11.78%	47.21%	36.14%	17.12%
Loans (Total) / Total Deposits	0.00%	0.00%	0.00%	0.00%
Loans (Total) / Total Assets	0.00%	0.00%	0.00%	0.00%

Net Property, Plant & Equipment	729	583	386	359
Other Assets (Including Intangibles)	1,420	1,178	507	484
Other Assets	909	643	303	296
Intangible Assets	511	535	204	187
Interest Receivables	722	470	245	217
Total Assets	211,793	212,001	115,511	71,217
Assets - Total Growth	-0.10%	83.53%	62.20%	24.87%
Return On Average Assets	0.79%	-	-	-
<b>Liabilities &amp; Shareholders' Equity</b>				
All values USD Millions.	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Total Deposits	173,109	189,203	101,982	61,758
Demand Deposits	132,785	180,693	94,925	58,591
Savings/Time Deposits	6,693	1,739	688	188
Foreign Office Deposits	715	1,665	1,567	2,410
Unspecified Deposits	32,916	5,106	4,801	568
Deposits Growth	-8.51%	85.53%	65.13%	25.20%
Total Debt	19,348	3,079	1,124	584
ST Debt & Current Portion LT Debt	15,650	198	72	62
Current Portion of Long-term Debt	2,000	-	-	-
Short-term Debt	13,650	198	72	62
Long-Term Debt	3,698	2,881	1,052	522
LT Debt excl. Capitalized Leases	3,370	2,570	844	348
Provision for Risks & Charges	303	171	121	68
Long-term Debt Growth	28.36%	173.95%	101.45%	-25.04%
Total Debt / Total Assets	9.14%	1.45%	0.97%	0.82%
Deferred Tax Liabilities	(153)	(24)	172.00	(28)
Deferred Taxes - Credit	26	523	173	212
Deferred Taxes - Debit	179	547	1	241
Other Liabilities	2,712	2,416	3,678	1,974
Other Liabilities (excl. Deferred Income)	2,712	2,416	3,678	1,974
Total Liabilities	195,498	195,392	107,078	64,596
Preferred Stock (Carrying Value)	3,646	3,646	340	340
Non-Redeemable Preferred Stock	3,646	3,646	340	340

Common Equity (Total)	12,358	12,590	7,880	6,130
Common Stock Par/ Carry Value	-	-	0	0
Additional Paid-In Capital/Capital Surplus	5,318	5,157	1,585	1,470
Retained Earnings	8,951	7,442	5,672	4,576
Other Appropriated Reserves	(1911)	(9)	623.00	84.00
Common Equity / Total Assets	0.06%	0.06%	0.07%	0.09%
Total Shareholders' Equity	16,004	16,236	8,220	6,470
Total Shareholders' Equity / Total Assets	7.56%	7.66%	7.12%	9.09%
Return On Average Total Equity	10.37%	-	-	-
Accumulated Minority Interest	291	373	214	151
Total Equity	16,295	16,609	8,433	6,621
Liabilities & Shareholders' Equity	211,793	212,001	115,511	71,217

Source: *The Wall Street Journal*, accessed May 6, 2023

<https://www.wsj.com/market-data/quotes/SIVBQ/financials/annual/balance-sheet>

## Annex 2

## First Republic Bank Balance Sheet 2019–2022

Assets				
Fiscal year is January–December. All values USD millions.	2022	2021	2020	2019
Total Cash & Due from Banks	4,283	12,947	5,095	1,700
Cash & Due from Banks Growth	-66.92%	154.12%	199.77%	-39.54%
Investments - Total	33,576	25,854	18,986	18,881
Federal Agency Securities	165	100	50	368
State & Municipal Securities	19,486	16,762	12,726	11,282
Mortgage Backed Securities	10,642	7,442	5,661	6,756
Other Securities	1,426	1,397	93	44
Other Investments	1,857	153	456	432
Investments Growth	29.87%	36.17%	0.56%	13.41%
Net Loans	166,084	134,262	111,931	90,301
Commercial & Industrial Loans	18,793	19,185	16,697	11,647
Real Estate Mortgage Loans	137,317	106,794	88,419	72,747
Unspecified/Other Loans	10,758	8,977	7,450	6,403
Loan Loss Allowances (Reserves)	(784)	(694)	(635)	(496)
Loans - 1 Yr Growth Rate	23.70%	19.95%	23.95%	19.72%
Loans (Total) / Total Deposits	0.00%	0.00%	0.00%	0.00%
Loans (Total) / Total Assets	0.00%	0.00%	0.00%	0.00%
Net Property, Plant & Equipment	1,923	1,786	1,355	1,174
Other Assets (Including Intangibles)	5,399	3,956	3,113	2,334
Other Assets	5,181	3,734	2,885	2,099
Intangible Assets	218	222	228	235
Interest Receivables	708	501	431	382
Total Assets	213,358	181,714	142,984	116,661

Assets - Total Growth	17.41%	27.09%	22.56%	17.46%
Return On Average Assets	0.84%	-	-	-
<b>Liabilities &amp; Shareholders' Equity</b>				
All values USD Millions.	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>
Total Deposits	176,437	156,321	114,929	90,133
Demand Deposits	129,562	132,391	93,663	65,612
Savings/Time Deposits	46,875	23,930	21,266	24,521
Deposits Growth	12.87%	36.02%	27.51%	14.00%
Total Debt	16,831	6,882	14,525	15,087
ST Debt & Current Portion LT Debt	9,909	664	5,292	4,868
Current Portion of Long-term Debt	3,025	500	5,155	3,950
Short-term Debt	6,884	164	137	918
Long-Term Debt	6,922	6,218	9,232	10,219
LT Debt excl. Capitalized Leases	5,554	4,977	8,374	9,526
Provision for Risks & Charges	715	540	-	-
Long-term Debt Growth	11.32%	-32.65%	-9.66%	49.76%
Total Debt / Total Assets	7.89%	3.79%	10.16%	12.93%
Deferred Tax Liabilities	(666)	(561)	(459)	(392)
Deferred Taxes - Credit	719	627	482	397
Deferred Taxes - Debit	1,385	1,188	941	789
Other Liabilities	1,210	1,446	1,298	1,192
Other Liabilities (excl. Deferred Income)	1,210	1,446	1,298	1,192
Total Liabilities	195,912	165,816	131,234	106,809
Preferred Stock (Carrying Value)	3,633	3,633	1,545	1,145
Non-Redeemable Preferred Stock	3,633	3,633	1,545	1,145
Common Equity (Total)	13,813	12,265	10,206	8,706
Common Stock Par/ Carry Value	2	2	2	2
Additional Paid-In Capital/Capital Surplus	6,256	5,725	4,834	4,215
Retained Earnings	7,886	6,569	5,346	4,484

Unrealized Gain/Loss Marketable Securities	(331)	(31)	23.00	4.00
Other Appropriated Reserves	-	-	0	1
Common Equity / Total Assets	0.06%	0.07%	0.07%	0.07%
Total Shareholders' Equity	17,446	15,898	11,751	9,851
Total Shareholders' Equity / Total Assets	8.18%	8.75%	8.22%	8.44%
Return On Average Total Equity	9.99%	-	-	-
Total Equity	17,446	15,898	11,751	9,851
Liabilities & Shareholders' Equity	213,358	181,714	142,984	116,661

Source: *The Wall Street Journal*, accessed May 6, 2023

<https://www.wsj.com/market-data/quotes/FRCJL/financials/annual/balance-sheet>

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