Analyzing the Effects of 2018 Bank Reclassifications on Individual Balance Sheet Compositions

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Analyzing the Effects of 2018 Bank Reclassifications on Individual Balance Sheet Compositions

submitted to
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Abstract

The March 2023 collapse of Silicon Valley Bank (SVB) marked the second largest bank failure in United States history and the largest bank failure since the 2008 Global Financial Crisis (GFC). This paper analyzes the mechanisms underlying SVB’s downfall and explores the specific systemic vulnerabilities that March 2023 revealed. To study the impact of systemic risk reclassification on individual bank balance sheets, I construct a quarterly panel dataset of the largest US chartered banks and track their regulatory classification and financial reports from 2009 to 2023. The 2018 Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA) changed the Federal Reserve’s classification threshold for banks from $50 billion under the Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA) to $250 billion under the new law. I exploited this as a natural policy experiment potentially reflecting changes in balance sheet compositions in response to the EGRRCPA. The findings in this paper indicate that systemic reclassification had no significant impact on the held-to-maturity securities to deposits ratio for reclassified banks, but it did lead to an increase in logged total held-to-maturity securities holdings. These results suggest that reclassification had a positive influence on the logged HTM holdings for reclassified banks but not on the ratio compositions of HTM securities to deposits.
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1 Introduction

This research paper investigates the impact of the Federal Reserve’s reclassification of systemic significance on individual banks’ balance sheet compositions. I argue that the March 2023 collapse of SVB, and the immediate federal intervention that followed, underscored existing vulnerabilities in the US banking sector following the enactment of the EGRRCPA. Under Section 401 of the EGRRCPA, banks with less than $250 billion in assets were no longer classified as systemically important. This policy change subjected these mid-sized banks to reduced oversight and less frequent stress testing. The central research question explored in this article is: how did the reclassification of US banks from systemically significant under the Dodd-Frank Act (DFA) to not systemically significant under the EGRRCPA affect the balance sheet allocations and risk exposures of reclassified banks? To address this question, I constructed a quarterly panel dataset of the largest US chartered banks from 2009 to 2023. This period includes the 2018 reclassification of banks with less than $250 billion from systemically significant to not systemically significant and I exploit this change as a natural policy experiment. Through this analysis, I attempt to quantify the effects of reclassification on two key balance sheet variables: held to maturity securities and the ratio of held-to-maturity securities to deposits.

This thesis argues that the 2018 deregulation and the significantly higher asset threshold potentially left many banks unprepared to manage emerging interest rate risks as the Federal Reserve began its process of quantitative tightening in 2022. This analysis is motivated by a desire to understand how deregulations in 2018 led to the failure of SVB, and more specifically, if the Fed’s higher asset threshold had any direct effects on deregulated banks’ balance sheet
compositions. This research paper addresses lingering questions stemming from the collapse of Silicon Valley Bank (SVB) in 2023. The collapse of SVB, the first of three major US bank failures that year, provides valuable insights into weaknesses within the US banking system and underscores the consequences of neglecting to resolve them. The failure of SVB in March 2023 was the largest US bank failure since Washington Mutual’s collapse in 2008. Despite causing severe systemic contagion in the US and around the world, SVB was not considered a Systemically Important Financial Institution (SIFI) prior to its collapse. While the Global Financial Crisis (GFC) suggested that only the largest US banks were too-big-to-fail (TBTF)—justifying bailing them out—SVB’s depositors were nonetheless made whole 100 cents on the dollar. So, does that mean SVB, holding only $209 billion in assets, was too-big-to-fail too? If so, then why was SVB not more closely regulated and supervised? And how many other banks face the same weaknesses that triggered the second largest bank failure in US history?

This paper is an important contribution to the relevant economic literature on bank regulation, financial stability, and systemic risk because it puts SVB’s failure in a broader policy and international relations context. The background literature relating to the failure of SVB falls into five main areas: 1. bank runs and crises of liquidity, 2. the 2008 GFC, 3. US banking regulations post-GFC, 4. EU banking policy, and 5. the internal mechanisms of SVB’s failure. Two major US policy changes played a key role in the events of March 2023 and now indicate that similar episodes may arise in the future. The first act I evaluate is the Dodd-Frank Wall Street Reform and Consumer Protection Act (DFA) of 2010. Very briefly, Dodd-Frank was responsible for establishing a regulatory framework for large US banks following the GFC in 2008. Among many other additions, it introduced mandatory stress testing, capital requirements, and arrangements for the timely resolution for failing banks. The second act I evaluate is the
Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRCPA) of 2018. The EGRCPA was responsible for relaxing regulatory standards in the US financial sector and raising the asset threshold for bank stress tests from $50 billion to $250 billion.

The model I develop uses the reclassification of mid-sized banks from systemically significant to not systemically significant in 2018 to evaluate the impact of reclassification on individual balance sheet compositions. To demonstrate this, I created a dataset of the 50 largest banks in the United States—ranked by asset size—from Q2 2009 to Q3 2023. This data came from the Federal Financial Institutions Examination Council’s Bulk Data and the Federal Reserve’s Large Commercial Banks quarterly data releases. I pulled variables that quantify a bank’s exposure to rising interest rates, fluctuations in total deposits vs total assets, and held to maturity securities.

This paper will outline literature related to SVB’s March 2023 failure, introduce the regulatory provisions in Dodd-Frank and the EGRCPA, present data, and develop models to analyze changes in balance sheet compositions for reclassified banks. This paper finds that the EGRCPA’s provision increasing the asset threshold for stress testing from $50 billion to $250 billion left banks between the $50 to $250 billion range exposed to unrealized losses on their held-to-maturity securities due to rising interest rates in 2022. This paper also finds that the Federal Reserve’s existing regime for stress testing only applies to 13 banks, leaving the rest of the financial sector broadly unsupervised and exposed to financial shocks. Finally, this paper concludes that reclassification did not have a significant effect on the ratio of held-to-maturity securities to deposits for reclassified banks, but that reclassification did have a positive and statistically significant effect on total held-to-maturity holdings.
As the 2008 GFC literature demonstrates, the consequences of financial crises are not confined whatsoever to the financial sector. The contagion into the broader US economy, as well as international markets, has led to decreased lending to consumers and tighter household budgets as inflation remains stubbornly high. The far-reaching consequences of these failures highlight the importance of robust regulation and oversight in order to maintain global financial stability.

2 Literature Review

The upcoming section presents previous research into financial crises and bank deregulation. It follows a broadly chronological account discussing bank runs, the 2008 Global Financial Crisis, US regulations post-GFC, EU regulations post-GFC, and an in-depth exploration of SVB’s internal failures. This paper is unique to the existing literature because it simultaneously analyzes SVB’s collapse through the lenses of pandemic-era monetary policy, post-COVID macroeconomic conditions, and post-EGRRCPA risk-taking. Internal failures alone did not bring down SVB. Its collapse was a combination of firm-level mismanagement, federal deregulation, insufficient supervision, and exposure to rising interest rates following the loose monetary policy of the 2020 COVID-19 pandemic.

2.1 Bank Runs

2.1a Deposit Insurance

The United States’ has a long and storied history of financial panics and the federal intervention needed to resolve them. Extensive literature evaluates the role of deposit insurance and capital requirements in preventing bank runs and mitigating moral hazard among banks (Cooper et al. 2002). While robust deposit insurance is necessary to protect small depositors and
discourage runs on the bank, overly generous deposit insurance can encourage excessive risk taking by financial institutions. The balance of risk-sharing and moral hazard is an important one to level correctly. Depositors, like regulators, monitor firm behavior and make judgements regarding the stability of the bank. If depositors judge the risk inherent in their bank to be too high, they exercise their depositor discipline by withdrawing their uninsured deposits. And when banks are unable to fulfill these withdrawal demands, they will ultimately run through their liquidity and be forced to sell a portion of their assets early in order to pay depositors. These runs on banks’ liquidity are a key factor in the demise of banks.

As (Cooper et al. 2002) explain, the model of deposit insurance and bank runs proposed by (Diamond et al. 1983) provides an excellent starting point for understanding the mechanisms underlying financial panics. One area, however, that Diamond and Dybvig neglect to analyze in their research is the presence of moral hazard when financial authorities provide generous deposit insurance. As such, history shows that while deposit insurance is effective in preventing bank runs, it comes at the cost of adversely incentivizing risk. Cooper and Ross propose a model in which “appropriately designed capital requirements” can alleviate the adverse incentives caused by guaranteeing bank deposits (Cooper et al. 2002).

During the Savings and Loans crisis of the 1980s, suboptimal regulatory policy and a high-interest-rate environment, created severe financial stress in the US economy and imposed very high costs on taxpayers. As interest rates rose during the 1970s and 1980s, banks saw their net interest margins being squeezed as depositors withdrew funds to invest in higher-yielding Treasury Bills. Simultaneously, the mortgages from which S&L’s derived most of their income were set at fixed rates, preventing them from profiting off of rising interest levels. Deregulations under the DIDMCA aimed to make S&Ls more competitive and encourage depositors to return.
This led to the rise of flexible rate mortgage rates, expansion of FIDC insurance from $40,000 to $100,000 in 1980, and severe moral hazard (Feldstein 1991). S&Ls increased their growth over the 1980s, but by the end of the decade, their risky investments and loose regulation caused over 1000 of them to fail across the US.

A combination of flexible rate mortgages, deregulation to encourage competitiveness, and moral hazard inherent in the sector caused widespread insolvency among S&Ls and ultimately required government intervention in 1989. Congress passed the Financial Institutions Reform, Recovery and Enforcement Act of 1989 and abolished the main S&L regulator—the Federal Home Loan Bank Board. Congress then set forth to close insolvent S&Ls and protect America’s mortgage market. By the end of the crisis, the cost to the US taxpayer was as high as $124 billion and the total costs associated with the panic was approximately $160 billion. This episode demonstrates that balancing deposit insurance, so that depositors do not rush to withdraw, with robust capital requirements, to limit moral hazard among banks, is necessary to

2.1b Crises of Liquidity and Solvency

Deposit insurance is a standard solution to liquidity risk, but the 2023 failure of SVB indicates that without 100% deposit coverage, large depositors will still pose a threat to banks during runs (Dybvig et al. 1983). (Brewer 1995), (Cull et al. 2011), (Calomiris and Jaremski 2016), and (Calomiris and Jaremski 2024) have all proposed literature suggesting that deposit insurance contributes to moral hazard in the banking sector. However, even when moral hazard is not a primary concern for a bank, they may still be subject to liquidity risk if depositors suspect that the bank is likely to fail in the future.

Liquidity risk is defined as the inability of banks to meet their short-term operating costs due to challenges liquidating assets before their maturity. If a bank experiences a large run on its
liquidity as depositors rush to withdraw from a potentially failing bank, for instance, then the bank will be forced to convert a portion of their assets into cash in order to meet these demands. At this stage, the bank’s liquidity is at risk. If these runs continue and banks are forced to convert more of their assets into cash at increasingly high losses, the bank will at some point be unable to fulfill its own debt obligations. At this stage, through the erosion of its capital base, the bank is at risk of insolvency.

The literature related to illiquidity and insolvency discusses the factors that cause liquidity crises, (Drechsler et al. 2023), the impact of rising interest rates on US asset values, (Jiang et al. 2023), and the consequences of government guarantees for large depositors. Not all liquidity crises necessarily lead a bank into insolvency. However, the two phenomena are closely connected in that once a bank has experienced a severe or prolonged run on its liquidity, it will eventually be forced to sell illiquid assets at a loss to fulfill its operating costs. And if these losses are large enough, the bank will no longer be able to meet its debt obligations and potentially trigger a default on their loans. This second stage, a bank defaulting on its loans, can have dire consequences for the rest of the financial system and the broader US economy as a whole. This is due to the interconnectedness of the banking sector and the domino-effect of financial contagion during crisis episodes.

US regulators have proposed two common solutions to liquidity and solvency risks that banks may face. The first is a mandatory liquidity coverage ratio (LCR). Beginning January 1, 2015, the Office of the Comptroller of the Currency (OCC), the FDIC, and the Board of Governors of the Federal Reserve adopted a mandatory liquidity requirement for banks with at least $250 billion in total consolidated assets. This LCR requirement was designed to protect banks’ liquidity-risk profile but creating larger buffers to absorb sudden financial shocks. And
the second solution regulators have introduced to address liquidity and solvency risks is higher capital requirements for large banks, (Admati and Hellwig 2014), (Cochrane 2014). Holding larger capital buffers of high-quality liquid assets serves two purposes for banks: first, it protects the bank from the impact of sudden asset devaluations, such from an asset bubble bursting; and second, it safeguards against panic-induced bank runs, as occurred with Silicon Valley Bank in 2023.

(Haddad et al. 2023) suggests that while banks may appear well-capitalized on their balance sheets, this does not necessarily suggest that the bank will be able to withstand severe economic shocks. Connecting to the March 2023 failure of SVB, the bank appeared perfectly well-capitalized based on the firm’s financial report filings. This episode highlights that bank failures can strike solvent institutions through runs on their liquidity and the fire-sale of their assets. Once the cycle of depositor panic begins, the rapid rate of withdrawals can create insolvency crises due to mounting realized losses on bank balance sheets.

2.1c Unrealized Losses and Held-to-Maturity Securities

After the Federal Open Market Committee (FOMC) enacted quantitative easing measures during the COVID-19 pandemic, the US economy experienced a significant rise in inflation. Between May 2020 and June 2022, the Consumer Price Index (CPI) rose from 0.1% to 9.1%—a 9000% increase. The FOMC typically sets an inflation target of 2% in the long run (Engemann 2019). However, during the pandemic, the US economy experienced uncommonly low inflation as a result of the FOMC’s monetary stimulus. This ultimately led to soaring inflation as consumer spending became cheaper and saving became less profitable. At this same time, interest rates had been further depressed by the abundance of available credit.
(Marsh and Laliberte 2024) explain that in response to staggering inflation, the FOMC began tightening its monetary policy in March of 2022. The FOMC’s goal was to curb inflation by increasing the cost of borrowing and discouraging consumer spending. As a result, interest rates spiked from 0.05% in May 2020 to 5.33% in September 2023. For consumers, this created higher costs of living and smaller household budgets as prices steadily rose. For banks, the higher interest rates meant that their fixed-rate long-term assets began to decline in value, (Marsh et al. 2024).

Banks’ balance sheets typically have mismatched-maturities, (Di Tella and Kurlat 2021). This is because banks take on short-duration liabilities, i.e. customer deposits, and invest them in long-duration assets, i.e. fixed-rate mortgages, and government securities. It is through the spread between interest earned on assets and interest owed on deposits that banks earn their income; this is known as a bank’s net interest margin. When real interest rates are low, banks earn a higher yield on their long-duration assets and pay a lower interest rate on deposits. But if interest rates rise, then depositors will have a higher opportunity cost of leaving their money in the bank and will substitute towards securities with higher returns. During the 2021 and 2022 interest rate hikes, depositors began investing in money market funds and certificates of deposits (CDs) and withdrawing from their lower-yield savings accounts.

(Di Tella et al. 2021) propose that banks’ exposure to interest rate risks is due to the spread between liquid deposits and illiquid assets. As real interest rates rise, banks are exposed to both depositor outflows and declining asset values. This exposure can lead to significant losses, but due to the use of held-to-maturity (HTM) accounting, banks can obscure their unrealized losses on financial report filings. (Granja 2023) shows that during 2022, banks used HTM accounting to avoid using current market prices for their securities valuations. This paper is
especially meaningful for the understanding of SVB’s sudden failure in 2023. It finds that “banks with lower capital ratios, higher share of run-prone uninsured depositors, and whose portfolios were more exposed to interest rate risk were more likely to reclassify securities to HTM during 2021 and 2022,” (Granja 2023).

The reclassification of assets to HTM allows banks to mark asset values on their balance sheets at their book value, rather than their actual market price. And as mentioned previously, asset values were on a sharp decline as interest rates rose during 2022 and 2023. So, long-duration assets which had declined in value over 2022 and 2023 were effectively hidden by HTM accounting. In theory, HTM could be a sufficient accounting strategy during periods of relative stability. The rationale is that unrealized gains and losses should smooth one another out once the asset has reached its term of maturity. However, if the asset is liquidated before its maturation—to cover sudden depositor withdrawals, for instance—then the unrealized losses become realized on the bank’s balance sheet. And as banks are forced to liquidate more and more of their assets to meet withdrawal demands, they incur disproportionately large losses on the asset side of their balance sheet. If this cycle continues unimpeded, the bank will ultimately fall into insolvency. Here it is important to note that it was not bad assets, per se, that caused the demise of SVB. The risks associated with maturity transformation, and the heightened risks of interest rate exposures, caused SVB’s portfolio of government securities and fixed-rate mortgages to decline in value. This loss was obscured by HTM accounting for a period of time, but once SVB announced a $1.75 billion capital raise to cover a $21 billion dollar loss on their portfolio, uninsured depositors rushed to the bank and withdrew their money (Hu et al. 2023). This forced SVB to continue liquidating assets at a loss until it was ultimately taken over by the FDIC on March 26th, 2023.
2.2 2008 Global Financial Crisis

2.2a From Subprime to GFC

The spectacular and sudden collapses of SVB evoked vivid memories of the Great Recession and the 2008 Global Financial Crisis (GFC) that preceded it. (Mishkin 2010) finds that the GFC was a two-phase crisis; the first was realizing fundamental weaknesses in the US housing market, and the second was spreading contagion into the broader global economy. The US housing boom peaked in late 2005. As home prices declined in 2006 and 2007, the sub-prime mortgage market began to experience huge losses on their mortgage-backed securities (MBS) (Mishkin 2010). Once house prices fell, the cost at which firms could sell their MBSs fell as well. As a result, banks were required to put up more collateral in order to back the same amount of borrowing—the so-called haircut requirement. This massive deleveraging across many banks eventually forced institutions to sell off their assets which caused asset values to plummet even further. Sparking an adverse feedback loop, MBSs losses spread contagion across the credit market.

The second and most visible phase of the crisis came in the fall of 2008 when losses in the subprime market began to affect every corner of the US economy. Large US banks were panicking in 2008. Many of them had major MBS exposures and worried about their ability to meet their short-term funding needs. On Monday September 15, 2008, Lehman Brothers filed for bankruptcy after suffering major losses in the subprime mortgage market.

Lehman had over $600 billion in total consolidated assets and its bankruptcy, along with Bear Stearns’, are seen as the catalyzing events of the GFC (Mishkin 2010). Shocks leading up to September 2008 had already weakened the financial system and increased the risks of a larger
meltdown over the following year. The efforts of the US government and financial regulators to quell the crisis, as necessary as they were, caused great concerns about moral hazard in the broader banking system. The Fed hesitated to take more of Lehman’s troubled assets onto its balance sheet and reasoned that if Lehman failed, it would send a signal to other firms to better manage their risk (Mishkin 2010). (Sorkin 2010) and found that “Lehman was among the most leveraged of the major investment banks; it was unwilling to raise capital; it had a poor reputation for risk management; and it had a high exposure to losses on subprime mortgages.”

Lehman’s vulnerability was an open secret in financial markets and among US regulators, so after Bear Stearns’ collapse, Lehman seemed like the next domino to fall. American Insurance Group (AIG) failed following Lehman’s bankruptcy because AIG was responsible for insuring Lehman’s subprime-mortgage securities. After Lehman’s collapse, AIG was on the hook for all of these insurance contracts—called credit default swaps—and quickly ran through their own short-term funding. The Fed ultimately stepped in and offered AIG an $85 billion dollar loan to keep the firm afloat (Mishkin 2010).

In addition to the complexities of these financial instruments, the public perception of the crisis also hindered prompt and decisive actions by legislators. Washington, having a historically amiable relationship with Wall Street, was perceived as issuing bailouts for large financial institutions and their shareholders. By the time the crisis had run its course, the 2008 Recession was “the worst economic contraction in the United States since World War II,” (Mishkin 2010). Faced with mounting losses and soaring foreclosure rates, the Fed and financial regulators were forced to act. The most powerful policy responses used to resolve the crisis were “conventional and unconventional monetary policies, bank “stress tests,” and bailouts of some banks and financial institutions,” (Mishkin 2010).
During the crisis, the Fed experimented with numerous strategies to contain the meltdown and hoped to discover one that would work. The unprecedented nature of the situation in 2008 led to the Fed enacting very unconventional monetary policy. In 2008, unlike during the Great Depression, the Federal Reserve took a much more proactive role in mitigating the severity of the crisis. The Fed began addressing the early days of the crisis by targeting the federal funds rate and lowering its target from 5.25% to 4.75% in September 2007. By December 2008, the Fed had set its target range for the FFR at 0% to 0.25%, (FED 2000). Next, the Fed expanded discount window lending and also expanded the kinds of securities that it would accept as collateral. This was meant to encourage banks that desperately needed liquidity to be able to borrow directly from the Fed at a rate close to the FFR.

The monetary environment in 2008, much like during the COVID-19 pandemic, was that of quantitative easing, meaning that the Fed had expanded the monetary base in the United States through liquidity provisions and asset purchases (Mishkin 2010). The Fed, in coordination with the Treasury, created the Troubled Asset Relief Program to purchase subprime mortgage securities and support failing institutions’ balance sheets. But it soon became clear that agreeing on a settled price for these troubled assets would be impossible, so the Fed pivoted to a direct capital injection program and took a more direct role in bailing out insolvent banks.

(Ait-Sahalia et al. 2010) find that recapitalizing the banking sector through comprehensive bailouts did lower interbank risk premiums, but individual bank bailouts on an ad hoc basis led to a rise in these risk premiums. This trend is echoed in the SVB episode because the targeted actions taken by the Fed suggested to the markets that SVB was on the verge of failure. (Ait-Sahalia et al. 2010) further find that the spillover effects of these interventions
quickly spread to other countries and indicated that an international policy response would lead to the most favorable macroeconomic outcomes.

The financial crisis started in one part of the US financial system, the market for subprime mortgages, and ballooned into a global economic downturn with years-long consequences. Two main lessons were learned from this episode: first, global financial system is inextricably connected to a degree not previously understood, and second the extraordinary actions of the US Fed and central banks around the world were crucial in containing the global financial crisis, but the long-term impact of this intervention may lead to the perpetually inflated balance sheet of the Fed and other central banks. The GFC and the Great Recession that followed highlighted the importance of understanding systemic risk and implementing policies to mediate it “are tasks of the highest priority,” (Mishkin 2010).

While the collapse of Lehman and Stearns and the failure of SVB share many similarities, it is crucial for the banking regulators to understand the ways in which these episodes were different. The GFC and collapse of SVB are similar insofar as they both partially caused by weak regulations and both resulted in government interventions, (OIG 2023). Of the many distinctions that separate the GFC and the 2023 banking crisis, there are two main differences relevant for the question posed in this paper.

First, the scale of the GFC far surpasses that of the 2023 banking crisis, (Dinh 2023). When Lehman failed in 2008, it had $639 billion in assets; Bear Stearns had $400 billion in assets. SVB, on the other hand, only had $219 billion in assets at the time of its collapse. Still, in March of 2023, the California Department of Financial Protection and Innovation announced SVB was being taken over by the FDIC, (FDIC 2023). By invoking the “systemic risk
“exemption,” the Treasury, Federal Reserve, and FDIC declared that all deposits held with the bank would be protected—including accounts above the $250,000 FDIC limit. Critics argue that these steps echoed and reinforced the too-big-to-fail dilemma that had plagued financial regulators a decade and a half prior. These unusual steps taken by financial authorities in guaranteeing 100% of SVB’s deposits marked a sharp deviation from the Fed’s resolution strategy in 2008.

Next, the macroeconomic versus microeconomic causes of these respective crises underscores how a variety of factors can lead to instability in the banking sector, (Honohan 1997). During the GFC, microeconomic factors impacted banks’ balance sheets and ultimately had far-reaching macroeconomic consequences, (Simon 2019). During the failure of SVB, however, worsening macroeconomic conditions in 2022 squeezed the bank’s profits and created severe microeconomic obstacles within the bank itself. This suggests that the regulatory and supervisory regimes present during these periods were insufficient to detect these inherent weaknesses. In the next section, I will introduce the regulatory reforms proposed following the GFC and the corresponding approaches utilized by other countries during their economic recoveries.

2.3 US Bank Regulation

The cascading failure of SVB in March 2023 and the subsequent failures of Signature Bank and First Republic Bank have reignited the fierce debate over bank regulation in the US. The United States’ history of bank regulation extends back to the 1920s following the stock market crash of 1929 and the Great Depression that followed. Following the failure of 9,000
banks and over $7 billion in lost depositor money—more than $127 billion in 2024 dollars—Congress pursued aggressive regulation in the banking sector (Berman 2023).

Following the Great Depression, the FDIC was established by the Glass-Steagall Act of 1933. This act insured deposits up to $2,500 and separated banks’ commercial and investment divisions. These two changes were designed to prohibit the speculative trading of the 1920s and prevent a repeat of the bank runs that caused the Great Depression. Up until the 1970s, the United States experienced a period of relative financial stability (FDIC 2021). However, during a period of stagnant economic growth and double-digit inflation, Congress passed the Depository Institutions Deregulation and Monetary Control Act in 1980. This trend would continue into the 1990s and expand pro-deregulation sentiment in the United States. And in 1999, the Gramm-Leach Bliley Act reversed the separation between commercial and investment banking imposed by Glass-Steagall (FDIC 2021).

This wave of deregulation persisted across presidential administrations and in 2004, the Securities and Exchange Commission (SEC) abolished capital requirements, which allowed banks to invest using large amounts of borrowed funds—i.e. leverage. On the eve of the GFC in 2006, the housing market was at an all-time high. As a result of low interest rates and deregulation in the 1990s, the US experienced a sharp rise in subprime mortgage loans—mortgages issued to borrowers with low credit scores. (Berman 2023) finds that these mortgages were packaged with other loans and sold off as derivatives known as “mortgage-backed securities,” (MBSs).

Many of these mortgages defaulted because borrowers did not have sufficient income to make their monthly payments. This came as a combination of predatory lending practices and the
use of “stated income” to determine loan amounts (Hubbard 2007). As defaults on these subprime-mortgages began to mount, housing prices fell through the floor in 2007. Since large banks were no longer subject to capital requirements after 2004, many of them had invested in very risky MBSs. Many large banks were highly exposed to defaults on subprime mortgages and as these losses rose, they pushed two industry giants to bankruptcy.

The first major bank to fail during the GFC was Bear Stearns’ in March 2008. Its collapse spread further contagion and panic throughout the banking sector because many other firms were also trading in highly speculative assets. Sure enough, Lehman Brothers was the next bank to fail in September 2008 and they declared chapter 11 bankruptcy—the biggest bankruptcy in U.S. history (Berman 2023). These large and rapid failures compelled the Fed to act in the fall of 2008. Believing that the subprime market and the credit crunch that it caused would lead to a financial collapse, federal authorities stepped in to prevent further cascading bank failures.

Washington targeted excessive risk taken by the US’ biggest banks by passing the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010). Dodd-Frank is an 849-page document, but for the purpose of this paper, I will discuss four provisions: 1. Federal Reserve stress tests, 2. orderly liquidation plans, 3. enhanced capital and liquidity requirements, 4. and the introduction of the Federal Stability Oversight Council (Dodd-Frank Wall Street Reform and Consumer Protection Act 2010). I will explore these provisions further in the forthcoming Policy Background of this paper.

At the same time that Dodd-Frank was being drafted in Congress, the Emergency Economic Stabilization Act of 2008 increased the FDIC insurance limit on deposits from $100,000 per depositor to $250,000 per depositor (FDIC 2008). Following the enactment of
Dodd-Frank, the US banking sector steadily recovered from the depths of the Great Recession. But (Kane 2012) criticized Dodd’s effectiveness and argue that it is insufficient to prevent bank failures and bailouts in the future.

While economists and bankers generally agree that Dodd-Frank reduced the risks posed by big bank failures, (Akhigbe et al. 2015). Critics claim that this increased safety comes at the cost of reducing access to credit. This is because, as (Lux and Greene 2015) argue, the higher regulatory burden on small and mid-sized firms hindered economic growth and availability of capital in the market post-2010. This belief was particularly strong among executives at these banks and after targeted lobbying efforts in the late 2010s, Congress passed the Economic Growth Regulatory Relief and Consumer Protection Act (EGRRCPA) in 2018. This law weakened, if not reversed, many of the provisions established in Dodd-Frank just 8 years earlier. The deregulation relevant for the exploration in this paper relates to the higher asset threshold for enhanced regulation.

The EGRRCPA raised the asset threshold for enhanced regulation from $50 billion under Dodd-Frank to $250 billion under the new law. This means that banks with below $250 billion were exempted from enhanced prudential standards such as capital adequacy and liquidity coverage requirements. Under the EGRRCPA, only 13 banks are subject to stress-testing and enhanced capital requirements in 2024. It was during this period of deregulation for mid-sized banks that SVB slipped rapidly into insolvency. There has been rampant debate and speculation surrounding the EGRRCPA’s responsibility for SVB’s failure, but detractors argue that the deregulation itself is not solely to blame (Powell 2022).
While the US has fluctuated between periods of strict and lax financial regulation, robust literature has emerged regarding the relationship between deregulation and financial instability. While the US pursued aggressive deregulation in the years following the GFC, our banking counterparts in the European Union (EU) have maintained their post-GFC regulatory reforms. In the next section, I will introduce the EU’s regulatory framework and how it successfully prevented any Eurozone banks from failing during the 2023 banking crisis.

2.4 EU Regulation

In the aftermath of the 2008 GFC, central banks around the world recognized the necessity to ensure stability in the global financial system and prevent future crises. While the US implemented various regulations encompassed in Dodd-Frank, the regulatory framework embraced by the EU is generally more comprehensive and effective at mitigating risk in the European Banking Union (EBU), (Lejon 2023). While the individual member countries are regulated by their own National Supervisory Authorities (NSAs), they still fall under the higher-level supervision of the European Central Bank (ECB).

Comparisons between the US’ and EU’s post-GFC regulations reveals how the same macroeconomic economic shocks, or simulations of these through stress tests, can have unequal impacts on the two regions. To demonstrate this, I introduce literature outlining a brief history of the EBU and how the European Parliament (EP) pursued regulation for banks in the EU following 2008. This section will show how differential approaches to bank regulation in the US and EU have left the US relatively more vulnerable to the kinds of panics that caused SVB’s collapse in March 2023.

The European Banking Authority was established in January 2011, and it was tasked with creating standardized banking rules for the EU member countries who had adopted the euro as
their central currency, (Wiggins et al. 2019). In 2013, the EP adopted the Single Supervisory Mechanism (SSM) for EU banks in order to create a unified framework for bank regulation in the Eurozone (ECB 2024). In 2014, the European Central Bank (ECB) revised its standards for “significant” and “less significant” banks under the SSM, (Wiggins et al. 2019). With the passage of Directive 2014/59 by the EP, Eurozone banks were subject to common standardized rules for the supervision, recovery, and restructuring of failing banks (European Parliament & Council 2014).

The ECB set five benchmarks distinguishing a deposit-taking institution as systemically significant through Directive 2014/59. If a bank meets any one of these five benchmarks, then the bank is subject to the strictest regulation and supervision under the SSM: 1. the bank has over €30 billion in assets, 2. its assets exceed €5 billion and represent 20% of its home country’s GDP, 3. it is among the three most significant banks in its home country, 4. the bank has extensive cross-border activity, and 5. the bank receives assistance from a EU bailout fund, (Wiggins et al. 2019). EU banking reforms following the GFC focused on strengthening liquidity and capital buffers in Eurozone banks. The ECB accomplished this through the Capital Requirements Directive (CRD), Bank Recovery and Resolution Directive (BRRD), and Deposit Guarantee Schemes (DGS), (Ojo 2016).

Compared to the US’ regulatory reforms under Dodd-Frank, Directive 2014/59 was much more comprehensive and was not weakened by deregulations in the years following its enactment—unlike Dodd-Frank. 2014/59 required two main assessments of banks in the Eurozone: 1. asset quality reviews and 2. mandatory stress testing (ECB 2023). These strictest regulations apply to 112 banks across all EU countries supervised by the ECB. Notably, Switzerland is not a member of the EU and is thus not subject to supervision by the ECB. When
turmoil in the US banking sector emerged in March 2023, European regulators evaluated exposures of EU banks to financial contagion caused by SVB’s collapse. In the opening remarks delivered before the European Parliament on March 15, 2023, the European Commissioner for Financial Stability announced that EU banks were highly resilient and in “overall good shape,” (McGuinness, 2023).

The same could not be said for US and non-EU banks during this period. The failure of Silicon Valley Bank had tremendous consequences for the Swiss banking sector in the spring of 2023, in particular. The Swiss banking giant Credit Suisse collapsed on March 19, 2023—just nine days after the failure of SVB (Valiante 2023). The embattled 167-year-old institution had experienced years of public scandals and was criticized for its high-risk investment strategy, but nonetheless managed to withstand these pressures until March 2023. Once the panic caused by turmoil in the banking sector spread across the Atlantic, Credit Suisse’s historical bad reputation left it vulnerable to rapid withdrawals from its depositors (Valiante 2023). This pressure on Credit Suisse’s liquidity led the bank to turn to Swiss regulators for support. The FINMA announced that Credit Suisse met both the “higher capital and liquidity requirements applicable to systemically important banks,” (Valiante 2023).

Despite this announcement, Credit Suisse’s desperately needed capital (Langwiler et al. 2023). On March 15th, the Chairman of the Saudi National Bank (SNB) stated in a televised interview that if Credit Suisse announced another capital raise, the SNB would not provide another round of investments in the bank. Although this was a strictly regulatory determination—investors cannot have >10% ownership of a systemically significant bank without regulatory approval—the March 15 statement was interpreted by market observers as a refusal to provide a failing bank with much needed capital. The day after this interview, Credit
Suisse’s shares fell another 24% and an outflow of roughly CHF 35 billion in deposits—approximately $38 billion—left the bank in a rush for the exits (Valiante 2023).

In response to this episode, the Swiss Federal government intervened on March 16th. The Swiss National Bank agreed to provide 100 billion Swiss francs to Credit Suisse in an attempt to stem the rapid withdrawals it faced (de la Merced 2023). As conditions worsened, however, it quickly became clear to authorities that nothing short of an acquisition would put an end to the panic. So, through discussions with Credit Suisse’s longtime banking rival UBS, Swiss regulators pushed an acquisition deal and settled on a final price of CHF 3 billion on March 19th (Valiante, 2023).

The March 2023 banking turmoil and its divergent impacts on the US, EU, and non-EU European financial sectors, highlights the consequences of weak regulation, haphazard risk-management, and disorderly resolution plans. No EU banks supervised by the ECB failed as a result of the 2023 panic, despite initial worries about EU banks’ stock prices. Once the ECB confirmed that all EU banks were well-capitalized and released their 2023 stress test results, panic in the EU banking sector largely subsided. Through information transparency, robust testing scenarios, and comprehensive regulatory frameworks, the ECB successfully ushered all EU banks through the turmoil without any need for intervention by the EBA (Congiu 2023).

Lessons from this crisis indicate that the EU’s framework for regulation and supervision provides authorities with more information regarding bank stability as well as enhancing the capital and liquidity buffers that would prevent bank runs in adverse scenarios. European regulators admonished the Federal Reserve’s actions leading up to and directly following the failure of SVB. The Fed’s unusual decision to guarantee 100% of SVB’s deposits frustrated EU
policy makers because of the moral hazard concerns of exceedingly generous deposit insurance (Amaro 2023), and the Fed’s own regulatory shortcomings leading up to the collapse. When discussing the US’ regulatory failures, Stephanie Yon-Courtin, a member of the European Parliament, explained that the US’ strictest regulations only “apply to very few banks — this is where the problem lays,” (Amaro 2023).

Now to consider an important hypothetical question, would Silicon Valley Bank have failed if it was subject to the same regulatory requirements as the largest US banks? If yes, then this suggests that the US must establish a new, more comprehensive framework for supervision and regulation for mid-sized banks. If not, then this suggests that the US must reevaluate its thresholds for Systemically Significant Financial Institutions (SIFIs). In either scenario, the current system for financial regulation in the US is too narrow to adequately assess and address systemic risk in the banking sector. To showcase this, I will now introduce a detailed case study into the collapse of Silicon Valley Bank and the dominos that lined up and caused its fall.

2.5 Silicon Valley Bank

Before any analysis of SVB’s collapse is complete, it requires an understanding of how the adverse economic conditions caused by the COVID-19 Pandemic led to the bank’s insolvency. In response to the 2020 COVID-19 pandemic, the Federal Reserve engaged in large open market purchases to increase the money supply and prevent a complete economic crash. The velocity of money circulation fell drastically as the world went into lockdown in early 2020. So, in order to maintain price stability in the US economy, the Fed expanded the US M2 money supply by $1.39 trillion between February 2020 and April 2020 alone (Burdekin 2020). Large
central banks around the world responded in similar fashion, with the ECB, the Bank of Japan, and the Bank of England all dramatically expanding their money supplies in 2020 (IMF 2020).

This excess money in circulation led to the Fed setting a 0 - 0.25 percent target for the Federal Funds Rate (FFR) in March 2020 (FED 2000). In addition to the 0% FFR, the Fed eliminated reserve requirements, relaxed capital rules, and encouraged banks to use capital and liquidity buffers to extend credit to households and business (Burdekin 2020). As a result of this quantitative easing (QE) from 2020 to 2022, the United States economy experienced a period of historic inflation, with the Consumer Price Index (CPI) reaching a high of 9.1% in June 2022 (Barr, 2023). In response to this high inflation, the Fed began tapering its asset purchase program in November 2021 and announced in January 2022 that it would raise the FFR target range (Irhig et al. 2024).

The Fed officially ended its large-scale asset purchases in March 2022 and made its first round of interest rate increases on March 17, 2022 (Rugaber 2023). Banks initially reacted favorably at first to rising interest rates in March 2022 because they expected to profit off of higher interest margins for newly issued loans (Drechsler et al. 2017). But as rates continued to rise over the course of 2022 and 2023, banks with large holdings of long-duration assets faced greater exposures to declining bond values. This effect happens because as nominal interest rates rise, bond prices generally fall. Since bonds are paid using a fixed coupon; if newer, higher-interest-paying bonds are issued, then existing lower-interest-paying bonds become less valuable. Thus, long-duration assets are more vulnerable to interest rate fluctuations because they suffer a greater price decline than short-duration assets for a given change in rates. Banks can hedge against this asset-duration mismatch between their long-term assets and their short-term
liabilities by either investing in shorter-maturity securities or increasing the maturation period for their liabilities (Dinh 2023).

Silicon Valley Bank took neither of these precautionary measures. Instead, the bank heavily utilized held-to-maturity accounting in order to obscure the real extent of the losses on the bank’s balance sheet and continued to rely heavily on large uninsured deposits (Dewatripont et al. 2023). At the time of SVB’s collapse, 94% of its depositors had balances above the FDIC’s $250,000 insurance limit. Since SVB mostly served tech firms and other large depositors, the average account balance was $4.2 million—far exceeding the $250,000 limit, (Rubinstein, 2023). Fearing a cascading bank run, US policymakers invoked the “systemic risk exception” and guaranteed all deposits held with the bank (Labonte et al. 2023). This measure aimed to disincentivize large uninsured depositors from withdrawing their funds and limit the strain on SVB’s liquidity.

Unfortunately, the disorderly liquidation of assets during the collapse further signaled the bank’s distress and fueled even more panic among SVB’s largest depositors, (Barr 2023). This means that once the first indication of distress within SVB was detected, uninsured depositors rushed to withdraw their funds before the bank crumbled into insolvency (Rubinstein 2023). SVB underwent a period of declining deposits during the 4 quarters leading up to its collapse in March 2023. This culminated in the largest single day withdrawal of funds by depositors in US history; on March 9th, 2023, $42 billion dollars was withdrawn from SVB. This run caused SVB’s failure and 24 hours later, on March 10th, the bank was taken over by the FDIC (Dinh 2023).
The spillover effects of SVB’s failure had an especially strong impact in similarly sized banks, specifically banks with assets between $50 billion and $250 billion. These banks, known as “super regional banks,” were previously considered systemically important financial institutions (SIFIs), but after the 2018 rollback of many of Dodd-Frank’s reforms, these banks were heavily deregulated (Choi et al. 2023). Investors feared that banks of this size had similar vulnerabilities to SVB and over the months following March 2023, the spread of panic infected the rest of the financial system. Notably, however, very large banks with assets over $1 trillion outperformed other banks during the crisis. This may be attributable to a number of factors, one being higher regulation for big banks and another being the implicit too-big-to-fail guarantee large SIFIs enjoy. Both of these effects would lead to “safe haven” deposit practices and encourage uninsured depositors to take their funds to more secure banks (Choi et al. 2023).

The Savings and Loans crisis, the Global Financial Crisis, and the Silicon Valley Bank share key similarities that reveal underlying weaknesses in the US banking system. Each episode involved rampant moral hazard, regulatory failure, and the pervasive notion of Too-Big-To-Fail. In the end, it was rising interest rates, asset duration mismatch, held-to-maturity accounting, over-reliance on large depositors, and the Fed’s insufficient regulatory oversight that ultimately led to the failure of Silicon Valley Bank. The challenge for regulators following SVB’s collapse is to tailor bank regulatory policy to prevent these kinds of cascading crises. In particular, the Federal Reserve’s regulatory stress tests and capital adequacy requirements are currently insufficient to detect banks’ exposures to interest rate risk (Choi et al. 2023).

Following the Fed’s policy of quantitative easing during the COVID-19 pandemic, there was a sharp rise in private technology investments which provided SVB with a very large depositor base of tech firms in Silicon Valley. In 2021 alone, SVB’s deposits rose from $102
billion to $189 billion (Flitter et al. 2023). With this large influx of new deposits, Silicon Valley
Bank invested in highly-rated government securities. Of their $120 billion bond portfolio, $90
billion was invested in fixed-rate mortgage bonds with very long maturation periods. This heavy
proportion of long-term fixed-rate securities exposed SVB to significant interest rate risks.
Normally, this interest rate risk would not be a major issue in the short term, especially if
markets expected interest rates continued to stay low. However, in response to historic inflation
in the US economy, the Fed began its first round of interest rate increases in March 2022
(Rugaber 2023).

Depositors began to withdraw their money in the 4 quarters before SVB’s failure because they hoped to invest in higher yielding securities with their money. SVB anticipated significant
customer withdrawals, but by February and March 2023, the rate at which deposits were leaving
the bank was quickly running through SVB’s liquidity. This forced SVB to liquidate a portion of
its assets in order to fulfill extraordinary withdrawal demands. But since these assets were
liquidated before the end of their maturation period, SVB incurred a heavy loss of $1.8 billion on
these sales. As a result, SVB announced a capital raise of $2.25 billion the week of its failure in
order to cover these large losses (Farrell 2023).

With the factors causing SVB’s failure—both its internal vulnerabilities and adverse
economic conditions during the pandemic—now understood, I will use the remainder of this
section to critically assess US regulators’ response to the 2023 crisis. Financial authorities had
one main goal during the distress at SVB: to prevent the contagion from spreading to other
banks, (Metrick et al. 2023). SVB was so unstable at the onset of the crisis that it was taken over
by the FDIC during business hours on March 10, 2023. Such a drastic move is highly unusual by
the Fed and the SVB episode is particularly unusual given the context of the 2008 GFC.
In September 2008, the US government announced that the Federal Housing Finance Agency (FHFA) would takeover Fannie Mae and Freddie Mac, two of the largest mortgage-backing firms in the United States, after they suffered significant losses in the subprime mortgage market. Their significance for the US housing market cannot be overstated—as of 2023, Fannie and Freddie collectively backed 70% of all US mortgages (Dehan 2024). The consequences of Fannie and Freddie’s collapse were judged to be so severe that federal conservatorship of the firms was ultimately approved. It is unclear whether the size of Silicon Valley Bank and the potential severity of its failure alone could justify the FDIC’s decision to place the bank under conservatorship in March 2023.

In terms of asset size, Silicon Valley Bank only had $209 billion dollars in total consolidated assets—$41 billion dollars below the Fed’s threshold for Systemically Significant Financial Institutions (SIFIs). Fannie and Freddie, by contrast, held a combined $5 trillion in total consolidated assets in 2008 (Griffith, 2012). In terms of contagion effects, the majority of SVB’s operations were concentrated in tech firms in California’s Silicon Valley. As critics of the federal response point out, this regional and sectoral concentration further calls into question the drastic measures by the Fed in guaranteeing 100% of these large firms’ deposits. Moreover, by placing SVB under FDIC receivership, the Federal Reserve’s actions in March 2023 reinforced the perception of an “implicit guarantee” enjoyed by large financial institutions prior to the 2008 GFC (Passmore et al. 2018).

So, does SVB’s collapse mean that Dodd-Frank failed its goals of Wall Street reform and consumer protection? Although it left gaps in the US’ post-GFC regulatory framework, Dodd-Frank did not fail its goals of Wall Street reform and consumer protection. Instead, a push for deregulations eight years after Dodd-Frank’s enactment rolled back many provisions in the 2010
law. This push, known as the Economic Growth Regulatory Relief and Consumer Protection Act (EGRRCPA) 2018, has reintroduced significant systemic risk into the US banking sector and has set the stage for similar bank failures and the necessity for federal intervention in the future.

This concludes the review of the literature relating to systemic risk in the US banking sector following SVB’s March 2023 collapse. In the subsequent chapters, I will introduce the two policy changes that set the US’ asset thresholds for enhanced regulation. Dodd-Frank, the first of these policies, set the asset threshold for enhanced regulation at $50 billion in total consolidated assets. Eight years later, The EGRRCPA raised this asset threshold to $250 billion, leaving banks with between $50 billion and $250 billion free from the strictest testing requirements imposed by the Fed. Prior to its failure in March 2023, Silicon Valley bank fell squarely in this range.

3 Policy Background

3.1 Dodd-Frank Wall Street Reform and Consumer Protection Act (2010)

To mitigate systemic risk in the US banking sector, the 2010 Dodd-Frank Act (DFA) was designed to address a variety of issues that led to the 2008 GFC. In particular, the DFA required increased transparency about loan quality, harmful lending practices, credit ratings and derivative standardization, and proprietary trading, (Holstein, 2012). For the purpose of this paper, I examine the DFA provisions relating to bank supervision and the creation of the Financial Stability Oversight Council (FSOC). Upon its creation in July 2010, The FSOC had broad authority over SIFIs for three broad purposes: 1. detect financial distress in US banks and
identify related systemic risks, 2. encourage market discipline and dispel the idea of a government backstop, and 3. quickly respond to emerging crises, (Holstein, 2012).

In this policy background, I introduce the DFA’s provisions for large commercial banks in the United States designed to minimize systemic risk caused by their financial distress or failure. Specifically, I introduce those provisions aimed to reduce systemic risk that were rolled back under Title IV of the EGRRCPA in 2018. In sequential order, I introduce Sections 115, 116, 121, and 165 of the Dodd Frank Act (2010).

Section 115 of the DFA established guidelines for enhanced supervision and prudential standards for banks and non-bank financial institutions that posed a systemic risk to the US banking sector. Its purpose, as described in 115(a), is to limit the risks posed by large and deeply interconnected financial institutions. Section 115 defines the FSOC’s authority to set enhanced prudential standards for these banks and recommends that these requirements apply to banks with asset thresholds higher than $50 billion in total consolidated assets. These recommendations include risk-based capital requirements, leverage limits, liquidity coverage requirements, resolution planning, public disclosures, and broad risk management requirements. These enhanced standards for systemically significant banks and non-bank financial institutions are designed to increase information transparency and limit moral hazard among banks (Dodd-Frank Act § 115, 2010).

Section 116 of the DFA expands on the previous section and imposes specific reporting requirements for large and systemically significant financial institutions. This section required banks to report 1. the financial standing of the firm, 2. the mechanisms in place to monitor and control operational risk, 3. all transactions with subsidiary firms, and 4. any firm operations or conditions that had the potential to disrupt financial markets and/or negatively impact the
financial stability of the United States (Dodd-Frank Act § 116, 2010). Section 116 allows the FSOC to collect important risk-related information from systemically significant banks in order to monitor and limit threats to financial stability.

Section 121 of the DFA established the FSOC’s authority in taking mitigating actions against systemically significant banks and non-bank financial institutions that pose “a grave threat” (Dodd-Frank § 121, 2010) to the financial stability of the United States. It is through Section 121 that Congress established the Fed’s broad authority and responsibility to impose strict remedial measures for banks with greater than $50 billion in total consolidated assets.

And finally, Section 165 of the DFA outlines the enhanced prudential standards that the Federal Reserve must enforce for banks with greater than $50 billion in total consolidated assets. The standard discussed in this section that has not been established earlier is the requirement of federal stress testing banks supervised by the Fed. The purpose of stress testing is to ensure that banks are well-capitalized during stressed scenarios. Semi-annual stress testing was required for bank holding companies and banks with greater than $50 billion and annual stress tests were required for banks with less than $50 billion but more than $10 billion in total consolidated assets (Dodd-Frank § 165, 2010). The overall intent of stress testing is to limit the risks of bank insolvency by requiring yearly tests for evaluating capital resilience across a number of adverse conditions.

Dodd Frank is a long and comprehensive law which includes many more sections than the four that are outlined here. Since the enactment of the Economic Growth, Regulatory Relief and Consumer Protection Act (2018) is my relevant policy change, I evaluate the specific provisions in Dodd that were weakened by the EGRCPA. More specifically, these four sections represent the prudential standards for systemically significant banks that were rolled back under
the EGRRCPA. By outlining the regulations in place before the deregulations in 2018, this section sets up the contrast between post-GFC regulations and pre-SVB deregulations. This contrast, I argue, should provide some explanation for the rise in held-to-maturity securities on mid-sized banks balance sheets.

3.2 Economic Growth, Regulatory Relief, and Consumer Protection Act (2018)

In the years following the GFC, the DFA was enacted to promote financial stability and increased oversight of systemically significant financial institutions. The DFA was designed to address the Too-Big-To-Fail (TBTF) problem endemic in the US banking system prior to 2008. The DFA was designed to ensure that no bank was deemed TBTF and implemented enhanced prudential standards to limit the risks that these big banks posed to the US financial system. The DFA designated banks with greater than $50 billion in total consolidated assets as systemically significant and required heightened supervision for these institutions. Then, only eight years later, the Economic Growth, Regulatory Relief, and Consumer Protection Act (EGRRCPA) raised this threshold for systemically significant banks from $50 billion to $250 billion. In effect, the EGRRCPA resulted in previously regulated banks no longer being required to submit to the DFA’s enhanced regulation and supervision. This deregulation is outlined in Title IV of the EGRRCPA (2018) and relaxes the prudential standards applied to mid-sized banks. For the purpose of this analysis, I introduce Section 401 of the EGRRCPA and its provisions rolling back Section 165 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010).

Section 401 of the EGRRCPA raises the asset threshold for enhanced prudential standards outlined in Section 165 of the DFA from $50 billion to $250 billion. It includes the option for enhanced supervision at the Fed’s discretion for banks between $100 billion and $250
billion. This means that banks below $100 billion are not subject to enhanced regulation and that banks between $100 billion and $250 billion are subject to enhanced regulation as deemed appropriate by the Fed, rather than as required by law under the DFA. This rule change meant that banks below $250 billion were subject to “periodic” rather than annual stress testing, lower liquidity coverage requirements, less strict leverage ratio requirements, and fewer scenarios for stress tests and capital-resilience. The Congressional Budget Office (CBO) reports that under the EGRRCPA, regulatory authorities have very broad discretion in tailoring stress test requirements and other enhanced prudential standards for banks with less than $250 billion in total consolidated assets (Perkins et al. 2018).

Ultimately, the passage of the Economic Growth, Regulatory Relief, and Consumer Protection Act (2018) significantly changed the regulatory landscape in the US following the enactment of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010). By raising the asset threshold from $50 billion to $250 billion for enhanced prudential regulation, the EGRRCPA reduced the supervision and oversight of mid-sized banks and diverged from the stringent regulation enacted following the 2008 Global Financial Crisis. This policy change resulted in large US banks between $50 billion and $250 billion that had previously experienced enhanced supervision under the DFA to no longer face that enhanced supervision under the EGRRCPA. My forthcoming analysis aims to understand the effect of this treatment change on financial stability in the US’ largest banks as represented by their individual balance sheets. In the forthcoming sections, I introduce the data and methodology used for this examination and summary statistics for these observations.
4 Data

This study utilizes a comprehensive panel dataset of the 50 largest US chartered banks in each quarter from 2009 to 2023. The specific time windows collected were from Q3 2009 to Q3 2011 and Q2 2017 to Q2 2018. I compiled this data from the Federal Financial Institutions Examination Council (FFIEC) Central Data Repository and the Federal Reserve Board of Governors H.8 Data Release on Assets and Liabilities of Large Commercial Banks. From these two sources, this study gains insight into the impacts of the 2018 EGRRCPA bank reclassification on individual balance sheet compositions on the US’ largest domestically chartered banks. These firms were originally ranked by asset size, and this allowed for simplified observations of the relative change in assets size of the banks in my sample. The key variables examined in this study are the total assets, total deposits, total held-to-maturity securities holdings of the banks included in the sample.

The merged dataset that I collected contained a sample of reclassified and non-reclassified banks across all quarters. This large sample should allow me to compare the effect of reclassification (Switch =1) on individual balance sheets to the effect of not being reclassified (Switch=0). The FFIEC call report data was listed in quarterly observations for all US chartered banks, not only the largest by asset size. So, to begin, I merged the two datasets on bank ID and the date corresponding to the Federal Reserve Board’s quarterly data reports. I only focus on US chartered banks because those are the banks solely regulated by the Federal Reserve of the United States.

In this merged dataset, there are 35 banks observed between Q3 2009 and Q2 2023 that experienced a reclassification under the EGRPPCA (2018) and 57 banks that did not experience reclassification. This higher number of non-reclassified banks is due to the fact that the fifty
largest banks in the US changes from quarter to quarter, meaning that some small banks enter the sample. Also, since banks that remained large and banks that remained small never experienced reclassification, these sample sizes make intuitive sense. The following tables provide the descriptive statistics for these banks and their balance sheet compositions.

4.1 Summary Statistics

Table 1 Summary Statistics

<table>
<thead>
<tr>
<th></th>
<th>Reclassified Banks</th>
<th>Non-Reclassified Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35</td>
<td>57</td>
</tr>
</tbody>
</table>

Table 2 Bank Variables

<table>
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<tr>
<th>Bank Type</th>
<th>Total HTM</th>
<th>Total LHTM</th>
<th>Mean Ratio of HTM to Deposits</th>
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<tbody>
<tr>
<td>Reclassified Banks</td>
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<td>2797</td>
<td>1.100498742</td>
</tr>
<tr>
<td>Non-Reclassified Banks</td>
<td>2567357494</td>
<td>2674</td>
<td>0.978896085</td>
</tr>
</tbody>
</table>

4.2 Descriptive Statistics

Table 2 introduces the descriptive statistics on key balance sheet variables that were used in the forthcoming regression analysis for reclassified and non-reclassified banks. The non-reclassified banks, including the largest US banks like JP Morgan Chase and Bank of America, have higher total HTM holdings due to their comparatively large size. If we control for asset size, Table 2 shows that total logged HTM holdings were higher for reclassified banks. And finally, the mean ratio of HTM to Deposits across all quarters was only 0.122% higher for reclassified banks, which suggests that reclassification had a small or negligible effect on HTM to deposits for reclassified banks relative to non-reclassified banks. Below, I explore the time-series relationships of these variables for their respective bank classifications to examine how the
enactment of the EGRRCPA impacted balance sheet compositions for the two types of firms in my sample.

To model this growth, I included an exponential trendline. Figure 1. shows the growth in HTM securities for reclassified banks between Q3 2009 and Q4 2017. The quarterly reporting for these tables ends at Q4 2017 rather than Q2 2023 because after Q4 2017, held-to-maturity securities was no longer consistently reported for banks on the FFIEC call reports. So, this table provides us with data during the post-Dodd Frank era that should still provide insight into the rising holdings of HTM securities. This is because prior to the enactment of the EGRRCPA, prominent lobbying efforts on the part of banks indicated to the markets that comprehensive deregulation was imminent. So, the rise in HTM holdings can plausibly be explained by the anticipation of deregulations in Q1 2018. Unfortunately, I am unable to model the direct effect post-EGRRCPA of this deregulation because firms were no longer compelled to consistently report HTM holdings separately on their balance sheets.
Figure 2. shows the rise in total HTM holdings for non-reclassified banks from Q3 2009 to Q1 2018. We observe a similar sharp rise in HTM holdings from Q3 2011 to Q3 2017 which suggests that rising HTM holdings were occurring across all banks, not only those that underwent reclassification in Q1 2018.
Figure 3. and Figure 4. begin to show the divergences between reclassified banks and non-reclassified banks during my observation period. In Figure 3. the logged HTM holdings for reclassified banks rose much more sharply between Q4 2017 and Q1 2018 compared to non-
reclassified banks during that same quarter. This information suggests that when controlled for bank size, there is a positive impact on HTM holdings for banks that underwent reclassification than for banks that did not. Since logging the HTM transforms the value from dollars to a proportion, this should control for the larger HTM holdings that bigger banks would naturally have.

Figure 5. shows the ratio of HTM securities to deposits across all quarters for reclassified banks under the EGRRCRA. This ratio was falling, because deposits were rising faster than HTM holdings, between Q3 2009 and Q3 2011. However, between Q3 2011 and Q2 2017, banks in this sample underwent a sharp rise in their ratio of HTM securities to deposits. Figure 6. shows that ratio of HTM securities to deposits across all quarters for non-reclassified banks under the EGRRCRA. This ratio was relatively constant during the period spanning from Q3 2009 to Q3 2011, but similarly to reclassified banks, non-reclassified banks experienced a sharp rise in their ratio of HTM securities to deposits. This suggests that the effect of reclassification in 2018 did
not lead to a significant rise in the ratio of HTM securities to deposits relative to non-reclassified banks.

These figures provide a snapshot of the expected results from my forthcoming regression. The figure which showed greatest divergence between reclassified and non-reclassified banks was the LHTM comparisons represented in Figure 3. and Figure 4. These tables show that when these banks are controlled for asset size, the effect of reclassification on HTM securities holdings is higher than the effect on HTM securities holdings for non-reclassified banks. The other figures, which do not control for asset sizes using logged HTM, do not show these results. So, this demonstrates the need for a direct difference in difference analysis of the policy change with date and bank fixed effects. In the next section, I introduce my methodology before moving forward with my results and analysis.

5 Methodology

To examine the effects of the Federal Reserve’s reclassification of banks from systemically significant to not systemically significant in 2018, I use a difference-in-difference
research approach that exploits the EGRRCPA’s policy change as a natural experiment. My treatment group for this analysis is US banks with total consolidated assets between $50 billion and $250 billion prior to Q1 2018. Banks above the $250 billion asset threshold and banks below the $50 billion asset threshold did not undergo this reclassification and, as such, these banks constitute my control group. The baseline regression model used in this analysis takes the form:

\[ Y_{i,t} = \beta_0 + \beta_1 (Treatment_i \times Post_t) + \alpha_i + \gamma_t + \epsilon_{i,t} \]

This model represents \( Y_{i,t} \) as my outcome variable: ratio of HTM to deposits, logged HTM; \( Treatment_i \) is an indicator variable showing if the banks fall in the $50 billion—$250 billion group; \( Post_t \) is an indicator for quarters after Q2 2018; \( Treatment_i \times Post_t \) is my difference-in-difference estimator; \( \alpha_i + \gamma_t \) are bank and time fixed effects, respectively; and \( \epsilon_{i,t} \) is the error term.

For these regressions, I use two different variables to measure banks performance: the ratio of HTM securities to deposits and the logged amount of HTM securities.

\[ Y_{i,t} = \frac{HTM \text{ securities}}{total \text{ deposits}} \]

\[ Y_{i,t} = \log \text{ HTM securities} \]

During the quantitative tightening enacted by the Federal Reserve in 2022, rising interest rates led to declining asset values and some banks recategorized their mark-to-market (also known as available for sale) securities to held-to-maturity securities. The intuition is that a rise in HTM securities should be an indicator for stress in individual banks, because higher HTM suggests that banks have suffered unrealized losses on their mark-to-market securities. In the next section, I introduce my regression results and provide supporting analysis.
6 Results

My results should show that Silicon Valley Bank, and other banks of a similar size, suffered significant unrealized losses as a result of worsening macroeconomic conditions in 2022 and 2023. As a result of these losses, I anticipate a rise in held-to-maturity holdings for banks included in my treatment group. These findings demonstrate that during the observation period between 2021 and 2023, rising interest rates had a positive and significant correlation with reclassified banks’ logged holdings of HTM securities relative to non-reclassified banks. Additionally, these results show that the reclassification of banks from systemically significant to not systemically significant, coupled with the 2022-2023 rise in the Federal Funds Rate (FRR), resulted in a sharp rise in HTM holdings for mid-sized banks. These results are reasonable because when banks’ long-duration assets are exposed to interest rate hikes, the fair-market value of those long-duration assets will fall. So, banks will increasingly utilize HTM accounting to maintain their CET1 ratios (the ratio of capital to risk weighted assets). As risk-weighted-assets rise, and CET 1 remains constant, the CET 1 Capital Ratio will fall; potentially pushing these banks into non-compliance with federal CET 1 ratio requirements (Fender et al. 2015).

This intuition is consistent with the findings in SVB’s 2022 Annual Report wherein the bank disclosed that their HTM balances rose from $58 billion by year-end 2021 to $95 billion by year-end 2022 (Silicon Valley Bank 2022). However, the estimated fair value of SVB’s HTM securities was only $76.1 billion, further suggesting significant unrealized losses on the bank’s balance sheet (Silicon Valley Bank 2022). Also included in their 2022 10K, SVB reported $15 billion in unrealized losses on their HTM securities portfolio, which is consistent with the expectation that asset values would decline as interest rates rose.
By reclassifying securities as held-to-maturity, banks are able to report the expected book value of those assets in the case when they were actually held-to-maturity, rather than their fair market price. But, as my regression results and the 2023 collapse of Silicon Valley Bank suggest, HTM accounting obscures the real losses observed on banks’ asset portfolios and further depresses these banks actual capital levels. But since these losses are unrealized, banks can effectively avoid marking their assets to market and can thus maintain their CET1 ratio requirements. If banks are able to obscure their largest losses through the reclassification of securities from Available for Sale (AFS) to HTM, then the Federal Reserves’ stress tests are largely measuring model-based, rather than market-based, asset values. The risks associated with this kind of accounting are particularly severe in high interest rate environments such as the one experienced after the COVID-19 pandemic. This last point presents the key concern for this analysis: if rates continue to rise, what happens then?

SVB is the validating example in my results. A combination of risky-investment choices, large asset-liability duration gaps, rising interest rates, and stagnation in the tech sector in 2022 all led to SVB’s collapse. But, as I and Granja (2023) contend, held-to-maturity accounting obscured SVB’s mounting losses and made it vulnerable to runs on its liquidity. As such, the dramatic rise in HTM accounting across similarly sized banks should suggest that these risks are not isolated to SVB’s balance sheet alone. Here I present the findings from two regressions that I ran using the following models and specifications.

Regression 1 evaluated the effects of bank reclassification on the ratio of held-to-maturity securities to deposits with time fixed effects. With this regression, I did not obtain statistically significant results for the effect of bank reclassification on the ratio of held-to-maturity securities
to deposits. However, there was significance in the date variables following the enactment of Dodd-Frank in (2010). These results suggest that the reclassification of banks from significant to not significant under the EGRRCPA did not have a statistically significant effect on the ratio of HTM to deposits for reclassified banks relative to non-reclassified banks.

\[ \text{HTMDEPS}_{it} = \beta_0 + \beta_1(Treatment_i \ast Post_t) + \alpha_i + \gamma_t + \varepsilon_{it} \]

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The key coefficient I am interested in for this regression is the `RECLASS` variable at the top. This coefficient should capture the effect of bank reclassification on the HTM securities to deposits ratio for the banks in this sample. The coefficient is not statistically significant (p-value = 0.51) which indicates that the reclassification of banks from systemically significant to not systemically significant did not have a statistically significant effect on the HTM-to-deposits ratio for reclassified banks relative non-reclassified banks. However, thanks to the time fixed effects, we observe statistically significant results on bank holdings of HTM-to-deposits in the post-Dodd Frank time frame. The negative and statistically significant coefficients for observations from Q3 2010 to Q4 2018 indicates that the implementation of Dodd-Frank led to a reduction in HTM-to-deposits for banks in the $50 billion to $250 billion treatment group.

Overall, the results from this first regression suggest that bank reclassification under the EGRRCPA did not significantly affect bank balance sheet compositions relative to non-reclassified banks. However, earlier regulatory changes captured in the time window observed did impact historical balance sheet ratios, which indicates the importance of regulations on certain key variables in this first regression.

Regression 2 evaluated the effects of bank reclassification on logged HTM (LHTM). These new results had statistical significance for the reclassification variable as well as the date observations 4 quarters before the enactment of the EGRRCPA. We can explain this early rise in
HTM securities because of the anticipation that mid-sized banks would soon be deregulated as a result of highly publicized lobbying efforts in 2017. Also, it is reasonable for logged HTM to show statistical significance for reclassification because it allows for controlling asset size when evaluating the impact of the 2018 deregulations. If asset sizes are not controlled, then large banks with larger HTM holdings would skew the results of this analysis.

\[ LHTM_{i,t} = \beta_0 + \beta_1 (\text{Treatment}_i \ast \text{Post}_t) + \alpha_i + \gamma_t + \varepsilon_{i,t} \]

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</table>

*** > .01, ** > .05, * > .1

The results of this regression show a positive coefficient of 1.43 on bank reclassification with a p-value of 0.008. This indicates that the reclassification of banks under the EGRRCPA led to a 1.43 unit increase in the logged value of HTM holdings for reclassified banks relative to non-reclassified banks. I observed statistically significant results in Q2 2017 until the end of the observation period in Q2 2023. The R-squared value of this regression is higher than that of Regression 1 (0.274 vs 0.112) which suggests that over 27% of the variation captured in logged HTM is attributable to the reclassification of the banks that underwent the treatment change.

Overall, these results demonstrate that bank reclassification in 2018 led to a statistically significant rise in logged HTM holdings for reclassified banks relative to non-reclassified banks, but not on the ratio of HTM securities to deposits. These results indicate a statistically significant effect for bank reclassification when HTM securities are controlled for total asset size. Additionally, the anticipation of imminent deregulation in 2017 supports my initial hypothesis. It lends credibility to my expectation that the 2018 EGRRCPA incentivized banks to take neglect interest rate risks and invest heavily in long-duration assets during the low-interest environment caused by the COVID-19 pandemic.

Ultimately, these results demonstrate the relationship between deregulation and held-to-maturity accounting for deregulated banks. When we control for asset sizes, the significant relationship between deregulation and HTM securities becomes apparent. The consequences of
neglecting this relationship, and the effects that it has, can lead to crisis episodes such as SVB in which banks appear well-capitalized, despite suffering significant unrealized losses. Although it was below the asset threshold for enhanced prudential supervision, SVB still managed to create profound financial contagion in the US and abroad. This suggests that Congress should either reconsider the bank-size deregulations implemented under the EGRRCPA or require full disclosures and transparent accounting for mid-sized banks’ bond portfolios. This is the policy adopted by the European Union in the post-GFC wave of reforms. According to EU regulations, “those securities that were classified as ‘held for trading purposes’… must be valued at market prices, if such prices are available,” (ECB 2024). This means that by mandate, EU banks’ real gains and losses on HTM will be directly reflected on their balance sheets. Therefore, capital levels in EU supervised banks are likely more accurate reflections of their real asset values that in US supervised banks.

7 Conclusion

This study aimed to better understand how the deregulation of mid-sized banks under the 2018 Economic Growth, Regulatory Relief, and Consumer Protection Act impact the balance sheet compositions of the largest banks in the United States. By exploiting the reclassification of banks from systemically significant to not systemically significant, my regressions set up a quasi-natural experiment to observe these effects from Q3 2009 to Q2 2023. By including quarters from before the enactment of the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010), this paper was able to capture the effects of increased and decreased regulation on individual bank balance sheet compositions. The results in this study find that while the EGRRCPA did not significantly impact the ratio of HTM securities to deposits, it did lead to a statistically significant increase in the overall level of HTM securities held by
reclassified banks relative to non-reclassified banks. Regression 2. shows that this effect began prior to the enactment of the EGRRCPA and is plausibly explained by market anticipation of imminent deregulation for mid-sized banks. By shifting towards greater HTM securities holdings, newly deregulated banks assumed greater interest rate risk exposures once the Federal Reserve began contracting the money supply to combat high inflation in 2022. These results and the collapse of Silicon Valley Bank, a mid-sized bank impacted by deregulations under the EGRRCPA, highlight the importance of recognizing these post-2018 trends and anticipating future episodes resulting from high HTM holdings and rising interest rates for mid-sized banks.

Areas for future research relating to this topic could explore the effect of reclassification on other asset classes and measure risk exposures beyond held-to-maturity securities. This would allow for a more comprehensive understanding of the effect of reclassification on balance sheet compositions. Additionally, with more transparent data regarding held-to-maturity holdings for banks, a more conclusive analysis can be made regarding the direct impact of bank reclassification on HTM securities.

As the US financial system emerges from the COVID-19 pandemic, and as inflation still remains persistently high, there are still many unanswered questions about the future of US bank stability. This research underscores the importance of evaluating bank regulation not only on asset quality and the frequency of stress testing, but also the accounting practices of US banks and the thresholds by which banks are classified as systemically significant. By striking the right balance between regulation and credit availability, financial authorities can heed the lessons of the March 2023 crisis and fortify the US banking sector against future shocks.
Bibliography


