SRI VENKATESWARA INTERNSHIP PROGRAM FOR RESEARCH IN ACADEMICS (SRI-VIPRA)

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Project Report of 2024: SVP-2433

"Global Banking in the First Quarter of the Current Century"

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SRIVIPRA PROJECT 2024

Title: Global Banking in the First Quarter of the Current Century

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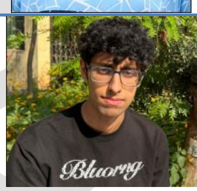
3		Rohan Bakhshi	1722005	B.Sc (H) Mathematics	

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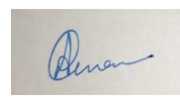
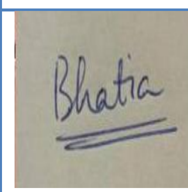
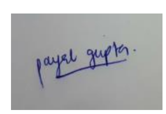
6		Aman Dhingra	0522065	B.A. (H) Economics	
7		Guransh Singh Bhatia	0522012	B.A. (H) Economics	
8		Payal Gupta	0522025	B.A. (H) Economics	

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Certificate of Originality

This is to certify that the aforementioned students from Sri Venkateswara College have participated in the summer project SVP-2433 titled "**Global Banking in the First Quarter of the Current Century"**. The participants have carried out the research project work under my guidance and supervision from 1st July, 2024 to 30th September 2024. The work carried out is original and carried out in an online/offline/hybrid mode.

Signature of Mentor

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Acknowledgments

We would like to express our heartfelt gratitude to our mentor, Dr. S. Krishnakumar, for his unwavering guidance and invaluable insights throughout the research process.

His expertise and mentorship have been instrumental in shaping this research report on the topic, 'Global Banking in the First Quarter of the Current Century.' We also extend our sincere thanks to the numerous individuals who generously shared their knowledge and experiences, contributing significantly to the depth and quality of this study.

We would like to extend our heartfelt gratitude to Ms. Dipti Park for her invaluable guidance and expertise in introducing us to the effective use of Excel for economic analysis. Her insightful teaching has not only enhanced our technical skills but also deepened our understanding of how to apply these tools in real-world scenarios.

This acknowledgment would be incomplete without recognizing the support of our peers and family, whose encouragement sustained us during this endeavor. Together, their collective support has been pivotal in making this research possible.

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Timeline of the Project

Meeting 1 - 30/06/24 (Online): *Introductory Session*

Meeting 2 - 06/07/24 (Online): *Excel Session with Ms. Dipti Pareek*

Meeting 3 - 13/07/24 (Online): *Extension to the Excel Session*

Meeting 4 - 18/07/24 (Online): *Discussion of the FCIC Report*

Meeting 5 - 21/07/24 (Online): *Introduction to Economic Databases (Extraction of World Bank Database & International Monetary Fund Database)*

Meeting 6 - 07/08/24 (Offline): *Discussion of "Fall of Credit Suisse and Takeover by UBS"*

Meeting 7 - 22/08/24 (Online): *Discussion of "The Lehman Brothers Bankruptcy"*

Meeting 8 - 28/08/24 (Offline): *Discussion of "Global Debt Architecture and Developing Countries"*

Meeting 9 - 06/09/24 (Online): *Discussion of "Chinese Banking System & the G-SIBs"*

Meeting 10 - 07/09/24 (Online): *Separate Meeting for Discussion and Suggestions for the Chinese G-SIBs Chapter*

Meeting 11 - 20/09/24 (Online): *Discussion of "SVB and Signature Bank Crisis: Banking Crisis in the USA after the GFC"*

Meeting 12 - 28/09/24 (Online): *Continued Discussion of Chapters in the Research Report*

Meeting 13 - 13/10/24 (Online): *Further Discussion on the Above Chapters*

Meeting 14 - 16/10/24 (Online): *Separate Discussion and Suggestions for Global Debt Architecture*

Meeting 15 - 04/11/24 (Online): *Final Review and Closing Session*

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Introduction

This project on “Global Banking in the First Quarter of the 21st Century” tries to capture various aspects of international banking. International banking has come a long way. Ever since the process of financial globalisation in the early nineties, there has been a steep increase in the external liabilities and assets of countries. The quarter century we explore has also been characterized by a series of crises. During the Asian financial crisis of 1997, several East Asian currencies were witness to a steep depreciation of their values. The major financial event which occurred in the world in the current century, the Global Financial Crisis, rocked the American financial markets and there was a dash for liquidity, with the Fed and the central banks being forced to step in. This burst of the housing bubble in the US resulted in a number of banks far away from its shores in Europe finding a mismatch in their balance sheet. There have been three important developments in the first quarter. One, the dollar credit outside the United States to non-financial corporations has crossed $13 trillion as per the BIS data. Two, the banks have resorted to borrowing in international currencies to further lend over to others, and also resorted to the accumulation of wholesale liabilities, increasing their risk exposure. Thirdly, the risks of the American housing markets were swiftly transmitted to different European banks, resulting in many of them seriously being affected and requiring state support for survival or getting liquidated. The first chapter is an attempt from the part of the students of this project to summarize the Financial Crisis Inquiry Committee Report which they have collectively attempted to review.

To cover different issues related to global banking, we had the team divided into five groups. In the second chapter, Guransh Singh Bhatia and Shubh Bhaskar try to explore the factors which led to the collapse of Credit Suisse and the quick arrangements which were made under the auspices of the financial regulatory regime in Switzerland towards getting UBS to take over the Credit Suisse. This followed the reluctance of the Saudi National Bank (one of its most important investors) to pump more into the equity of the failing Credit Suisse. Even when the world was already very bothered about the presence of huge banks and the systemic threats which have been

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posed by them and wanted the same to be regulated more strictly, the episode was witness to one of the GSIBS in the world, UBS taking over the Credit Suisse and thus getting even larger.

The next chapter is on in the series in the Lehmann Bankruptcy. As a leading underwriter and market maker in both commercial and mortgage-backed securities, the leverage and exposure of Lehmann was witness to a steep increase. With the crisis, Lehmann was pushed to bankruptcy. Sanskrati Gupta and Kavya Garg investigate the resolution of the Lehmann Bankruptcy case, which is the largest of its kind in the financial history of the US. Involving proceedings in 16 different jurisdictions, the sale of the assets to Barclays also aided in meeting a part of the liabilities incurred. The Lehmann bankruptcy had also resulted in triggering policy initiatives with respect to banking regulation worldwide.

In the next chapter Payal Gupta and Ayush Jakhmola draw attention to the relevance of change of the architecture of the international financial system of debt from the perspective of the developing countries. This is done based on the data from the International Debt Statistics as well as readings from the Trade and Development Report of the UNCTAD. In the light of the rising debt servicing ratios of the developing countries particularly in the light of the unusual weather events as well as rising ecological concerns, they argue that there is an importance towards addressing the same towards addressing development concerns of the developing countries.

Aman Dhingra and Harshita Jain bring to us the reasons which went behind the crisis of the Signature Bank and the Silicon Valley Bank. Coming as it is after the Global Financial Crisis; this was a matter of major concern in the US banking circles. The steep increase in interest rates in a year by virtue of the frequent hikes through the various rounds of the FOMC meetings had resulted in the value of the bonds and securities held by these banks being witness to a steep decline. They take us through this with the support of data.

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The rise of China in the world of trade resulting in its emergence as the world's major exporter is a known fact. In terms of dollars, it is the second-largest economy in the world. In terms of PPP international dollars, it is by now the largest economy in the world. It is important to note that the first quarter of the current century has been witness to the rise of Chinese banks in the global economy. Priyanka Sheokand and Rohan Bakshi bring us some details about these banks. The components which enter the determination of the risk bucket of GSIBs are discussed. They also track the change in the risks associated with the GSIBs headquartered in China.

The objective of this SRIVIPRA project has been to introduce us to the various aspects of the evolving global banking environment. To that end, it has been successful.

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CHAPTER 1: AN OVERVIEW OF THE FINANCIAL CRISIS INQUIRY REPORT

Section 1

This section is fully based on the Financial Crisis Inquiry Committee Report. It was done to broaden the understanding about the underpinnings of the crisis. What were the events underway in the run-up to the crisis.

Section 2: Shadow Banking

In the early 2000s, the United States experienced an unprecedented housing boom, driven by low interest rates, speculative buying, and easy access to credit. The macroeconomic conditions and financial behaviors that inflated the housing market bubble, which would eventually burst and trigger a global crisis are examined as follows:

Monetary Policy and Cheap Credit

> The Federal Reserve's response to the dot-com bubble and the 9/11 attacks was to lower the federal funds rate to historic lows, hitting 1% by 2003. This period of easy money made borrowing more affordable, fuelling demand for housing. Mortgage originations surged, with many borrowers enticed by adjustable-rate mortgages (ARMs) and other exotic mortgage products.

Speculative Investment and the Housing Market

> A growing number of buyers treated homes as investment vehicles, assuming prices would continue rising indefinitely. Flipping homes became a common practice, and speculative buying led to unsustainable price inflation. By 2006, home prices had nearly doubled in some regions, reaching unsustainable levels before the eventual collapse.

Global Capital Flows

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Low interest rates and excess global savings, particularly from countries with large trade surpluses (like China), increased capital flows into the U.S. mortgage market. This influx of liquidity helped keep mortgage rates low and encouraged further lending.

Section 3: Securitization And Derivatives

The rise of subprime lending—loans given to borrowers with weak credit histories—was both a driver and a symptom of the housing bubble. This the expansion of subprime mortgages and the associated risks that accelerated the financial crisis are discussed in detail.

Expansion of Subprime Loans

Between 2003 and 2006, subprime mortgage originations exploded, growing from 8% of total mortgage originations in 2003 to over 20% by 2006. This was fuelled by increasingly lax underwriting standards and the proliferation of riskier mortgage products like "no-doc" loans (no documentation) and interest-only mortgages.

Mortgage-Backed Securities (MBS) and the Role of Securitization

In the meantime, the Wall Street transformed subprime loans into tradable assets through securitization, bundling them into mortgage-backed securities (MBS) and selling them to investors. This process transferred risk from lenders to investors, fuelling demand for more mortgages. The complexity of these securities and their over-reliance on credit ratings masked the true risk of subprime mortgages.

Government-Sponsored Enterprises (GSEs) and the Role of Fannie Mae and Freddie Mac

Fannie Mae and Freddie Mac, government-sponsored enterprises (GSEs), contributed to the demand for subprime loans by purchasing and guaranteeing these risky mortgages, further embedding subprime risk in the financial system.

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The explosion of subprime lending introduced significant risk into the housing market, as increasingly exotic and poorly understood mortgage products proliferated. The securitization of these loans spread risk across global financial markets, creating a fragile system vulnerable to collapse.

Section 4: Deregulation Redux

The risk management, compensation structures, regulatory oversight, and government intervention of the financial institutions' including the misleading portrayal of mortgage-related assets as riskless investments, skewed compensation practices, challenges in regulating financial institutions, and the impact of government intervention on private regulation is discussed in this part of the Report.

Details and Insights

Misrepresentation of Risk: Fannie and Freddie executives misrepresented mortgage-related assets as riskless investments, leading to inaccurate estimates and manipulation of earnings to meet targets.

Compensation Structures: Compensation practices along the mortgage securitization chain prioritized the volume of loans over loan quality, fostering short-term profits over long-term risk management.

Regulatory Challenges: Regulatory entities faced difficulties recruiting financial experts, leading to gaps in risk oversight and potential manipulation of financial data.

Government Intervention: The debate centered on whether government intervention enhanced or weakened private regulation, with arguments for maintaining multiple regulators to prevent arbitrariness.

Financial Sector Growth: The financial sector's rapid growth outpaced the rest of the economy, with profits peaking at 33% of corporate profits in 2003.

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Deregulation Impact: Deregulation extended beyond removing rules, with a reluctance to adopt new regulations or challenge industry practices, relying on financial institutions to self-regulate.

Section 5: Subprime Lending

Introduction to Subprime Lending

Subprime lending is the practice of extending loans, typically mortgages, to individuals with bad credit ratings, at higher interest rates to compensate for the high risk. Borrowers may have low credit scores, past defaults, or unstable income. In the early 1980s, financial institutions like Household Finance Corp. and Long Beach Savings and Loan made home equity loans, often second mortgages. Interest rates on subprime mortgages was not as high as those on credit cards. Some of the subprime lending firms were part of a bank, others were independent. The practice of subprime lending grew in the 1980s and accelerated rapidly in the 1990s and 2000s, as lenders sought to capitalize on the increasing demand for housing and the Tax Reform Act of 1986 made mortgage interest tax-deductible.

Mortgage Securitization

Mortgage securitization was the reason for the growth of subprime lending. In securitization, lenders packaged subprime mortgages into pools, which were then sold as securities to investors. These securities were divided into tranches, where higher-rated tranches (AAA) were seen as lower-risk investments and offered lower returns, while lower-rated tranches provided higher returns but carried much more risk (BBB).

“A Business Where We Can Make Some Money"

Financial institutions quickly realized that subprime lending was highly profitable. Interest rates on subprime loans were significantly higher than prime loans, and securitization allowed banks to offload much of the risk onto investors. By the early 2000s, subprime lending became a central

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component of the U.S. mortgage market. Institutions like Lehman Brothers, Bear Stearns, and Citigroup heavily investing in mortgage origination and created collateralized debt obligations (CDOs) out of the securities making everything extremely complex.

Subprime Lenders in Turmoil: “Adverse Market Conditions”

By 2007, the subprime market began to unravel. Defaults on subprime mortgages soared as housing prices started to decline, leaving many borrowers unable to refinance or sell their homes. As defaults rose, the value of mortgage-backed securities plummeted, particularly the lower-rated tranches that were heavily dependent on the performance of subprime loans. Financial institutions like Lehman Brothers and Bear Stearns began to suffer significant losses.

Role of Regulators

Regulatory oversight of the U.S Mortgage Market was lax. In 2000, a joint task force led by the Department of Housing and Urban Development (HUD) and the Department of Treasury had identified a range of predatory practices in the subprime market, such as loan flipping, high fees, and prepayment penalties that stripped homeowners of equity. Despite these findings, subprime lending continued to grow unchecked, as both lenders and Wall Street financial firms profited from the market's expansion.

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Section 6: Credit Expansion

Section 6 focuses on the dramatic credit expansion that contributed to the financial crisis.

House Market Boom

Between 1995 and 2000, housing prices increased at a steady 5.2% annually, while from 2000 to 2005, this rate accelerated to 11.5%. This surge in home prices was driven by a combination of low interest rates and easier access to mortgage credit, particularly for households that had previously been excluded, including subprime borrowers. Homeowners increasingly borrowed against the growing equity in their homes.

Subprime Loans

The value of subprime loans originated almost doubled from 2001 through 2003, to $310 billion. Banks and Wall Street Investment Banks started purchasing subprime lenders so they could securitize and sell to the growing legions of investors. Wall Street securitized more loans than GSEs by 2005, leading to a significant rise in private-label mortgage-backed securities. In 2006, the private-label MBS market reached $1.15 trillion, with 71% of this figure comprising subprime and Alt-A loans.

Measures taken by the Fed

- Revised Home Ownership and Equity Protection Act (HOEPA)
- Creation of HUD-Treasury Joint National Predatory Lending Task Force
- Increased Regulatory Scrutiny after Citigroup acquired Associates First Capital.

Debt Accumulation

Between 2001 and 2007, mortgage debt nearly doubled, and home equity borrowing soared as property prices increased. By mid-2006, household debt levels reached 130% of disposable income.

Section 7: The Mortgage Machine

Increase in demand for Mortgage Securities: Mortgage securities became a hot product due to high demand from foreign investors. Due to the increase in prices of houses, investors found that mortgage securities would render the best returns. The Fed simply kept interest rates too low which led to more people buying homes. By 2005 and 2006, Wall Street was securitizing one-third more loans than Fannie and Freddie. In just two years, private-labelled mortgage-backed securities had grown more than 30%, reaching $1.15 trillion in 2006; 71%were subprime or Alt-A.

Securitization of Mortgages: In 2004, commercial banks and investment banks overtook government-sponsored enterprises like Fannie Mae and Freddie Mac in securitizing home loans. By 2005, Wall Street focused on riskier, high-yield loans such as jumbo loans and Alt-A, which

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led to rapid expansion of nonprime mortgages. Subprime mortgages rose from 8% of mortgage originations in 2003 to 20% in 2005. About 70% of subprime borrowers used hybrid ARMs (Adjustable-rate mortgages) such as 2/28s and 3/27s—mortgages whose low “teaser” rate lasts for the first two or three years, and then adjusts periodically thereafter.

The loan-to-value ratio (LTV) began rising because people could not give a large downpayment due to rising house prices.

All this led to a proliferation of risky mortgage-backed securities in the market. Some people had predicted that the housing market bubble would burst soon. But the banks and wall-street were caught up in a frenzy of making profits. The Fed too was incompetent in its role as a regulator.

Option ARMs

An option Adjustable-Rate Mortgage (Option ARM) is a mortgage where borrowers choose from several payment options each month. By 2004, they became popular due to lower payments compared to traditional mortgages. During the housing boom, many borrowers made only the minimum payments, increasing their loan principal each month. Washington Mutual (WaMu) touted the "best selling point for the Option ARM" as the lower monthly payments compared to fixed-rate loans. However, many WaMu brokers felt these loans were "bad" for customers. One focus group member noted, “A lot of (Loan) Consultants don’t believe in it... and don’t think [it’s] good for the customer. You’re going to have to change the mindset.” Despite these concerns, the loans' use soared. From 2003 to 2005, the risk increased as loan-to-value ratios, combined loan-to-value ratios, and debt-to-income ratios rose. It’s crucial to understand that the issue isn't with pay option loans themselves, but with the quality of borrowers and third-party originators’ abuse. However, they didn’t slow down due to competition with other banks. At a HOEPA hearing, consumers testified to being sold option ARM loans in their primary non-English language, only to be pressured to sign English-only documents with worse terms.

Down Payment, LTV, and Underwriting

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Another significant shift had serious consequences. For decades, the down payment for a prime mortgage was 20% (an 80% loan-to-value ratio, LTV). As prices rose, finding the cash for a 20% down payment became harder, and from 2000 on, lenders began accepting smaller down payments. A borrower with a higher combined LTV had less equity. In a rising market, they could sell the home and come out ahead if payments became unmanageable. In a falling market, they might owe more than the home's value. Another method to expedite mortgages was to require less borrower information. “Stated income” or “low-documentation” (or “no-documentation”) loans emerged for people with fluctuating incomes, like the self-employed, or longtime customers with strong credit.

Immunity from State Laws, Use of Commercial Paper, and Credit Rating Agencies

The Office of Thrift Supervision (OTS) and the Office of the Comptroller of the Currency (OCC) resisted state efforts to regulate national banks and thrifts. Companies argued that without uniform rules, they couldn't easily do business nationwide, and regulators agreed. Another issue was the use of commercial paper: banks had to hold 4% in capital for on-balance-sheet mortgages to protect against loss. For off-balance-sheet entities like commercial paper programs, no capital charge was required (a small charge was imposed in 2004). Finally, Moody’s played a crucial role, rating mortgage-backed securities using models based on strong credit performance periods. Moody’s didn't account for deteriorating underwriting standards or declining home prices and didn't develop a model for subprime securities' layered risks until late 2006, after rating nearly 19,000 subprime securities.

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Section 8: The CDO Machine

Bankers repackaged low investment-grade tranches, largely rated BBB or A, from many mortgage-backed securities into new securities—CDOs. About 80% of these CDO tranches were rated triple-A despite comprising lower-rated tranches of mortgage-backed securities. CDO securities were sold with their own risk hierarchies, with risk-averse investors paid first and risk-seeking investors paid last. Rating agencies gave their highest, triple-A ratings to the top securities. CDO creation and marketing involved pooling various debts, especially mortgages, into tranches with different risk levels, sold to investors. Investment banks, CDO managers, credit rating agencies, and investors drove this process, fuelled by demand for high-yield investments in a low-interest-rate environment. Rapid market growth, financial innovation, and regulatory gaps led to unchecked risk-taking. As the housing market declined, rising mortgage defaults caused significant losses in CDO tranches, resulting in a liquidity crisis and widespread financial instability, contributing to the financial crisis.

Bear Sterns established Bear Sterns Asset Management (BSAM) in 1985 and by 2006, it had 11 CDOs with $18.3 billion in assets and 2 hedge funds with $18 billion in assets. Although Bear Stearns owned BSAM, Bear's management exercised little supervision over its business but with a huge leverage ratio. By the middle of the decade, Citigroup was a market leader in selling CDOs, often using its depositor-based commercial bank to provide liquidity support. For much of this period, the company was in various types of trouble with its regulators, and then-CEO Charles Prince told the FCIC that dealing with those troubles took up more than half his time. Similar things happened with AIG and Goldman Sachs.

Academics cautioned investors that heavy reliance on CDO credit ratings could be dangerous, emphasizing how the complexity of structured finance transactions could lead to important potential implications. The promotion of bonds and marketing materials was also dependent on ratings, with consistent contrasts drawn between the stability of the new products and the stability of corporate bonds. Underwriters sold CDOs with the same ratings even after mortgage defaults rose. Mortgage-backed securities were then revealed to be highly correlated and led to massive downgrades in CDO ratings. In late 2008, Moody's threw out its CDO assumptions. Two critical mistakes made by CDO models were the assumption that securitizers would create safer financial products by diversification and that the ratings were assigned to the underlying collateral. The boom of structured finance coincided with the company-wide surge in revenues and profits at Moody's. However, Moody's was penny-pinching and stingy in terms of staffing. The structure

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was crafted to earn more favorable ratings, and because of the competitive nature of rating agencies, they felt pressured to give favorable ratings.

The five major investment firms expanded their involvement in the mortgage industries with little formal government regulation. For business in Europe, these firms had to choose a regulator, like the commercial banks had the Federal Reserve. These firms relied heavily on trading and OTC derivatives dealing on top of traditional investment banking and also owned depository institutions that functioned as thrifts or industrial loan companies. When in need of a supervisor, they lobbied the SEC to devise a system that allowed them to escape European oversight and fulfill their directive terms. The CSE program was announced a year later. The program was voluntary for brokers-dealers who wanted to be under SEC supervision, introducing a limited form of supervision. The new alternative net capital rule allowed investment banks to create their own VaR models. OTS harshly criticized the proposal, arguing potential conflict and significant risks. The financial services industry lauded the SEC initiative, with support from Lehman Brothers, Deutsche Bank, and JP Morgan. The CSE program helped the SEC get more authority over Wall Street Firms. The CSE program overlooked deficiencies in Wall Street firms such as Bear Stearns. Widely viewed as a failure, the CSE had a lot of practical potential and was fundamentally flawed, and it was discontinued in 2008.

Section 9: All In

Housing prices jumped 152% between 1997 and 2006 and then went catastrophically downhill. Failing checks and ignoring due diligence further intensified the effects. Every cog relied on the mortgage themselves, which would not perform as advertised. Severe underwriting errors and deteriorating loan quality were found in 2004. Housing prices were rising at an unprecedented level and yet the Fed Chairman said that if there was a bubble, it was only in some regions and appeared unlikely. Prices jumped in many countries in the 2000s and yet did not suffer any price declines. This difference was attributed to regulatory and structural differences in the financial system. While the economy was growing with low unemployment levels, home affordability was at a record low.

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Presentations in different boardrooms argued that the housing market could bend but not break and denied the shaky nature of the market. Without support in economic theory, economists did not spook the market and risk reputations by suggesting a bubble. However, some economists said that the credit-induced housing boom could result in a systemic bust.

New Century was only one of many companies that ignored the warnings of an impending crisis. Mortgage frauds were rising due to no-doc loans and involved industry insiders as well. While estimates vary, the larger conclusion of widespread mortgage fraud and cruel schemes remains unchanged. Fannie Mae detected large volumes of fraud during the housing bubble. Eventually, fraud became systemic and led to adverse effects at macroeconomic levels. The FBI at the same time reduced personnel in the FinCEN, burdening them with over 50,000 suspicious activity reports, arguing that resources were allocated to the war on terrorism, which outsiders argued was irrational. Once state agencies were involved, a scheme uncovered 130 perpetrators working fraudulently with Argent Mortgage Company in the eye of the storm.

The integrity of the market depended on the firms purchasing and securitizing the mortgages, their disclosure of information, and the due diligence performed by them under the SEC's rules. None of these checks performed as they should have. Third-party due diligence firms were responsible for telling whether underwriting standards were fulfilled and if prices were negotiable, and not for advising which loan was good or bad. Loans were waived in, and accepted even though companies had reason to reject them. Rating agencies declined to use the data from due diligence firms claiming that it would produce lower ratings for securitizations and cost the business. By the time the financial crisis hit, investors held more than $2 trillion of non-GSE mortgage-backed securities and around $700 billion of CDOs. Companies could expedite the process of registering securities by issuing base prospectus, which were not reviewed and the number of case-by-case exceptions increased, with reduced quality of disclosures to investors. Since CDOs were not covered under shelf registration rules, there was a lack of regulations and delayed action because of the SEC's risk focused approach and the misguided belief that markets can self-correct.

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Any warnings or guidance about the concentration of risk were met with high pushback from the industry, since higher profits alleviated risk concerns and senior management refused to see the real problem. The top 5 investment banks were seen to make highly irresponsible loans in a 2005 peer group study, with lower underwriting standards. The Congress said considering rate adjustment meant denying the American dream, which led to a delay in implementation of the guidance. In this period, banks switched regulators from Fed to OTS, citing less intrusive policies and more decision-making authority.

The credit bubble also extended to the commercial real estate market and leveraged loans, in the form of commercial mortgage-backed securities and collateralized loan obligations, which operated much like CDOs. The market for CLOs increased dramatically in 2007 with a peak of $80 billion. The leveraged loans were interest-only, pay in kind, covenant lite loans. The purchase of the Hilton group by Bear Stearns in 2007 was one of the largest deals made with leveraged loans, with a 40% premium paid on the market price. The CLO and leverage loan market seized in 2007, and around $14 billion worth of leveraged loans from Hilton's sale remained unsold.

Lehman Brothers continued to indulge in risk-taking activities at its peak, investing in Arch stone Smith in 2007, and adopting an aggressive 'counter cyclical' growth strategy. The management declared a shift from moving assets to storage of assets and heeded no warnings. Lehmann used the Repo 105 leverage in its balance sheets to temporarily move assets and show its targets, while the auditors at Ernst and Young took no notice. The OTS issued a warning in July 2008, warning of overexposure, when it was too late.

Meanwhile, the GSEs Fannie Mae and Freddie Mac wanted to increase their dwindling market share and loosened underwriting standards amidst high risk layering concerns. They either had the option to stay the course or meet the market, and they chose to do the latter, and 'get up and dance'. Fannie increased its resources to become more competitive and Citibank proposed diversification into non-traditional products. They undertook more risky loans without controls and changed disclosures. About 28% of loans lacked full documentation, and the risk paid off with increased net income for the GSEs.

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The motive driving the GSEs was increased market share and profits, while the Office of Federal Housing Enterprise Oversight (OFHEO) continued to state that the GSEs were adequately capitalized. The GSEs cut budgets for their risk offices, and increased delinquency. Freddie undertook riskier loans and entered the market for alt-A and subprime loans. In 2007, Fannie and Freddie registered credit losses of $2.q billion and $3.1 billion, respectively.

The GSEs desire to reclaim market share guided their strategy, in the process of which the HUD goals were giving a high cost of compliance and lower profits. The annual cost of complying with the goals was $200 million to Freddie, and was dictated by the expected revenue, expected defaults and the foregone revenue. In 2004, McKinsey and Co was retained to evaluate the charter of the GSE due to high constraints and regulations. The Project Phineas concluded that the cost of complying was nearly zero in years 2000-03, and the goal loans were not responsible for the higher costs of loans. The calculated opportunity cost was $390 million, but it increased to $1 billion when the market tightened. The GSEs incurred many losses due to its shifted objectives and corporate culture, according to a 2009 presentation, and most of these were incurred from Alt-A securities.

Section 10: The Madness

The credit rating agencies failed disastrously in their core mission of providing accurate and reliable ratings on securities for investors. Despite numerous warning signs of major issues in the housing and mortgage sectors, agencies like Moody's continued to issue ratings on mortgage-related securities using outdated models. This failure to adapt their analytical methods contributed significantly to the crisis.

A critical factor was the business model in which firms issuing securities paid for their ratings. This arrangement compromised the quality and integrity of the ratings, as agencies prioritized market share and profits over providing accurate assessments. Even as the housing market plateaued and began to decline in 2006, the securitization of collateralized debt obligations (CDOs), CDOs squared, and synthetic CDOs continued unabated. This persistent securitization

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increased exposure to losses and exacerbated the financial system's collapse when the housing market crashed.

Speculators further fuelled the market for synthetic CDOs, betting on the future of the housing market. CDO managers faced conflicts of interest, balancing the needs of clients betting on mortgage stability and those betting on a market collapse. Underwriters of mortgage-related securities also faced conflicts, particularly when they shorted products for their accounts while acting as market makers. Lack of coordination within firms like Merrill Lynch, where different subsidiaries often bought tranches of each other's CDOs, further contributed to the crisis.

As standards fell, some firms like PIMCO, one of the largest investment funds, chose to exit the CDO market due to moral hazard concerns. In June 2004, derivatives dealers introduced the “pay-as-you-go” credit default swap, a complex instrument that added to the market's opacity and risk.

Low-rated mortgages were transformed into high-rated tranches using CDOs, and new adjustable-rate mortgages (ARMs) became particularly toxic. Many experts predicted a housing market crash when these ARMs needed refinancing in about two years. Citigroup had significant exposure to potential losses in its CDO business but failed to take preventive steps, exacerbating its risks. Despite having a complex corporate structure and facing various supervisors, Citigroup did not address its high governance risks.

Unlike Citigroup, AIG recognized the excessive risks it was taking but still failed to mitigate them adequately. Merrill Lynch, on the other hand, aggressively expanded its CDO exposure to become a market leader, ultimately leading to its acquisition by Bank of America with the Federal Reserve's assistance.

In the end, despite numerous warnings, the financial sector collectively hoped that real estate prices would continue to rise and that the bubble would not burst. Unfortunately, these hopes were misplaced, leading to one of the most severe financial crises in history.

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Section 11: The Bust

The collapse of the housing bubble set off a series of events leading to the financial crisis. In early 2007, the housing bubble began to deflate, particularly in areas where housing prices had previously surged. Many financial institutions were extraordinarily vulnerable to the market downturn due to high leverage, inadequate capital, and reliance on short-term funding. Their exposure to super senior and triple-A tranches of collateralized debt obligations (CDOs) tied to mortgage-backed securities played a crucial role in their downfall. Defaults on these investments led to credit rating downgrades, creating a self-fulfilling spiral of declining asset values and financial instability.

Housing prices peaked in April 2005 but started to fall as defaults on loans, especially subprime ARMs increased. Delinquencies were more prevalent in non-GSE (Government-Sponsored Enterprise) loans than GSE loans. Moody's, aiming to maintain its credibility as a rating agency, began downgrading many mortgage-backed securities it had previously rated highly. On July 10, 2007, Moody's downgraded several hundred mortgages/ tranches, exacerbating the prolonged housing crisis and severely impacting the market.

Fannie Mae and Freddie Mac began scrutinizing the millions of dollars of loans they were buying, finding many defaulted loans to be ineligible. As market prices fell, "mark-to-market" accounting rules required firms to write down their holdings to reflect lower market values which involved "Level 1 assets" (with observable market prices), "Level 2 assets" (not actively traded), and "Level 3 assets" (illiquid and without discernible market prices). The predominance of Level 3 assets among banks contributed to a liquidity crisis.

Investment banks had leverage ratios as high as 40 to 1. Fannie Mae and Freddie Mac had even greater leverage, with a combined ratio of 75 to 1. The true extent of leverage and capital inadequacy was even greater when accounting for "window dressing," off-balance-sheet exposures (such as Citigroup's), and derivatives positions (such as AIG's). While GSEs contributed to the crisis, they were not its primary cause. Their $5 trillion mortgage exposure and market influence were significant, but they followed rather than led Wall Street firms in expanding risky mortgage

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lending and lowering mortgage standards. The delinquency rates on GSE-purchased or guaranteed loans were significantly lower than those securitized by other financial institutions.

The Community Reinvestment Act (CRA), which mandates that regulated banks and thrifts lend, invest, and provide services consistent with safety and soundness to their deposit areas, was not a significant factor in subprime lending. However, community lending commitments not required by the CRA were used by lending institutions for public relations purposes.

Section 12: The Early Stages of The Crisis

This Section discusses the financial turmoil that began in 2007 due to the collapse of the housing bubble and the halt of subprime lending. This period was characterized by significant financial losses, tighter credit conditions, higher interest rates, and runs on money market funds. Despite these issues, unemployment remained steady at just below 4.5%, and oil prices surged. By mid-2007, home prices had dropped nearly 4% from their 2006 peak.

Significant Developments:

- Financial Losses: Widespread financial instability affecting various sectors.
- Credit and Interest Rates: Tighter credit conditions and higher interest rates.
- Money Market Funds: Runs on money market funds due to investor panic.
- Home Prices: Nearly 4% decline from the 2006 peak.
- Early Warning Signs: A 1.5% drop in the ABX Index, further declining by 3% in December after closures of Ownit Mortgage Solutions and Sebring Capital.

This Section also highlights the struggles of mortgage lenders as the crisis deepened. Mortgage Lenders Network halted operations, New Century declared unexpected losses and filed for bankruptcy, and Fremont ceased subprime loans. Funding sources like commercial paper and repo markets dried up as lenders lost confidence. The new mark-to-market accounting rule exposed the high leverage and illiquidity of mortgage-related assets, alarming the market.

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Impacts on Mortgage Lenders:

- Operational Halts and Bankruptcies: Mortgage Lenders Network, New Century, and Fremont ceased operations or filed for bankruptcy.
- Funding Sources: Dried up commercial paper and repo markets due to loss of confidence.
- High Leverage and Illiquidity: Exposed by new mark-to-market accounting rules, increasing market alarm.
- Government Underestimation: Officials underestimated risks, providing reassurances despite mounting issues.

Section 13: The Crisis Deepens

This Section discusses Goldman Sachs' strategic moves in response to the deteriorating value of mortgage-related investments. By December 2006, Goldman Sachs aggressively reduced their exposure by selling off risky products at a loss and betting against these investments, profiting as the market worsened. Despite earning significant profits from these short positions, Goldman faced criticism for selling products they believed would fail while betting against them.

Goldman's Actions and Market Impact:

- Aggressive Reduction: Sold off risky products at a loss to reduce exposure.
- Betting Against Investments: Profited from short positions as market conditions worsened.
- Ethical Concerns: Criticism for unethical behavior and selling doomed products.
- Market Impact: Forced other firms to mark down similar assets, increasing borrowing costs and collateral requirements.

The Section also covers Bear Stearns' hedge fund collapse, focusing on its High-Grade and Enhanced Leverage funds. These funds struggled with falling values in mortgage-backed securities, leading to attempts to offload toxic assets and increasing margin calls from lenders. Despite reassurances, the funds' value plummeted, causing their collapse and contributing to the broader financial crisis.

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Consequences for Bear Stearns:

- Hedge Fund Issues: High-Grade and Enhanced Leverage funds struggled with falling asset values.
- Toxic Assets: Attempts to offload toxic assets and increasing margin calls from lenders.
- Collapse: Hedge funds' collapse led to a broader financial crisis, highlighting high-leverage investment risks and inadequate market transparency.

This Section further discusses AIG's collateral crisis, where the decline in mortgage-backed securities forced AIG to meet massive collateral demands. AIG had guaranteed $79 billion in risky investments through credit default swaps, which required substantial collateral as investments lost value. Goldman Sachs demanded $20 billion in collateral, leading AIG to struggle and ultimately requiring a significant government bailout.

AIG's Struggles:

- Guaranteed Investments: AIG guaranteed $79 billion in risky investments through credit default swaps.
- Collateral Demands: Goldman Sachs demanded $20 billion in collateral.
- Government Bailout: The crisis led to AIG receiving a substantial government bailout.

Section 14: The Shadow Banking System

This Section discusses the role of the shadow banking system during the crisis, including entities like Structured Investment Vehicles (SIVs) and money market funds operating outside traditional banking regulations but performing similar functions. These entities experienced significant growth driven by financial innovations and the pursuit of higher yields. Despite their low-risk profiles, many shadow banking institutions had substantial exposure to subprime mortgages and mortgage-related securities.

Growth and Risks:

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- Entities Involved: SIVs and money market funds.
- Growth Drivers: Financial innovations and the pursuit of higher yields.
- Exposure to Subprime Mortgages: Substantial exposure masked by complexity and opacity, leading to underestimated risks.

The Section further discusses liquidity shocks and the credit crunch resulting from the reliance on short-term funding for long-term investments, making shadow banking entities vulnerable. The value of mortgage-backed assets plummeted, causing these entities to struggle with rolling over their short-term debt, leading to a severe credit crunch affecting both shadow banks and traditional financial institutions.

Vulnerabilities and Consequences:

- Short-Term Funding: Reliance on short-term borrowing for long-term investments.
- Liquidity Shocks: Vulnerability to liquidity shocks due to financing structure.
- Credit Crunch: Severe credit crunch affecting shadow banks and traditional financial institutions as mortgage-backed asset values plummeted.

In response to the crisis, significant regulatory interventions and reforms were implemented. Both the Federal Reserve and the Treasury provided emergency liquidity and rescued key institutions. The crisis highlighted the need for better regulation of the shadow banking sector, leading to reforms such as the Dodd-Frank Wall Street Reform and Consumer Protection Act, designed to increase transparency and oversight.

Regulatory Changes:

- Interventions: Federal Reserve and Treasury provided emergency liquidity and rescued key institutions.
- Need for Regulation: Crisis highlighted the necessity for increased transparency and oversight.
- Dodd-Frank Act: Significant reform addressing shadow banking risks and improving financial institution resilience.

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Lessons Learned

This Section discusses the systemic risks posed by the shadow banking system and how its rapid growth and complex operations contributed to financial instability. It emphasizes the ongoing challenges in managing and regulating such institutions to prevent future crises, highlighting essential measures like increased transparency, better risk management, and stringent oversight to safeguard the financial system.

Insights and Future Directions:

- Systemic Risks: Shadow banking system posed significant systemic risks.
- Financial Instability: Rapid growth and complex operations contributed to financial instability.
- Regulatory Challenges: Emphasized the need for effective management and regulation to prevent future crises.
- Essential Measures: Highlighted the importance of increased transparency, better risk management, and stringent oversight to safeguard the financial system.

Section 15: The Fall of Bear Stearns – A Pivotal Moment In The 2008 Financial Crisis

Bear Stearns heavily invested in subprime mortgages and mortgage-backed securities (MBS) during the housing boom, with its fixed-income business contributing 45% of total revenue. The firm was a top underwriter of private-label MBS from 2000 to 2007, but as the housing market declined and subprime defaults increased, these assets became liabilities. Bear Stearns' risk exposure stemmed from easy credit availability, lax lending standards, and inflated credit ratings on complex financial instruments. As the value of Bear Stearns' assets fell, lenders became hesitant, leading to a liquidity crisis. Investor confidence plummeted, further hampering Bear Stearns' ability to secure funding. To prevent a broader financial collapse, the Federal Reserve provided an emergency loan and facilitated the acquisition of Bear Stearns by JPMorgan Chase at a discounted price. The Fed purchased $29.97 billion of Bear's assets through Maiden Lane LLC to stabilize the

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firm. The collapse of Bear Stearns weakened investor confidence and tightened credit markets, foreshadowing the wider financial crisis. Concerns about moral hazard arose, as financial institutions assumed they could take on excessive risk and be bailed out.

Commission's Conclusions:

- Bear Stearns held risky MBS and relied heavily on short-term funding, amplifying its losses.
- Weak corporate governance, excessive leverage, and misaligned incentives contributed to Bear's failure.
- The government facilitated Bear Stearns' acquisition to prevent systemic failure.

Section 16: March To August 2008 – Systemic Risk Concerns

Following Bear Stearns' collapse, concerns turned to other investment banks like Lehman Brothers and Merrill Lynch. Despite initial stabilization, weaknesses persisted in the financial system. The Fed established the Primary Dealer Credit Facility (PDCF), allowing investment banks to borrow emergency funds. While this restored liquidity temporarily, concerns remained about banks' over-reliance on short-term borrowing. The extensive use of derivatives, particularly credit default swaps (CDS), exacerbated systemic risk. The lack of transparency in derivatives markets compounded these risks, with mortgage-backed securities declining in value and creating interconnected exposures. Major banks raised capital through equity issuance, but this was insufficient to address underlying issues like toxic mortgage assets and reliance on short-term repo markets. Collateral quality deteriorated, straining financial institutions reliant on repo agreements. By mid-2008, Lehman Brothers and Merrill Lynch were under severe pressure due to real estate exposure and diminishing liquidity. Lehman struggled to secure short-term funding, making it vulnerable to collapse.

Commission's Conclusions:

- Supervisors failed to address weaknesses in banks, leading to their collapse.

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- The Fed missed opportunities to recognize systemic risks, especially related to the derivatives market.

Section 17: September 2008 – The Takeover Of Fannie Mae And Freddie Mac

Fannie Mae (Federal National Mortgage Association) and Freddie Mac (Federal Home Loan Mortgage Corporation) are Government-Sponsored Enterprises (GSEs) that buy mortgages from lenders and issue mortgage-backed securities (MBS) to increase market liquidity. By 2008, Fannie Mae and Freddie Mac owned or guaranteed $5.3 trillion in mortgages. Their exposure to subprime mortgages, declining home prices, and rising delinquencies placed them under severe strain, posing systemic risks. Concerns about capital adequacy prompted the passage of the Housing and Economic Recovery Act (HERA) in July 2008. The Treasury was authorized to inject capital into the GSEs and place them into conservatorship if necessary. On September 6, 2008, the Federal Housing Finance Agency (FHFA) placed Fannie Mae and Freddie Mac into conservatorship. The Treasury committed $200 billion to ensure their solvency, stabilizing the housing market but failing to prevent broader financial panic.

Commission's Conclusions:

- Fannie Mae and Freddie Mac operated with conflicting goals of profitability and public service, leading to risky practices.
- Oversight from the Office of Federal Housing Enterprise Oversight (OFHEO) was inadequate, allowing GSEs to take on excessive risk.

What are GSEs?

GSEs are private companies with government backing, established to fulfill specific public policy goals, such as promoting homeownership. Fannie Mae and Freddie Mac operate in the secondary mortgage market, purchasing mortgages from lenders to enhance liquidity and make home loans more accessible.

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Section 18: September 2008: The Bankruptcy Of Lehman

In 2008, the financial world was rocked when Lehman Brothers, one of the largest and oldest investment banks in the U.S., went bankrupt. The company, which had survived big events like the Great Depression and two World Wars, shocked everyone with its collapse. By 2007, Lehman was worth $45 billion, but a series of bad decisions, including taking big risks in the subprime mortgage market and using too much borrowed money (leverage), led to its downfall.

Lehman's collapse was caused by several linked problems. The main issue was its huge exposure to subprime mortgages—loans given to people with bad credit. When the housing market started to crash in 2006, home values fell sharply. The subprime mortgages, which were bundled into complicated financial products called CDOs (Collateralized Debt Obligations), lost almost all their value. Lehman had borrowed heavily to invest in these risky products, with a leverage ratio of about 30:1. This meant the company was deeply in debt, and its losses were made even worse. Lehman also bought up lots of real estate in 2006 and 2007, which increased its debt to $111 billion by mid-2007.

Lehman's cash problems only made things worse. The company relied on short-term loans, like commercial paper and repurchase agreements (repos), to keep running. But as investors and lenders lost faith in Lehman's ability to repay its debts, the firm couldn't get the short-term funding it needed, leading to a serious cash flow crisis. Even though Lehman's CEO, Richard S. Fuld tried to reduce its exposure to real estate and raised $6 billion in June 2008, market confidence continued to fall.

Lehman tried to find help, exploring deals with Bank of America and Barclays, but these buyouts fell through. Barclays couldn't get regulatory approval, and Bank of America's CEO, Ken Lewis, wanted government support, which Treasury Secretary Henry Paulson refused to provide. Without a buyer or a government bailout, Lehman was forced to file for bankruptcy on September 15, 2008. This had an immediate impact: the stock market dropped 500 points, wiping out $700 billion in market value. Lehman's collapse also contributed to a global credit freeze, which made the financial crisis even worse.

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Lehman Brothers' failure revealed serious weaknesses in the global financial system. The company's heavy reliance on debt, short-term loans, and risky financial products like CDOs showed the dangers of taking on too much risk without enough oversight. It also showed the gaps in the regulatory system that couldn't prevent such a meltdown and the difficulties in managing risks that affect the whole financial system. The collapse made it clear that large financial institutions needed stronger regulation, and policymakers were left figuring out how to prevent another crisis like this from happening in the future.

Section 19: September 2008: The Bailout Of AIG

In September 2008, AIG faced a serious cash crisis, even though it had $9 billion in cash and over $1 trillion in assets. The company's situation became urgent as it had to pay off $1.4 billion in commercial paper by September 12 and another $3.2 billion the following week. Lenders were worried about AIG's stability and questioned the value of its collateral, which included a lot of risky credit default swaps. As fears grew, AIG's board asked the Federal Reserve for emergency help, realizing they might run out of cash in just a few days.

AIG's visit to the New York Fed came after months of increasing concerns about its financial health. Although the Fed had helped other banks, AIG did not qualify for that support, making people even more anxious. AIG was facing huge losses and needed to provide more collateral, including possible commitments of up to $33 billion. By September 12, it was clear that if AIG failed, it would cause major problems for the entire financial system.

Despite trying to find help from private investors, those efforts didn't work out. After Lehman Brothers went bankrupt on September 15, the need for action became urgent. The Fed initially tried to get a $75 billion loan from a group of banks, but those banks were reluctant to help. With no private solutions left, the Fed stepped in and used its emergency powers to give AIG an $85 billion loan, secured by AIG's assets. This was later increased by another $49.1 billion through the Troubled Asset Relief Program, bringing the total support to $182 billion from taxpayers.

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Many people criticized the fast bailout of AIG, but it was considered necessary to avoid a global economic disaster. AIG failed mainly because of poor risk management, especially with its large number of credit default swaps. Regulatory failures made the situation worse; the Office of Thrift Supervision admitted it didn't fully understand AIG's complex financial activities. The lack of federal oversight over some financial products added to the problem. In the end, AIG's ties to major banks created big risks for the financial system, making government help essential to prevent widespread chaos.

Section 20: Crisis And Panic

This Section offers a comprehensive and detailed account of the severe turmoil during the financial crisis, focusing on critical events and responses involving major financial institutions and government interventions.

❖ Collapse of money market fund

The Section begins by discussing the collapse of confidence in money market funds, traditionally seen as safe and stable investment vehicles. During the crisis, the Reserve Primary Fund "broke the buck," meaning its net asset value fell below $1 per share, primarily due to its exposure to Lehman Brothers' debt. This event triggered widespread panic, causing investors to pull out their money en masse. The liquidity crisis deepened as dealers, overwhelmed and uncertain about the value of assets, stopped responding to calls. This freezing of liquidity in money markets had a cascading effect on the broader financial system.

❖ Morgan Stanley on the Brink

As the crisis intensified, attention turned to Morgan Stanley, which found itself teetering on the brink of collapse. The investment bank faced a liquidity crisis, with its stock price plummeting and counterparties losing confidence. CEO John Mack made desperate calls for capital infusions, including from sovereign wealth funds. The firm's vulnerabilities highlighted the broader systemic

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risks and the fear that Morgan Stanley might follow Lehman Brothers into bankruptcy, which would further destabilize the financial markets.

❖ OTC Derivatives Market Freeze

The over the counter (OTC) derivatives market, which included complex financial instruments like credit default swaps (CDS), came to a grinding halt. These derivatives were largely unregulated and opaque, making it difficult to assess their true risk and value. The sudden halt in trading caused severe liquidity issues and contributed to the panic. The lack of transparency and the interconnected nature of these instruments meant that the failure of one entity could trigger a chain reaction across the financial system, exacerbating the crisis.

❖ Failure of Washington Mutual

Washington Mutual (WaMu), one of the largest savings and loan associations in the United States, became the biggest bank failure in U.S. history. The institution's downfall was primarily due to its exposure to subprime mortgages and risky lending practices. As depositors withdrew their funds in a massive bank run, WaMu's capital reserves were quickly depleted. The FDIC stepped in and seized the bank, subsequently selling its assets to JPMorgan Chase. The failure of WaMu underscored the fragility of even large financial institutions during the crisis.

❖ Wachovia's Struggles

Wachovia, another major financial institution, found itself at the front end of the domino effect triggered by the crisis. With significant exposure to mortgage-backed securities and deteriorating loan portfolios, Wachovia faced mounting losses. As other banks fell, Wachovia's survival became increasingly uncertain. The bank's struggles highlighted the interconnectedness of financial institutions and the systemic risk posed by the failure of one bank potentially leading to the collapse of others. Eventually, Wachovia was acquired by Wells Fargo in a government-facilitated deal to prevent further instability.

❖ Government's TARP Intervention

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In response to the escalating crisis, the U.S. government introduced the Troubled Asset Relief Program (TARP). This program aimed to stabilize the financial system by purchasing toxic assets from banks and injecting capital directly into financial institutions. TARP was part of a broader strategy to restore confidence in the banking system, unfreeze credit markets, and prevent further failures. The program faced significant public scrutiny and political debate, but it was seen as a necessary measure to address the unprecedented scale of the crisis.

❖ AIG Bailout

American International Group (AIG), a major insurance company, became one of the most prominent symbols of the crisis. AIG's downfall was precipitated by its massive exposure to credit default swaps and other derivatives. As the value of these instruments plummeted, AIG faced catastrophic losses. To prevent a systemic collapse, the federal government stepped in with an $85 billion bailout, later increasing the total to over $180 billion. The intervention was likened to stopping a "sucking chest wound," highlighting the urgent and critical nature of the situation.

❖ Citigroup's Crisis

Citigroup, one of the world's largest financial institutions, faced its own crisis as the panic spread. The firm's exposure to toxic assets and declining confidence among investors led to a sharp decline in its stock price. To prevent a collapse similar to Lehman Brothers, the government provided substantial financial support to Citigroup, including capital injections and guarantees on its assets. The message from the government was clear: they would not allow another major institution to fail, aiming to restore confidence in the financial system.

❖ Bank of America's Acquisition of Merrill Lynch

Bank of America's acquisition of Merrill Lynch was described as a "shotgun wedding," reflecting the urgency and pressure under which the deal was made. Merrill Lynch, reeling from massive losses on mortgage-related securities, faced imminent collapse. Bank of America, under pressure from regulators and the government, agreed to acquire Merrill Lynch to prevent another major failure. The deal was controversial, with Bank of America later requiring additional government

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support to absorb Merrill Lynch’s losses. This acquisition underscored the drastic measures taken to stabilize the financial system.

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CHAPTER 2: FALL OF CREDIT SUISSE AND TAKEOVER BY UBS

<u>Early History of Credit Suisse</u>

- Credit Suisse was founded by Alfred Escher and Allgemeine Deutsche Credit-Anstalt as Schweizerische Kreditanstalt with the goal of promoting the privatization of Rail Networks in Switzerland and decreasing the reliance on French banks who wanted to control and invest in the railway project.
- Credit Suisse was pivotal in Switzerland's economic growth and development. It laid the foundation for the nation's currency system, while also investing in the Gotthard railway, connecting Switzerland to Europe in 1882. It also played a key role in the 1870 Franco-Prussian War, by financing to disarm the French Army. It became Switzerland's largest bank by the early 1870s.
- In 1978, Credit Suisse got into a partnership with First Boston to start Credit Suisse First Boston in Europe and acquire a 44% stake in First Boston's U.S. operations. This was done after White, Weld & Company was acquired by Merrill Lynch and ended its partnership with Credit Suisse.
- In 1987, the group bought the prestigious London stockbrokers Buckmaster & Moore, founded by sportsman Walter Buckmaster and aristocrat Charles Armytage-Moore.[1]
- In 1996, Credit Suisse was split and reorganized into four divisions: The domestic bank, Credit Suisse Volksbank (later renamed Credit Suisse Bank), Credit Suisse Private Banking, Credit Suisse Asset Management, and the corporate and investment bank Credit Suisse First Boston.
- In the 2000s, a series of restructures were executed by Credit Suisse. In early 2002, it was divided into two establishments: The investment banking giant, Credit Suisse First Boston and Credit Suisse Financial Services. An additional third unit was added in 2004 for

[1] The firm had strong connections and a notable private client list, including John Maynard Keynes at one point.

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insurance. Credit Suisse restructured once more in 2004 to follow a "one bank" model, under which, every board had executives from all three divisions.

Credit Suisse during and after the Financial Crisis

- Credit Suisse became a giant in the investment banking segment and competed with banks like Goldman Sachs after it entered into the bulge bracket of investment banks in the late 20th century, especially after buying First Boston. Credit Suisse was one of the least affected by the 2007-2008 Financial Crisis when compared to its peers. Whereas the Swiss National Bank, the central bank, rescued rival UBS after no private investor stepped forward by purchasing $60 billion of toxic assets and infused capital worth $5.3 billion in shares of stock from UBS, Credit Suisse during the same time, raised a far smaller $9 billion privately from investors to strengthen its financial position.
- As the world emerged from the 2008 global financial crisis, Credit Suisse was regarded as one of the clear winners, often spoken of in the same league as the powerhouse JPMorgan. Although the bank faced several billion dollars in write-downs due to subprime mortgages and leveraged loans, it successfully avoided the stigma and financial strain of requiring a state bailout. This allowed Credit Suisse to maintain its reputation and stability during a period of significant upheaval in the financial sector.
- By 2009, Credit Suisse's then-CEO Brady Dougan and investment banking chief Paul Calello were widely praised for successfully steering the firm through challenging times and a significant turnaround. Their efforts earned the company recognition, with Euromoney naming Credit Suisse the best investment bank in the world that year. Beyond its investment banking success, the firm excelled in private banking as well, reaching the top of the private banking survey rankings in 2010. This led to Credit Suisse being honoured as the world’s best bank for the year 2010.

Fall of Credit Suisse

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By the end of 2021, Credit Suisse managed assets totaling 1.6 trillion CHF ($1.75 trillion), making it Switzerland's second-largest bank, just behind UBS. The bank employed over 50,000 people at the time. However, by the close of 2022, its assets under management had dropped to 1.3 trillion CHF ($1.4 trillion). In 2023, Credit Suisse was structured into five divisions: Wealth Management, Swiss Bank, Asset Management, Investment Bank, and Capital Release Unit. When UBS acquired the bank, Credit Suisse operated about 150 offices across 50 countries.

Timeline of the Collapse

- **2019 and early 2020:** Credit Suisse faces a spying scandal regarding an outgoing wealth management executive; then-CEO Tidjane Thiam resigns.
- **2021:** Archegos Capital and Greensill Capital collapse, leading to $1 billion in losses for Credit Suisse and another management shake-up.
- **Jan. 2022:** Chairman Antonio Horta-Osorio resigns from the company following news that he broke COVID-19 quarantine regulations.
- **July and Aug. 2022:** Rumour circulates that Credit Suisse faces impending failure, prompting clients to pull about $119 billion in funds in the last quarter of the year.
- **March 2023:** Credit Suisse says it will borrow up to $54 billion from the Swiss National Bank.
- **March 2023:** U.S. institutions Silicon Valley Bank and Signature Bank fail, setting the global financial system on edge.
- **March 2023:** Switzerland's regulatory authorities allowed UBS to take over Credit Suisse without the shareholder approval of either entity.

Reasons for the fall of Credit Suisse

- Many banks face regulatory scrutiny from time to time, but Credit Suisse and its employees have recently been involved in a range of scandals that have led to investigations, fines, settlements, and even imprisonment. These issues span money laundering, corruption, tax evasion, and corporate espionage.

- Credit Suisse's scandals are notably global in scope, encompassing a wide array of misconduct. They include laundering money for Japanese gangs and Bulgarian drug traffickers, engaging in kickbacks in Mozambique, evading taxes in the United States, spying on former employees in Switzerland, dealing with African dictators, and participating in jobs-for-business arrangements with Chinese officials in Hong Kong.
- In early 2021, Credit Suisse was significantly impacted by the failures of U.S. hedge fund Archegos Capital and U.K. finance firm Greensill Capital. Confronted with substantial legal and reimbursement costs, the bank enlisted former Lloyds Banking Group CEO Antonio Horta-Osorio to address its cultural issues. However, Horta-Osorio resigned in January 2022 after breaching Covid-19 regulations twice.
- As scandals continued to mount, investor confidence in Credit Suisse's ability to reform dwindled. Marlene Amstad, chair of FINMA (the Swiss financial regulator), remarked that Credit Suisse had a "cultural problem" leading to a lack of accountability. Consequently, Credit Suisse's share price has been on a downward trend since the global financial crisis (see Figure).
- The scandals made Credit Suisse appear increasingly unstable. In October 2022, a journalist tweeted about a major investment bank being 'on the brink' this led many to assume it referred to Credit Suisse. This resulted in over SFr100 billion in deposit withdrawals and a sharp decline in the bank's share price.
- On March 14, Credit Suisse revealed it had identified 'material weaknesses' in its financial reporting for 2021 and 2022, hinting at yet another potential scandal. Matters worsened when the chair of Saudi National Bank, Credit Suisse's largest shareholder, ruled out any additional investment, causing a further outflow of deposits and a dramatic plunge in the share price.

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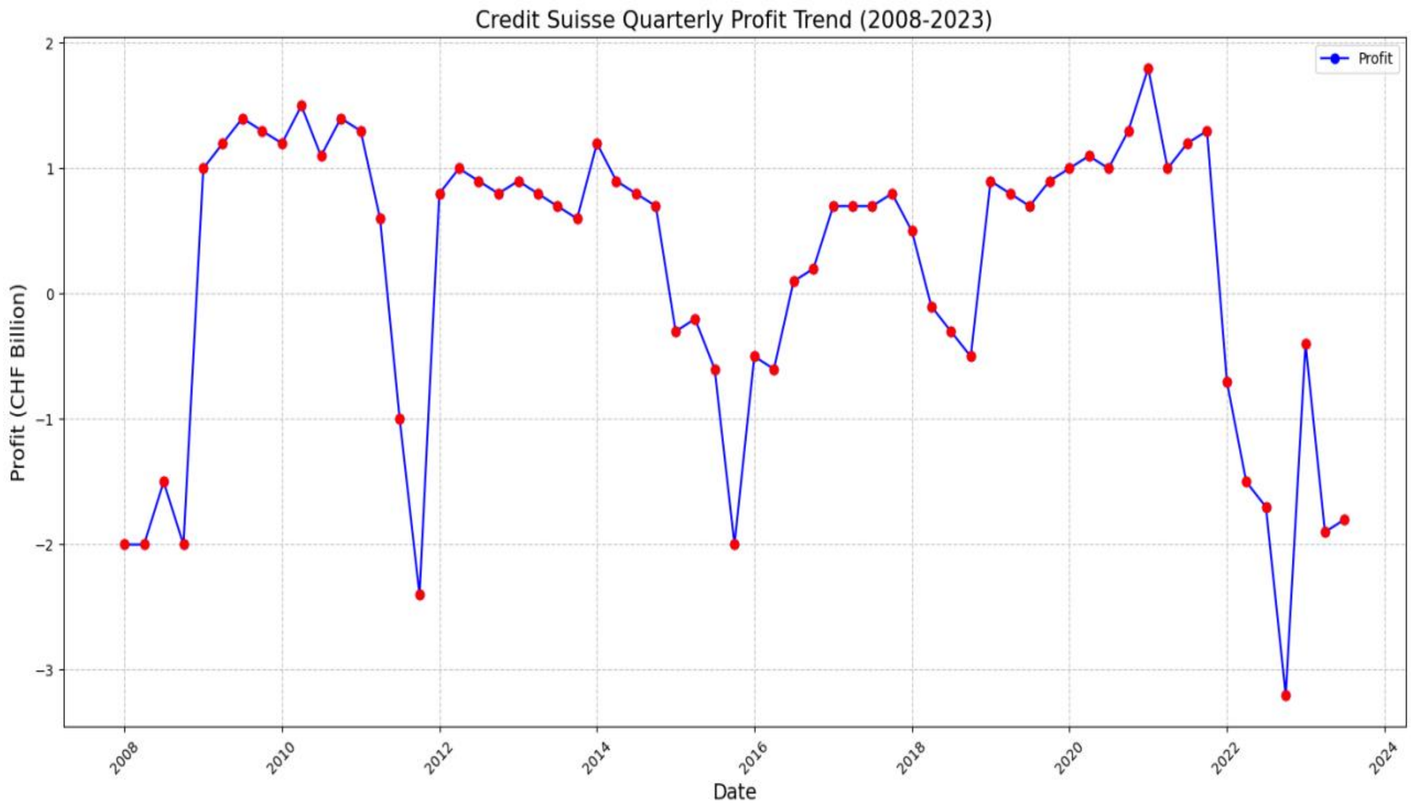

Figure 2-1: Quarterly profit and loss data for Credit Suisse from 2008 to 2023.

Source: Credit Suisse's annual financial reports and historical financial data.[2]

Takeover by UBS

On March 19, 2023, UBS Group AG, a Swiss bank, reached an agreement to acquire Credit Suisse for CHF 3 billion (approximately US$3.2 billion) in an all-stock transaction. The deal was facilitated by the Swiss government and the Swiss Financial Market Supervisory Authority. The Swiss National Bank supported UBS by offering over CHF 100 billion (around US$104 billion) in liquidity after the acquisition, while the Swiss government offered a short-term guarantee to cover potential losses of up to CHF 9 billion (approximately US$9.6 billion).

[2] Data by Bloomberg

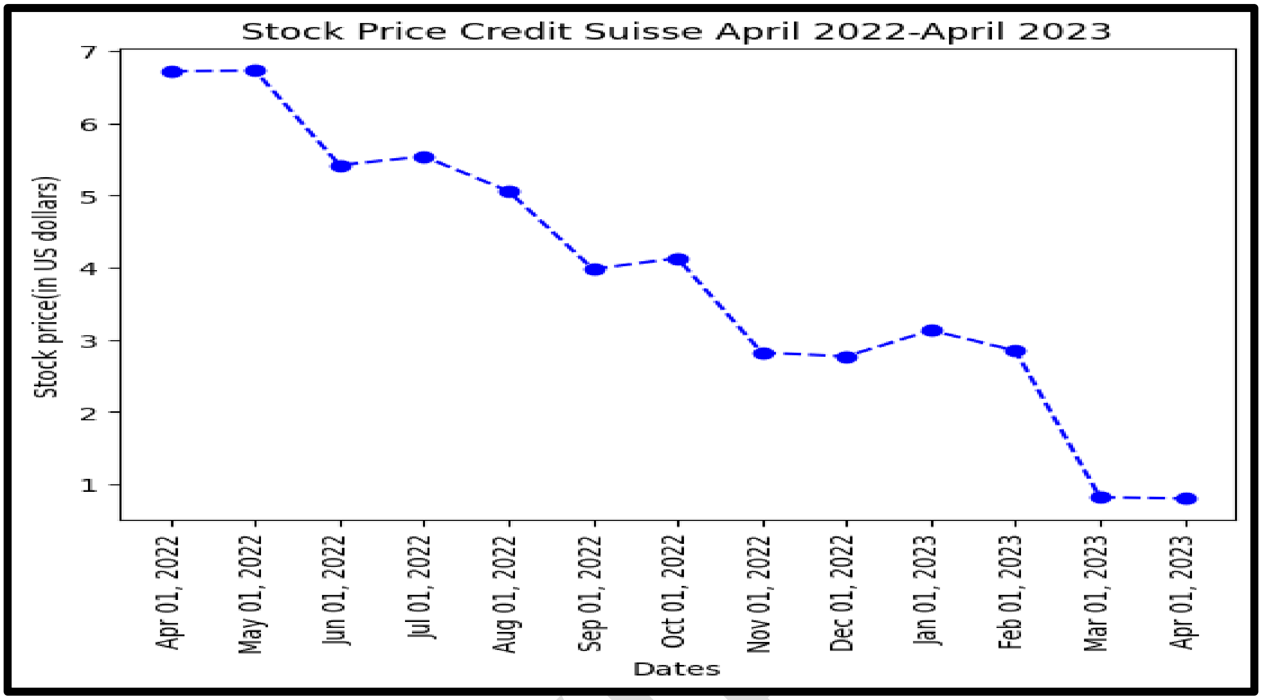

Figure 2-2: The stock price of Credit Suisse in US dollars from April 2022 to April 2023[3]

Timeline of the Takeover

March 15-16: Credit Suisse experienced a dramatic drop in its share price amid concerns over its liquidity and stability. The situation worsened, leading to increased scrutiny from regulators and investors.

March 17: The Swiss Financial Market Supervisory Authority (FINMA) and the Swiss National Bank (SNB) intervened, providing emergency liquidity to stabilize Credit Suisse.

March 18: Discussions began between UBS and Credit Suisse regarding a potential acquisition. The urgency of the situation was high, and regulators pushed for a swift resolution to avoid further market disruption.

March 19: UBS agreed to acquire Credit Suisse in a deal facilitated by Swiss authorities. The terms included UBS buying Credit Suisse for a nominal amount, with a significant portion of Credit Suisse's assets being guaranteed by the Swiss government to mitigate risks. The deal was intended to preserve financial stability and protect both institutions' stakeholders.

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[3] Data by Investing.com

March 20: The Swiss Financial Market Supervisory Authority (FINMA) and the Swiss National Bank (SNB) announced the completion of the deal. UBS took over Credit Suisse, and regulatory approvals were expedited to finalize the acquisition quickly

April 1: UBS officially completed the acquisition of Credit Suisse.

The integration process began, focusing on merging operations, systems, and resolving any residual issues.

Key Points of the Acquisition

Price and Terms: UBS acquired Credit Suisse for around $3 billion, significantly below its market value, as a measure to quickly stabilize the situation.

Government Support: The Swiss government provided financial support and guarantees to cover potential losses and ensure a smooth transition.

Regulatory Oversight: Swiss regulators played a crucial role in facilitating the transaction and managing the associated risks to the broader financial system.

UBS Takeover of Credit Suisse: Key Actions and Strategic Benefits

The Swiss government, with regulatory support and liquidity provisions from the Swiss National Bank, played a crucial role in facilitating UBS's takeover of Credit Suisse. This was coupled with clear communication to reassure markets and prevent panic. Swift actions by Swiss authorities helped contain the fallout, maintain financial stability, and protect the broader economy. UBS took immediate steps to integrate Credit Suisse, including leadership appointments, cultural alignment, and enhanced risk management protocols. The bank provided capital support, managed underperforming assets, reassured clients, and streamlined operations for efficiency. Technology integration and employee engagement further stabilized the transition. UBS also maintained proactive communication with regulators, monitored the integration process, and sought feedback to adjust strategies as needed. The merger expanded UBS's market share, diversified its service offerings, created cost synergies, strengthened its capital position, and enhanced its relationships with high-net-worth clients, solidifying its competitive advantage in global banking.

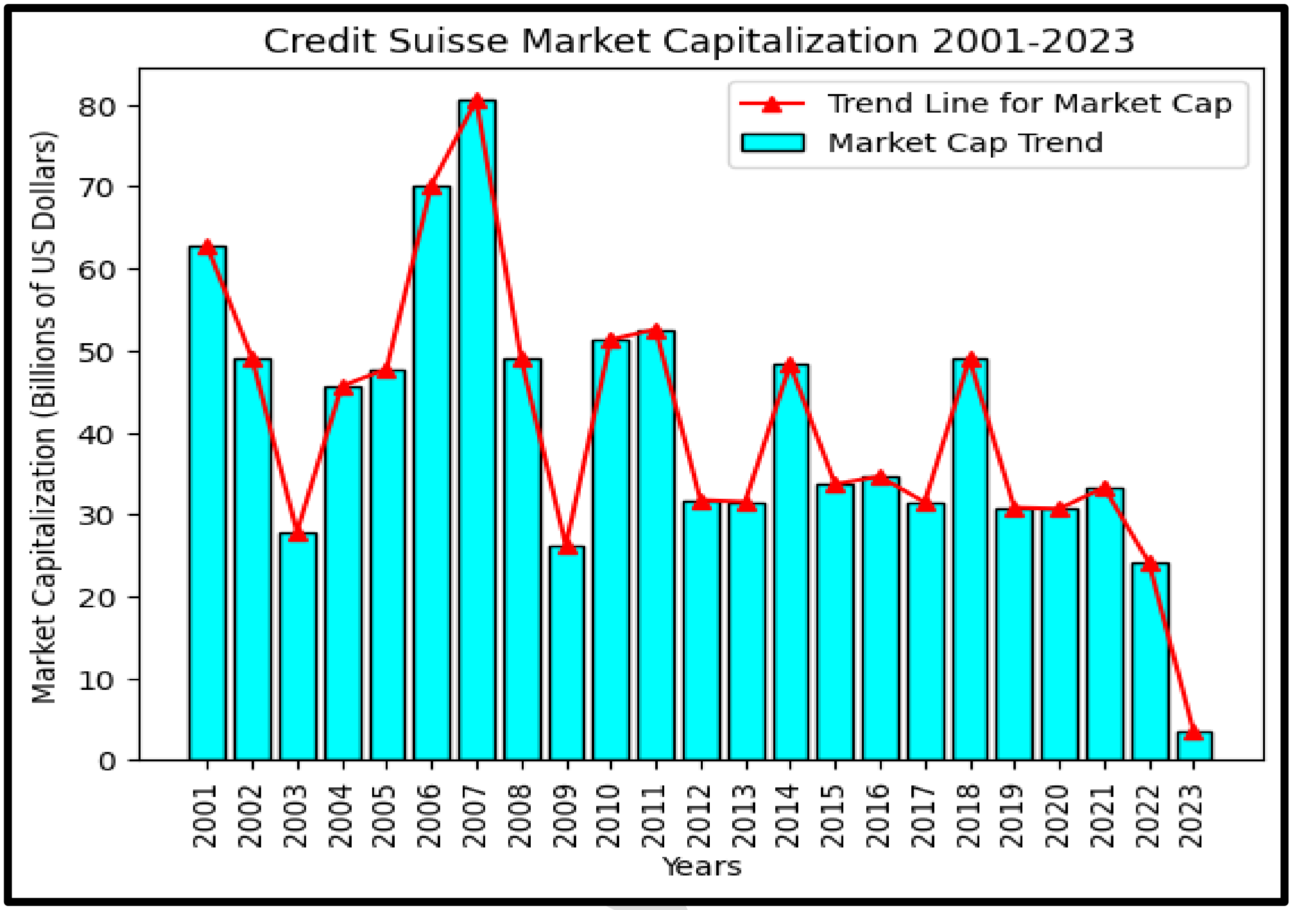

Figure 2-3: Market Capitalization of Credit Suisse from 2001 to 2023[4]

The figure shows a significant increase in market cap after April 1, 2023. This increase corresponds to UBS's announcement that it had acquired Credit Suisse. The market cap, which was $66.98 billion on April 1, 2023, shows a notable upward trend following the announcement [5]

External Sector of Switzerland

Switzerland has maintained a robust and substantial international investment position over the years, as evidenced by the steady growth in its net international investment positions and reserve assets depicted in the first graph. This indicates that Switzerland has been a net creditor on the

[4] Data by companiesmarketcap.com
[5] Data by companiesmarketcap.com

global stage, accumulating sizable foreign assets through active participation in international financial markets and investment activities.

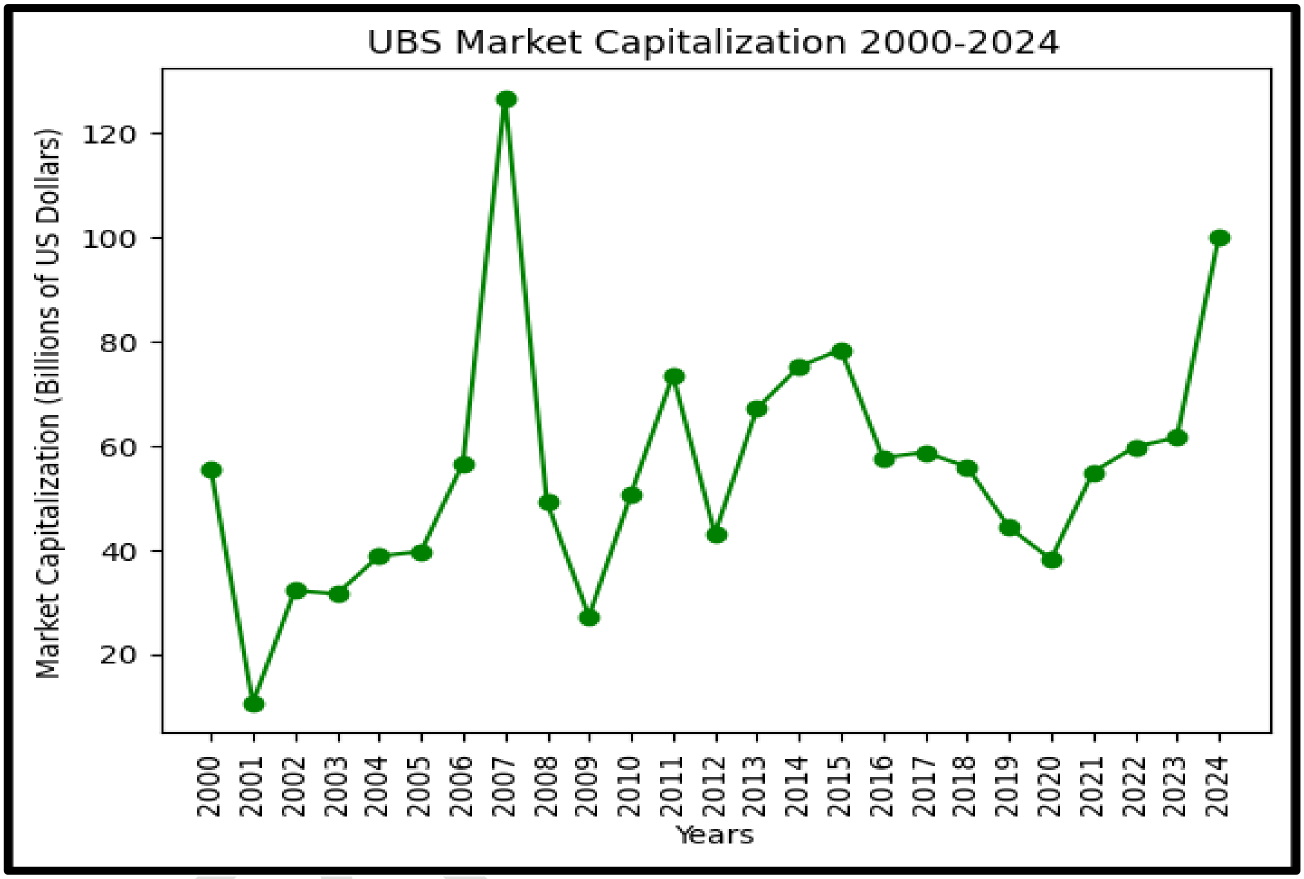

Figure 2-4: UBS's market cap history from 2000 to 2024.

The country's gross national savings rate has remained relatively stable, fluctuating in a range of 18% to 25% of GDP. This suggests Switzerland has been able to channel a significant portion of its domestic savings into productive international investments, likely diversifying its asset portfolio and generating returns that contribute to its economic prosperity.

The second graph provides further insights into the dynamism of Switzerland's external sector. The significant volatility observed in the balance of payments, supplementary items, and capital account points to Switzerland's role as a major global financial hub. Investors actively involved in global capital flows and transactions, seeking opportunities and diversifying across international markets. This heightened level of external activity reflects Switzerland's position as a leading destination for international capital, attracted by the country's stable economic and political environment, robust financial infrastructure, and well-developed regulatory framework.

Notably, despite the volatility in its external accounts, Switzerland has maintained a fairly consistent level of total investment as a percentage of GDP. This underscores the country's ability to effectively channel its external financial flows into domestic investment, supporting the long-term growth and competitiveness of its economy. This balance between external dynamism and domestic investment stability is likely a key factor in Switzerland's sustained economic performance and its status as a global financial powerhouse.

Overall, the combination of a substantial international investment position, stable domestic savings rates, and the management of volatile external transactions suggest that Switzerland has developed a sophisticated and well-integrated external sector that plays a pivotal role in the country's economic development and global financial influence.
While the absolute value of assets consistently increased, the percentage of GDP fluctuated, peaking around 2008 and 2021 before slightly declining. This reflects the broader economic trends and changes in GDP of Switzerland over the period.

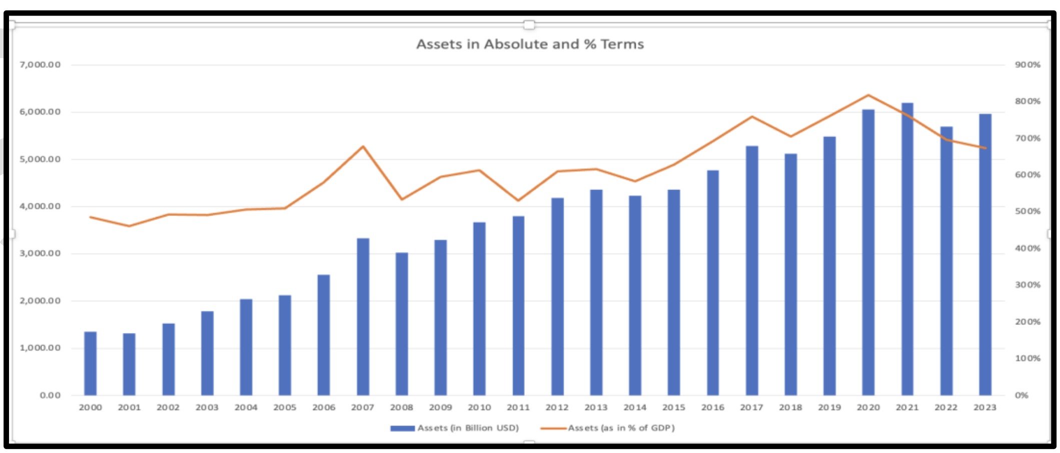

Figure 2-5: Graph illustrating the steady growth of assets from 2000 to 2023 in Switzerland's economy, both in absolute terms and as a percentage of GDP.[6]

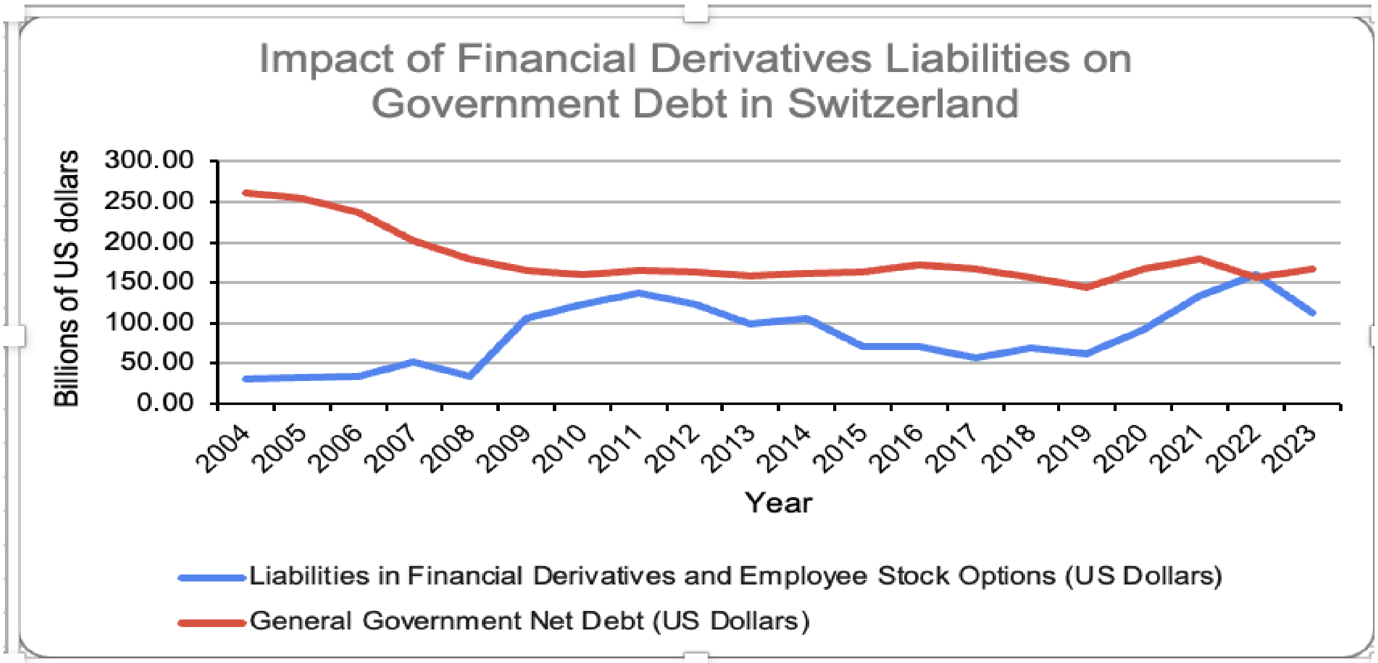

Figure 2-6: The impact of financial derivatives liabilities on Switzerland's government debt from 2004 to 2023. [7]

While the general government net debt has gradually declined over time, the liabilities in financial derivatives and employee stock options have fluctuated, with noticeable increases around 2010 and 2021. By 2023, these liabilities will show a decrease, reflecting their variable influence on the overall government debt.

[6] Data obtained from IMF database
[7] Data obtained from IMF database

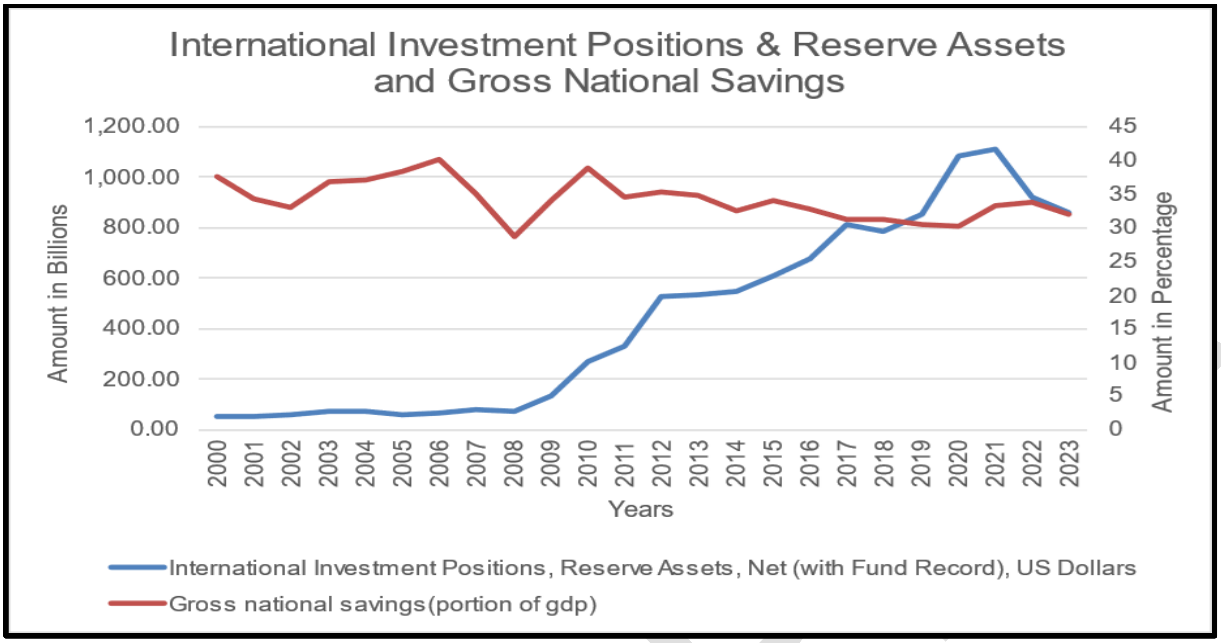

Figure 2-7: The relationship between international investment positions, reserve assets, and gross national savings over time.[8]

The net international investment positions and reserve assets in US dollars, showcase a steady increase over the years, with a few dips and peaks. The gross national savings as a percentage of GDP has been fluctuating around a range between 18% and 25%. The international investment positions and reserve assets have grown, the NIIP has been positive since the external assets have been higher than liabilities. In other words, the he overall national savings rate has been higher than the domestic investment and it has added to the current account surpluses and hence added to the NIIP.

[8] Data obtained from IMF database

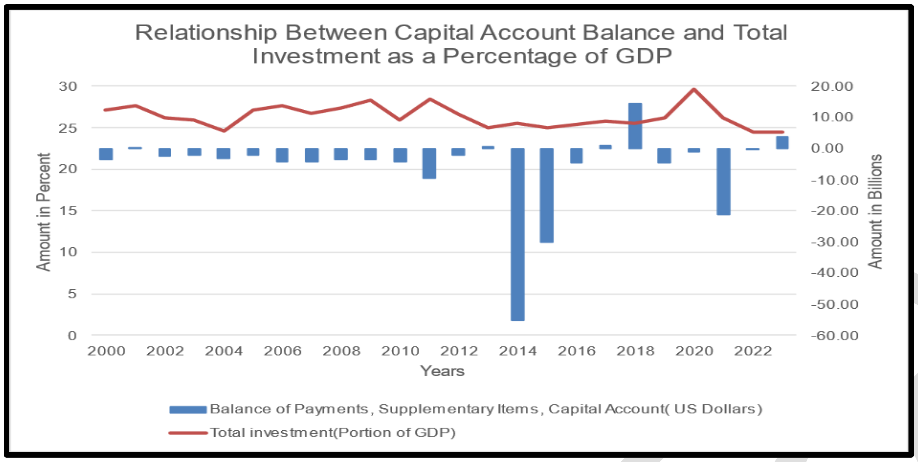

Figure 2-8: The relationship between the balance of payments, supplementary items, and capital account and the total investment as a percentage of GDP over time.[9]

The blue line exhibits significant fluctuations, with major spikes and dips, indicating volatility in the country's external accounts and capital flows. In contrast, the red line representing total investment as a percentage of GDP remains relatively stable, fluctuating within a range of around 25% to 30% throughout the time period. This suggests that despite the volatility in the external accounts, the country has maintained a consistent level of investment relative to its GDP, potentially indicating the presence of strategies to sustain investment levels despite the fluctuations in its international financial positions.

- While the absolute value of assets consistently increased, the percentage of GDP fluctuated, peaking around 2008 and 2021 before slightly declining. This reflects the broader economic trends and changes in GDP of Switzerland over the period.
- **Financial Assets (Red Line):**
  - Financial assets remained relatively steady until about **2015**.
  - Between **2016 and 2018**, there was a **significant increase** in financial assets, followed by a sudden drop in **2019**.
  - After 2019, the financial assets continued to decline, particularly steeply after 2020.

[9] Data obtained from IMF database

The sharp decline in Switzerland's financial assets after 2019 correlates with a growing loss of trust in the banking system, particularly with Credit Suisse. Public confidence in the stability and management of banks began to wane as financial assets dropped. Credit Suisse, already struggling with scandals, risky investments, and significant losses, became a focal point of this declining trust. Investors and clients began withdrawing funds, and market sentiment around Credit Suisse worsened, amplifying its financial troubles. The fall in assets reflects this erosion of trust, as people increasingly questioned the bank's resilience and the broader Swiss banking sector's reliability.

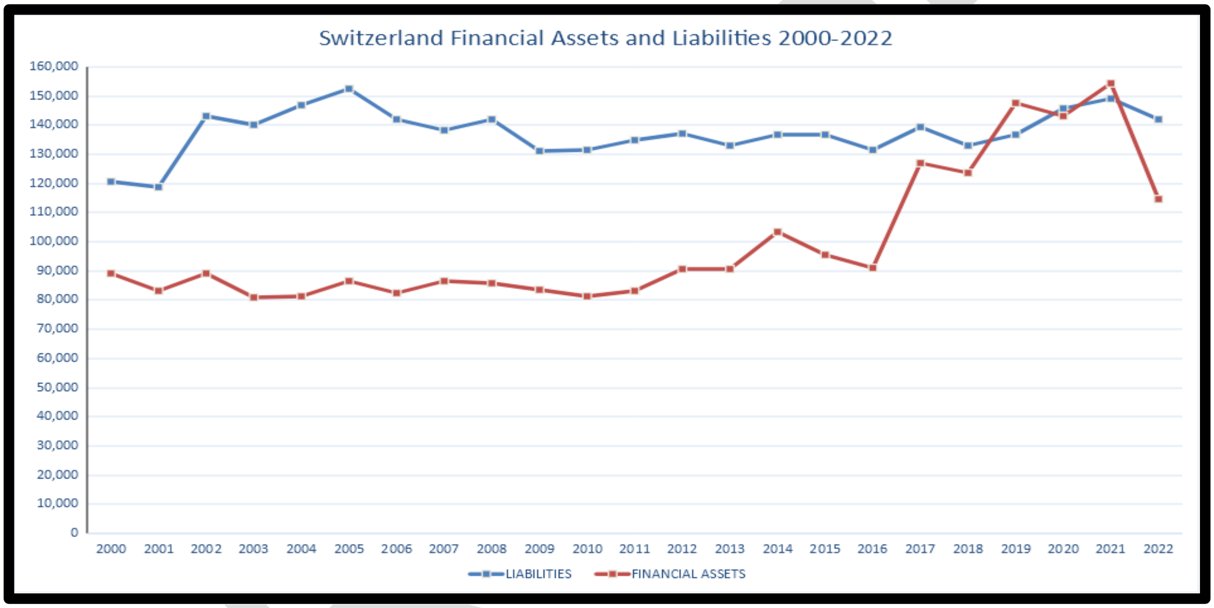

Figure 2-9: The graph shows the trend of Switzerland's financial assets (red line) and liabilities (blue line) between the years 2000 and 2022.[10]

[10] Data obtained from IMF database

CHAPTER 3 THE LEHMAN BROTHERS BANKRUPTCY

Overview of the Crisis

In 2008, Lehman Brothers, one of the biggest investment banks in the U.S., filed for bankruptcy. This was shocking because the company was 164 years old and had survived major events like both World Wars and the Great Depression. In 2007, Lehman was worth $45 billion, but the 2008 financial crisis led to its collapse. The main reasons were Lehman's heavy involvement in risky subprime mortgages, where loans were given to people with poor credit. As the housing market crashed, these loans lost value. Lehman's high level of borrowing made things worse, as they couldn't handle the drop in asset prices. On top of that, the company struggled with liquidity problems, meaning it couldn't get enough cash to keep operating. Rescue efforts, including talks with Bank of America and Barclays, failed, leaving no option but bankruptcy.

History of Lehman Brothers

Lehman Brothers, founded in 1850 by Henry Lehman, began as a small dry-goods store in Montgomery, Alabama. Joined by his brothers Emanuel and Mayer, the business expanded into cotton trading, a key commodity at the time. The company relocated to New York City in 1858, entering the heart of the financial world.

Lehman Brothers gradually evolved into investment banking, providing services such as underwriting, trading, and investment management, and played a major role in financing American industries like railroads, retail, and entertainment. Post-World War II, the firm grew through mergers and acquisitions, including a notable merger with Shearson Lehman Hutton in 1994. Despite leadership challenges, Lehman expanded globally, establishing itself as a leading investment bank by the late 20th century.

Figure 3-1 illustrates Lehman Brothers' revenue distribution across three regions: Americas, Europe & the Middle East, and Asia-Pacific. The Americas led with $9,634 million, followed by

Europe & the Middle East at $6,296 million, and Asia-Pacific at $3,903 million. The pie chart highlights the Americas as the largest revenue contributor during this period.

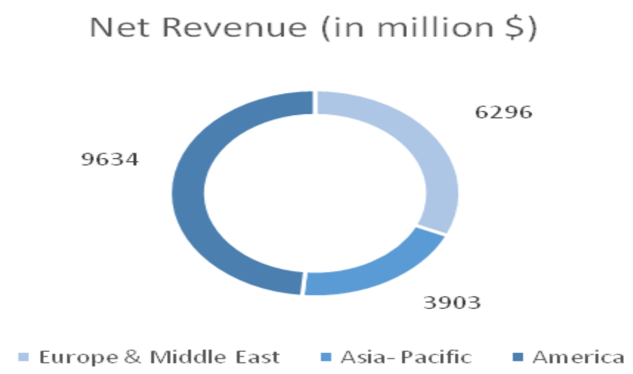

Figure 3-1 Lehman's Geographic Operation Results (Source: SEC Data)

In the Asia-Pacific region, Lehman Brothers capitalized on the economic growth in China and India by participating in major deals and investments. High oil prices and economic diversification created numerous investment opportunities, which the company leveraged by providing financial services to governments, businesses, and wealthy individuals, expanding its global influence.

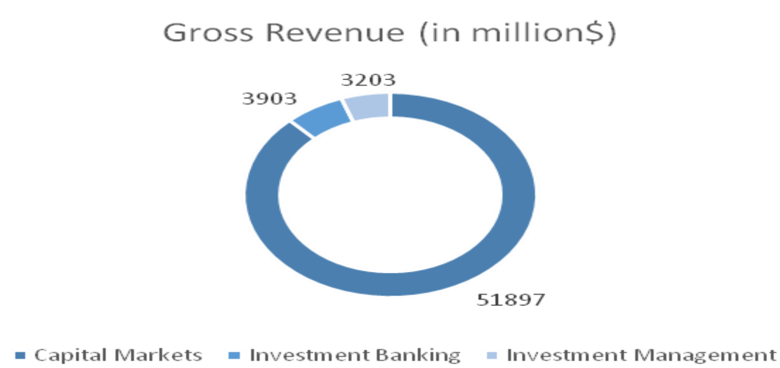

Figure 3-2 Lehman's Business Segments (Source: SEC Data)

The Investment Banking segment generated significant revenue of $51,897 million from mergers and acquisitions, underwriting, and financial advisory, which involve high fees and commissions. The Capital Markets segment earned $3,203 million through trading and market-making, though it's unpredictable due to market conditions. The Investment Management segment, focused on asset and wealth management, brought in $3,903 million, offering steadier but slower-growing revenue based on service fees.

Timeline Leading to Bankruptcy

1994

Lehman Brothers began focusing on more complicated financial products under CEO Richard S. Fuld. One key product was the Collateralized Debt Obligation (CDO).

2000

The U.S. interest rate was close to 4%, and the stock market was struggling after the Dot-Com Bubble Burst in March 2000. Investors were seeing low returns, so Lehman Brothers entered the mortgage loan market. Other investment banks joined in, and the mortgage market became popular. Lehman acquired several companies, including Aurora Loan Services and B&C Mortgages, purchasing a total of five mortgage lenders. They also became the first to create CDOs, packaging risky loans and convincing investors that these were safe investments.

After 2000

Lehman saw a big demand for CDOs and made a significant move into the subprime mortgage market. They began issuing CDOs based on these risky loans and aimed for good ratings to persuade investors that these products were safe.

2006 (June)

Throughout 2006 and into 2007, Lehman operated in three main areas: capital markets, investment banking, and investment management. They provided a wide range of services, including trading, asset management, and private equity. Their headquarters were in New York, with regional offices in London and Tokyo, supporting a complex global business.

U.S. housing prices peaked and began to decline. CDOs remained very popular and were sold aggressively worldwide. By 2007, CDOs were a major part of the market for Asset-Backed Securities (ABS). To meet demand for these products, banks started pooling riskier subprime loans with prime loans. Eventually, many CDOs were backed by risky subprime mortgages.

Lenders started lowering their standards to approve more subprime mortgages. These CDOs and other debt products were also used as collateral for loans, making the situation riskier.

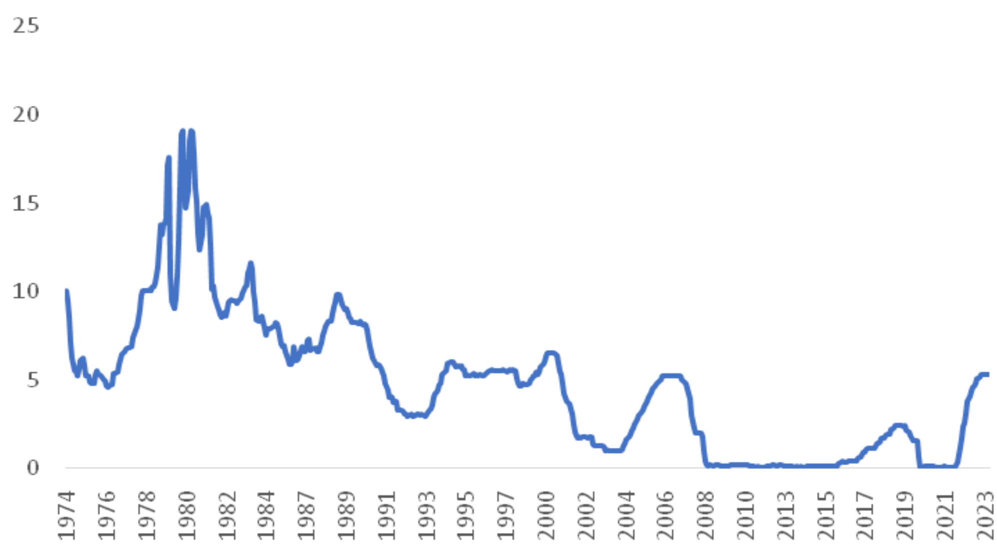

Figure 3-3 US Interest Rates from 1950-2020 (Source: federalresrve.org)

2007

CDOs became a major part of the asset-backed securities (ABS) market. To meet the demand for mortgage-backed securities (MBS) and CDOs, banks began pooling not just prime mortgages but also riskier subprime loans. A larger portion of the securities underlying CDOs became MBS and then subprime MBS. Lenders loosened their standards to increase the number of subprime mortgages they could pool. CDOs and other structured debts were often used as collateral for repurchase agreements (repo transactions).

January – July

Rating agencies began to massively downgrade mortgage-backed securities. The crisis started when Bear Stearns sold its hedge funds. As more subprime loans defaulted, there was a spike in mortgage property sales, leading to falling real estate prices and a drop in demand for CDOs. Lehman lost investors and faced growing losses due to large short-term loans they had taken to buy these properties.

Mid-Year

Lehman Brothers became a leading underwriter and market-maker in both residential and commercial mortgage-backed securities (MBS). They aggressively bought real estate-related assets throughout 2006 and held significant positions by mid-2007. By then, they owned a huge amount of real estate assets—$111 billion, which was double what they had $52 billion at the end of 2006 and more than four times their own equity.

As housing prices began to drop, Lehman faced serious problems. With so many risky assets, it became difficult for them to raise cash, protect against risks, and reduce their debts. Despite the declining market, they kept buying more real estate assets, which only worsened their situation. Rating agencies and investors grew increasingly worried about these assets due to the market's illiquidity and the losses experienced by other firms.

August

The Federal Reserve added $38 billion in reserves and reaffirmed its commitment to provide liquidity to the markets.

2008

January 2008

In January 2008, Fuld initiated a strategy to reduce Lehman's real estate holdings, but the slowing market made it hard to sell at good prices. They were hesitant to sell at lower prices, which could lead to losses and affect the value of their other assets. As time passed, the market's opinion of Lehman's financial health worsened, reflected in rising costs on their credit default swaps.

June 2008

Lehman Brothers raised $6 billion in equity despite reporting a second-quarter loss of $2.8 billion (their first public loss). This was partly due to a $3.7 billion write-down on their mortgage-related assets and loans. However, this wasn't enough to stop rumors about the firm's financial trouble.

September 2008

On September 10, Lehman faced a projected $5.6 billion in write-downs on their toxic assets and expected a loss of $3.93 billion for the third quarter. Lehman announced a $3.9 billion loss for the third quarter. They sought help from the U.S. Bank, but their request was denied. No other company was willing to acquire Lehman.

September 15, 2008

Lehman Brothers filed for bankruptcy. This event caused immediate financial turmoil: the Dow Jones dropped over 500 points, and $700 billion in market value vanished. The bankruptcy affected 8,000 subsidiaries and 26,000 employees.

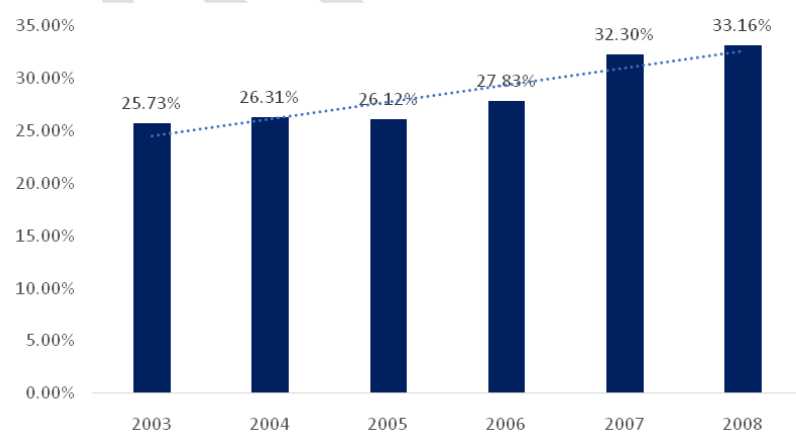

Figure 3-4 Lehman's Leverage, 2003 to 2008Q2 (Source: S&P Capital IQ)

<u>Causes of Lehman's Collapse</u>

Liquidity Issues

Lehman Brothers had major liquidity problems because it struggled to pay its short-term debts. The firm relied heavily on short-term funding sources, like $7.8 billion in commercial paper and $197 billion in repos, to run its operations. As trust in Lehman faded, access to these funds became harder, worsening its cash flow issues.

High Leverage

Lehman borrowed a lot of money to grow, which raised its leverage ratios. At the time of its collapse, Lehman had a leverage ratio of about 30:1. While this strategy helped profits during good times, it also made losses bigger when the market turned sour.

Risky Asset Portfolio

The firm invested heavily in subprime mortgages and real estate assets, which were highly risky. When the housing bubble burst, the value of these investments dropped sharply. This loss significantly hurt Lehman's financial health and contributed to its bankruptcy.

Dubious Management Practices

Lehman used questionable practices, like Repo 105 transactions, to hide its liabilities. This gave a false impression of financial strength. The company's pay structure focused on short-term profits, encouraging risky behavior instead of long-term stability.

Inadequate Risk Management

The firm failed to manage the risks associated with its investments properly, especially in mortgage-backed securities. Lehman's risk management was not strong enough to handle the scale of the risks it had taken on.

Regulatory Failures

There were gaps in regulations that allowed Lehman to take excessive risks without proper oversight. The existing regulatory framework did not address the dangers posed by large, interconnected financial firms.

Market Conditions

The overall economic situation worsened Lehman's problems. The housing market crash and credit crunch led to a drop in housing prices and the value of mortgage-backed securities, putting additional pressure on Lehman’s finances.

Loss of Confidence

As Lehman’s situation worsened, credit rating agencies downgraded its assets, leading to a loss of trust among investors and clients. This created a downward spiral, making it even harder for Lehman to maintain liquidity and solvency.

Failed Rescue Attempts

Several efforts to save Lehman, including talks with potential buyers like Barclays and Bank of America, failed. The U.S. government also decided not to step in, leading Lehman to file for bankruptcy on September 15, 2008.

Immediate Effects on Global Financial Markets

Unnatural Market volatility marked the early days following Lehman’s Failure. Equities all over the world fell dramatically as indices showed their steepest decline since the great depression. Risk averse financial institutions seized up Interbank lending leading to a credit crunch worsening the economy. The collapse also exposed the fragile shadow banking system and led to demise for the asset backed securities.

Moreover, The collapse reduced investor confidence. The ones, who were once confident in the large financial institutions were gripped with fear and uncertainty. Economic activity was hampered and the credit crunch worsened due to loss of investor confidence.

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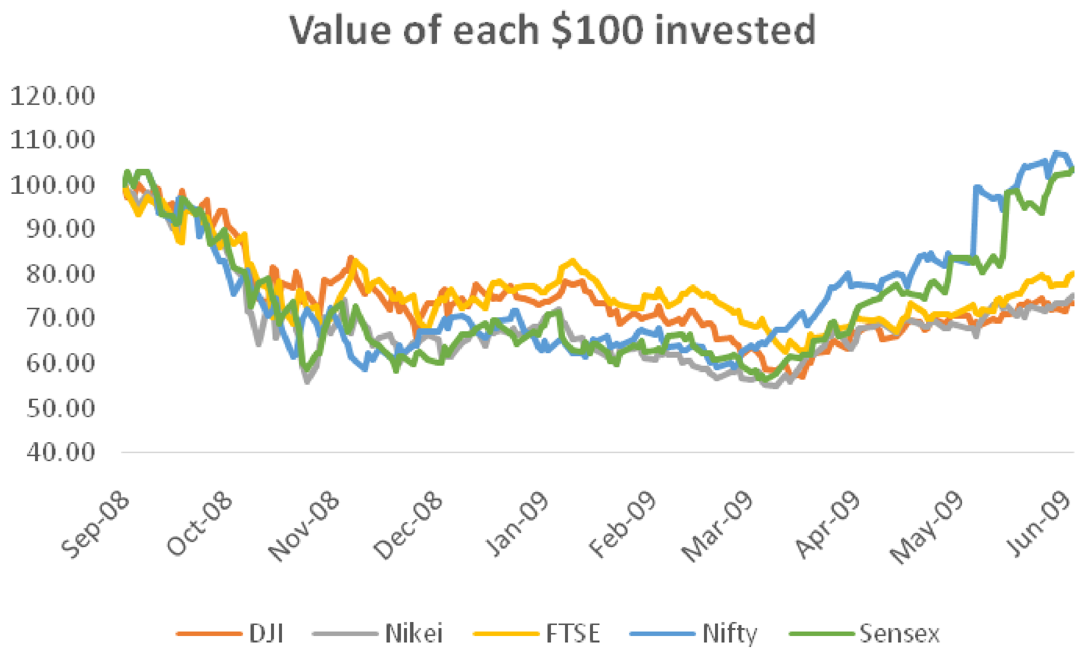

Figure 3-5 Effect on Equity Markets (Source: Google finance)

Long-Term Economic Consequences

The fall of Lehman Brothers had long lasting effects on the economy. The world economy shrank hazardously, with consumer spending falling and unemployment skyrocketing. The crises led to trillion-dollar losses in global economic output.

Aside from the financial cost, the fall of Lehman Brothers cost reduction in investor confidence. The crises made the risk associated with excessive risk taking and loose regulations clear. It has been a difficult process to build the so lost investor confidence, requiring big reforms and increased oversight.

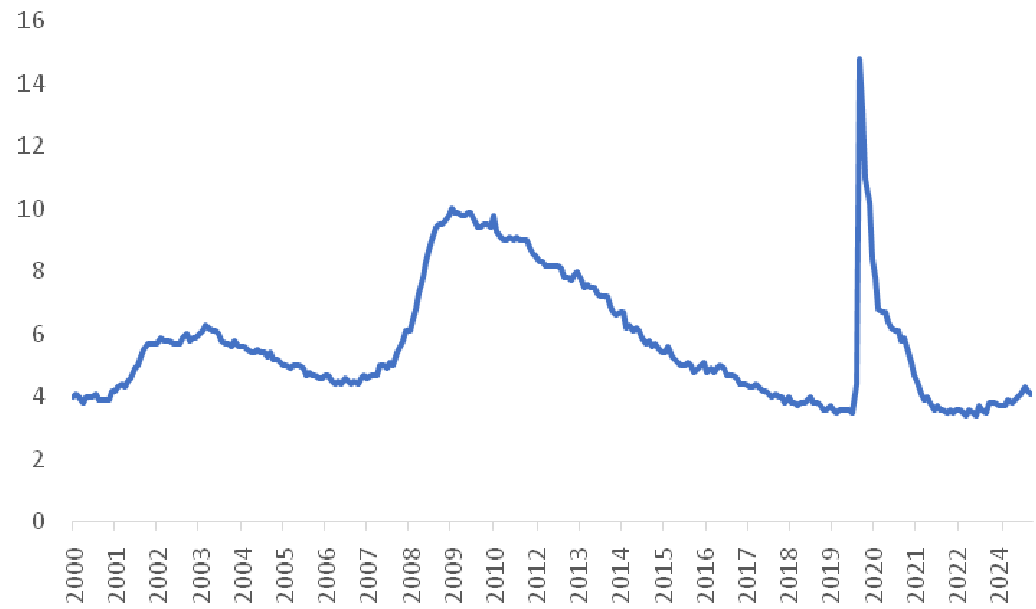

Figure 3-6 US Civilian Unemployment Rate (Source: fred.stlouisfed.org)

Analysis of Systemic Risks Highlighted by Lehman's Failure

Numerous system vulnerabilities that accumulated over the years were highlighted by Lehman's collapse. The over-reliance on complex financial products, like mortgage-backed securities, increased risks and other effects of the initial shock. The collapse illustrated the potential for cascading impacts and linkages in the global financial system.

The crisis highlighted risks of high leverage. Lehman had accumulated exorbitant amount of debt, much like other financial institutions, which left it highly exposed to downturns in the economy. This overuse of leverage exacerbated the crisis and added to its severity.

Lehman Brothers' Bankruptcy and Liquidation

The Liquidation of Lehman Brothers Inc. (LBI), the largest liquidation proceedings in the history of US, concluded on September 28, 2022. Overseen by Judge Shelley C. Chapman of the U.S.

Bankruptcy Court for the Southern District of New York, the process led to returns worth $115 billion to LBI's creditors and customers.

Key outcomes of the liquidation process:

- $106 billion distributed to around 111,000 customer claims.
- 100% recovery for secured, priority, and administrative creditors.
- $9.372 billion returned to unsecured creditors, representing a 41.28% recovery.

The proceedings involved a total of 16 global jurisdictions and was aided by the sale of LBI's U.S. brokerage assets to Barclays.

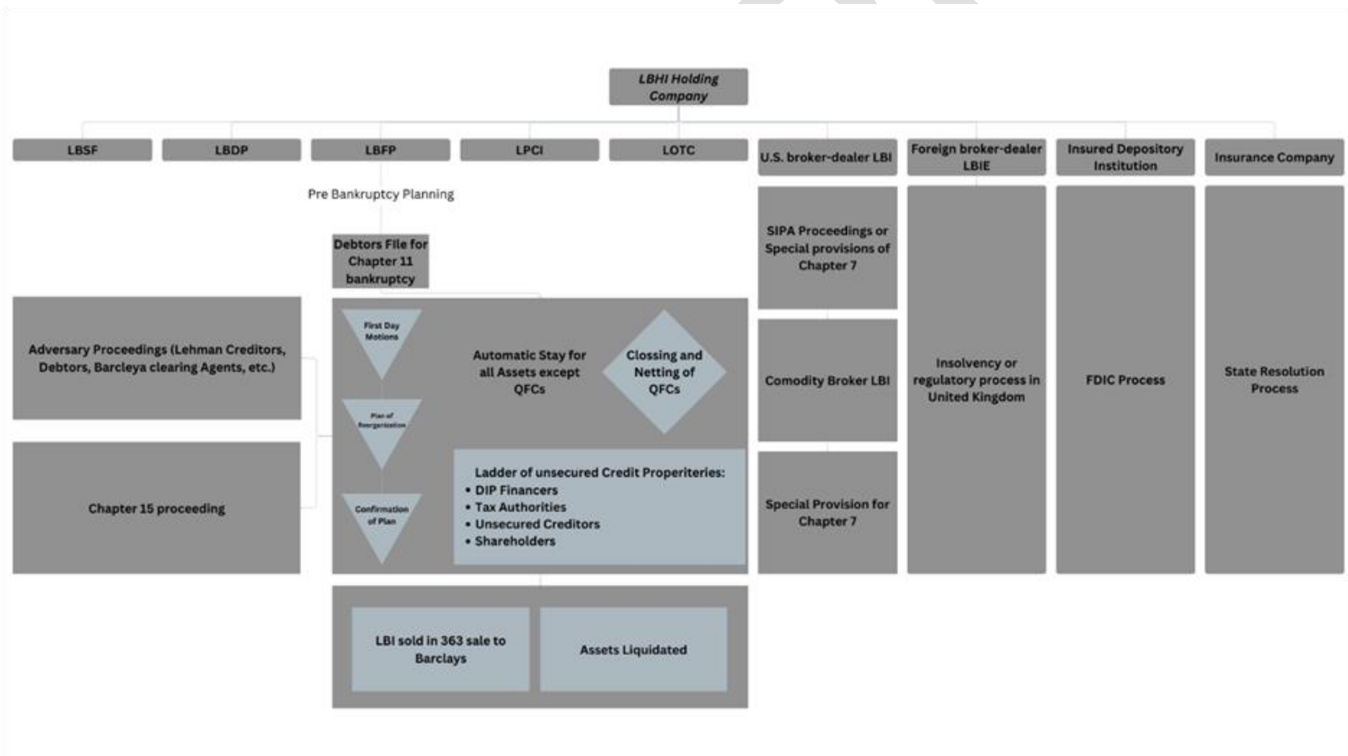

Figure 3-7 Bankruptcy Process for Lehman Brothers

Complexity of Bankruptcy

Lehman Brothers' bankruptcy was the largest and most complex in history, involving 209 subsidiaries across 21 countries. Multiple legal frameworks were applied, including the U.S.

Bankruptcy Code, Securities Investor Protection Act (SIPA) for Lehman Brothers Inc. (LBI), and various international insolvency laws.

Pre-Bankruptcy Planning

Lehman Brothers' inadequate preparation for bankruptcy severely affected its recovery process. The rushed filing and lack of substantial pre-planning diminished the value of its estate, leading to significant losses for both equity holders and creditors, with a reduced recovery value as a result.

OTC Derivatives Settlement

The resolution of over-the-counter (OTC) derivatives was the most complex aspect of the bankruptcy. The settlement procedures, particularly for derivatives, were intricate and resulted in below-average recovery rates.

Recovery Rates

The 14-year long process achieved a 100% distribution to former LBI customers, clearing over 110,000 accounts and transferring $13.5 billion to settle all allowed customer claims. Customer distributions are complete, and the customer estate is closed. In total, distributions have exceeded $100 billion.

The Trustee has also managed the claims process for over 12,000 general creditors. Secured, priority, and administrative creditors have received 100% distributions, and general unsecured creditors have received 41.2841% (approximately $9.4 billion) through eight distributions.

Impact of the Bankruptcy Process

Lehman Brothers' poor planning and the complexity of its global operations led to a lengthy and disorderly resolution process. Criticisms of the U.S. Chapter 11 framework emerged, with suggestions for reforming the process through mechanisms like Chapter 14 or the Dodd-Frank Orderly Liquidation Authority, designed for large financial institutions.

Regulatory and Supervisory Failures: The Precursors to Lehman's Collapse

Deregulation Trends: The Repeal of Glass-Steagall

One of the factors that contributed to the Lehman's collapse was repeal of the Glass-Steagall Act in 1999. Enacted as a counter-measure to the Great Depression, the law limited the scope and risk profile of financial institutions by separating commercial and investment banking.

The repeal allowed establishment of financial conglomerates that carried out investment and commercial banking together. This ended up raising risks instead of promoting innovation and competition. A former pure investment bank Lehman Brother involved into a sophisticated organizations exposed to a variety of risks.

Regulatory Gaps and Failures in Oversight

The regulatory environment preceding the crisis was characterised by gaps in oversight and a lack of coordination among regulatory agencies. The complex and opaque financial instruments, particularly those related to the subprime mortgage market, outpaced the regulatory framework.

- **Undercapitalization:** Regulatory capital requirements were insufficient to absorb the losses incurred during the crisis.
- **Risk Assessment:** Financial institutions' and regulators' use of risk assessment models was insufficient to fully account for the systemic risks present in the subprime mortgage market.
- **Shadow Banking:** Systemic risk was made worse by the shadow banking industry's explosive expansion, which operated outside of established regulatory boundaries.

Lehman's Complex Capital Structure and Supervisory Implications

Lehman Brother's complex capital structure, involving multiple entities and subsidiaries, hindered effective supervision. Amongst its major subsidiaries were Lehmann Brothers Bancorp, Lehmann Brothers Commercial Corporation, Lehmann Brothers (LBI), Neuberger Berman, Lehmann Brothers Holdings Plc U.K. and Lehmann Brothers OTC Derivatives Inc.The complex of financial relationships made it difficult for the authorities to evaluate firm's risk exposure and financial health.

The firm's reliance on short term funding, created a liquidity mismatch that exposed it's risk to market shocks. Regulators failed to handle this liquidity issue and contributed to the quick demise of the company.

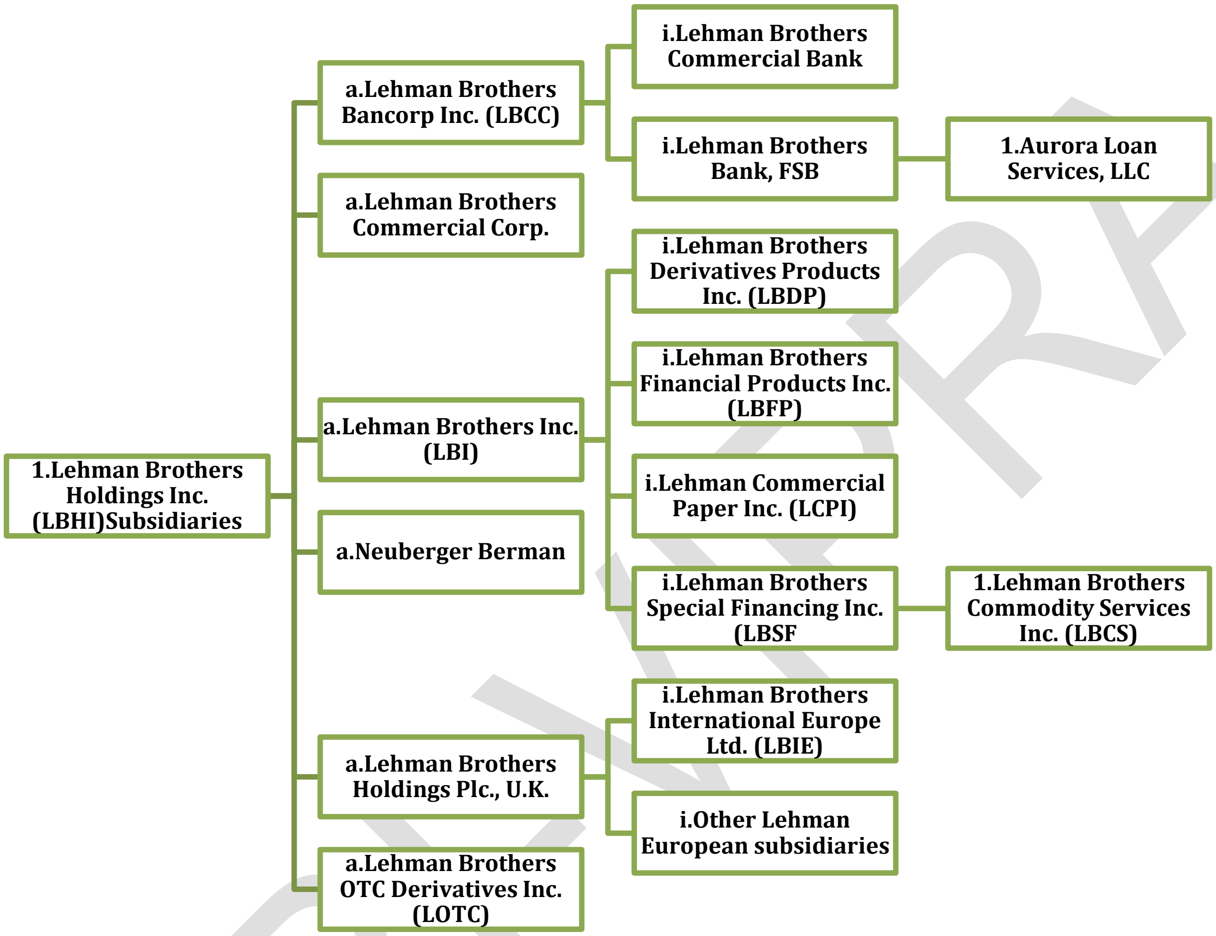

Figure 3-9 Lehman's Capital Structure

<u>Lessons Learned and Reforms Post Lehman Brothers</u>

The demise of Lehman Brother served as a reminder of fallout from excessive risk-taking, complex financial instruments, and poor risk management. Key lessons for financial institutions include the need to strengthen risk management frameworks through practices like scenario analysis and stress testing to identify and mitigate potential risks. Liquidity management must also be prioritized by maintaining sufficient liquidity reserves to withstand market shocks and prevent liquidity crises.

Enhancing transparency in financial reporting is essential to increase investor confidence and improve market understanding. Strengthening corporate governance practices is equally important to promote ethical behaviour and align management's goals with those of shareholders. Finally, fostering a culture of accountability and risk aversion throughout the organization is critical to prevent reckless decision-making.

Overview of Subsequent Regulatory Reforms

Following the collapse of Lehman Brothers, various regulatory changes were implemented to strengthen the financial system. The Basel III capital accord worldwide and the Dodd-Frank Wall Street Reform in the United States were two of the most important pieces of legislation.

- **Dodd-Frank Act:** This all-encompassing reform brought about the establishment of the Consumer Financial Protection Bureau, the Volcker Rule (which restricted proprietary trading), stress testing, and resolution plans for major financial institutions.
- **Basel III:** This international agreement established countercyclical capital buffers, tightened risk-weighted asset computations, and raised capital and liquidity requirements for banks. The agreement also introduced two new liquidity ratios to enhance bank's resilience during financial stress: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR).
  - **LCR:** This new ratio ensures that the banks have enough liquid assets to survive a period of 30-day during a financial crisis, requiring them to hold 100% of expected net cash outflows.
  - **NSFR:** This ratio focuses on long-term stability of the banks, requiring banks to maintain sufficient and stable funding sources to cover their activities for over a 1-year horizon.

Evaluation of the Effectiveness of Reforms

There is no denying that Basel III and the Dodd-Frank Act have reinforced the financial system, but there are doubts over how effective they will be in averting future financial crises. While one side maintains that the laws have strengthened the financial system, other argues that the regulations have hindered innovation and economic progress.

Conclusion

The collapse of Lehman brother stands as a stark reminder for the fragility of the financial systems. Its effects were seen throughout the world, leading to a financial crisis that caused severe economic hardship.

Lehman’s collapse had various short- and long-term consequences from credit crunches to loss of public confidence. The crisis acted as a trigger for a comprehensive reform, leading to introduction of regulations like Basel III and Dodd-Frank to improve financial stability.

The financial system has been reinforced by these measures, but it’s impossible to reduce the probability of future catastrophes to zero. Because of the ever-changing financial processes and product, continuous attention to detail and adaptation is required.

In the end, Lehman Brother’s legacy serves as a warning, it reminds how importance it is to balance risk management and innovation. Stability, Accountability and openness must be given top priority in the future. Building a more resilient global financial system and reducing the likelihood of future crises can only be achieved by making a concentrated effort to learn from the past.
The challenge lies in ensuring that the lessons learned from Lehman's collapse are not merely historical footnotes but rather the foundation for a new era of financial prudence.

CHAPTER 4 GLOBAL DEBT ARCHITECTURE AND THE DEVELOPING COUNTRIES

Abstract: The document discusses the urgent need for a shift in the global financial architecture to better serve developing countries, especially in the context of the post-pandemic era and the escalating climate crisis. It highlights the unsustainable debt burdens of developing nations, the inadequacy of current debt workout mechanisms, and the necessity for a development-based debt ecosystem. The paper proposes several transformative measures, including increasing concessional finance, enhancing transparency, revising the UNCTAD Principles for Responsible Sovereign Lending and Borrowing, and creating a global debt authority.

Background or Challenges:

The hierarchical structure of the global financial system (resource asymmetries between borrowers and lenders) has led to significant inequalities among debtor and creditor nations. (UNCTAD, 2023)

The borrowing and lending generally happen in dollars and therefore the exchange rate is susceptible to fluctuations which can put developing nations in a bad position. Developing countries face unsustainable debt levels, which is disastrous as they already need to consider investments on climate, job-creation, social protection, food security, universal healthcare and quality education. They also have less viable debt workouts.

Current State of Sovereign debt

The current financial system is not aligned with the development needs of low-income countries. which is visible in several ways:

Countries relying on private investors often face unstable financing. Countries in dire need of money often need to pay higher interest rates. Debts are often obtained in dollars and hence developing countries have less control on the exchange rate fluctuations and its impact on the repayment of the debt. Restricted access to Financial Safety Net. During the financial crisis, richer nations had more access to emergency financial support than low-income nations. Richer nations had more Special

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Drawing Rights (SDRs). SDRs provide countries with a financial safety net, allowing them to access necessary foreign exchange reserves without the need for immediate repayment. Rich nations like the US and UK also have the advantage of Central Bank Swap Lines through which they can exchange currency. Currently, The Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the Federal Reserve, and the Swiss National Bank maintain standing U.S. dollar liquidity swap line arrangements.

Debt restructuring initiatives:

In the context of the eruption of the COVID-19 pandemic, a major relief for developing countries was the adoption of the Debt Service Suspension Initiative (DSSI). The G20 Common Framework for Debt Treatments followed. During the COVID 19 outbreak, DSSI involved suspension of debt payments. 48 out of 73 eligible countries participated in the initiative From May 2020 to December 2021, the initiative suspended $12.9 billion in debt-service payments. (World Bank, n.d.)

Four Phases of Regulation of Sovereign Debt

1. **End of Cold War (1990)**

   The end of the Cold War in 1990 marked a pivotal shift in global politics and economics. Many developing countries, previously caught in the geopolitical struggles between the United States and the Soviet Union, faced new challenges related to debt management and economic policy. While the effects of the 1980 Debt Crisis still persisted, the year 1991 saw capital inflows to Latin America.

   The end of the Cold War marked a shift in how debt and development were handled, focusing more on market factors. Developing countries aimed for market access rather than relying on aid, leading to more generous debt restructuring deals.

   Initiatives like HIPC and MDRI provided relief to poor countries, while middle-income countries undertook reforms. However, the Asian financial crisis highlighted the system's weaknesses, prompting the IMF to propose new mechanisms for managing debt.

2. **Around 2000**

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Around 2000, countries changed the way they dealt with their debt. Instead of relying on international organizations like the IMF to manage debt crises, countries began to focus on market-based solutions.

According to the contractual approach, the countries negotiated directly with their bondholders.

Since the Argentine debt crisis beginning in 2001, Governments have sought to facilitate debt workouts through a series of collective action clauses (CACs), particularly majority voting clauses.

CACs had some limitations like long maturities of bonds and blocking minorities in times of crisis.

In response to these challenges, a single limb clause was introduced, which allows all bondholders to vote as one group rather than needing separate votes for different types of bonds.

3. **After the Global Financial Crisis**

During the Financial Crisis, US house prices declined leading to a fall in prices of Mortgage-backed securities and Collateralized Debt Obligations. This led to a recessionary trend in the global economy.

After the 2007–2008 global financial crisis, the need for debt workouts increased. The crisis led to aggressive creditor litigation. The process of creating statutory solutions was slow and ineffective.

Austerity measures were imposed on borrowing countries. These efforts often harmed the economies and societies of borrowing countries. Some success was seen in innovative bond designs such as GDP linked bonds and sustainable development bonds.

4. COVID 19 and the recent years

The COVID-19 pandemic has significantly impacted sovereign debt management globally.

Traditional austerity measures lost appeal as investment in healthcare and climate action became crucial.

Economic pressures and new creditors challenged the existing debt system.

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In response, global initiatives like the DSSI (May 2020 to December 2021) and new funding instruments were introduced to provide temporary relief and support economic recovery. (UNCTAD, 2023)

<u>Life Cycle of Sovereign Debt</u> (UNCTAD, 2023)

It is a device which is used to assess the way in which debt is incurred, how debt instruments are issued, how debt management is structured, how debt sustainability is tracked and the options for debt workout. There are 5 stages of sovereign debt:

1. **Access to finance and markets**
2. **Debt issuance**
3. **Debt management**
4. **Debt servicing, repayment and resilience**
5. **Debt resolution or workout**

<u>Challenges</u>

The challenges include shortage of both concessional finance, affordable long-term capital, restricted market access and higher cost of borrowing. Lack of transparency while issuing the debt is another problem faced by developing countries. Low-income countries do not have a robust debt management system. The situation is worsened in case of external shocks as funds for debt servicing are diverted.

<u>Question- How can we assure that the debt crisis would not go out of proportions and hamper the development process in in low-income countries?</u>

To ensure that a debt crisis does not go out of proportion and hamper the development process in low-income countries, the Trade and Development Report 2023 emphasizes several key strategies and recommendations.

Here's a detailed summary based on the themes of debt management and sustainable development:

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1. Strengthening Debt Sustainability Frameworks:

- **Debt Transparency and Accountability:** Improve the transparency of debt contracts and ensure that borrowing and lending practices are clear and fair. This involves detailed disclosure of loan terms and conditions.
- **Debt Sustainability Analysis:** Regularly conduct rigorous debt sustainability analyses to assess a country's ability to service its debt without compromising its development goals.

2. Enhanced Coordination Among Creditors:

- **Unified Debt Coordination Mechanism:** Establish a more coordinated approach among various creditors (bilateral, multilateral, and private) to manage and restructure debt effectively.
- **International Platforms for Dialogue:** Create and support international platforms that facilitate dialogue between debtor countries and all types of creditors to discuss debt restructuring and relief.

3. Strengthening and Expanding Debt Relief Mechanisms:

- **Comprehensive Debt Relief Programs:** Reform and expand existing debt relief programs to make them more inclusive and accessible, ensuring timely and adequate relief.
- **Automatic Relief Triggers:** Develop automatic mechanisms that trigger debt relief when certain economic or financial thresholds are met, reducing delays in the relief process.

4. Promoting Responsible Lending and Borrowing:

- **Adopt Fair Lending Practices:** Ensure that loans are provided under fair and sustainable terms. Prevent predatory lending practices and enforce regulations that promote responsible borrowing and lending.

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- **Debt Audits:** Conduct regular debt audits to evaluate the legitimacy and sustainability of existing debt, identifying any discrepancies or unjust terms.

5. Linking Debt Relief to Development Goals:

- **Conditionality for Sustainable Development:** Structure debt relief initiatives to include conditions that promote sustainable development, ensuring that freed-up resources are invested in critical areas like healthcare, education, and infrastructure.
- **Focus on Long-term Growth:** Use debt relief as a tool to support long-term economic growth and stability, rather than merely addressing short-term financial issues.

6. Enhancing Domestic Resource Mobilization:

- **Improve Tax Systems:** Strengthen domestic tax systems to enhance revenue collection and reduce dependency on external debt. Implement fair and efficient tax policies.
- **Combat Illicit Financial Flows:** Address and reduce illicit financial flows and tax evasion, which can undermine a country's revenue base and increase reliance on debt.

7. Building Resilience to External Shocks:

- **Diversify Economies:** Encourage the diversification of economies to reduce vulnerability to external shocks such as commodity price fluctuations or global economic downturns.
- **Create Financial Buffers:** Establish financial buffers and reserves to provide a cushion against economic crises and reduce the need for emergency borrowing.

8. International Support and Cooperation:

- **Global Financing Safety Net:** Strengthen the global financing safety net to provide emergency support to countries facing sudden economic crises.

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- **Multilateral Support:** Enhance support from international financial institutions (like the IMF and World Bank) to provide technical assistance, policy advice, and financial resources for debt management and sustainable development.

9. Reforming the Global Debt Architecture

- **Comprehensive Debt Analysis:** Implementing rigorous assessments of a country's debt sustainability, considering factors beyond traditional metrics, can help prevent over borrowing.
- **Innovative Debt Instruments:** Introducing financial tools like special bonds and automatic debt restructuring mechanisms can provide more flexibility for countries to manage their debt burdens.
- **Strengthened Crisis Prevention:** Developing robust mechanisms to protect countries from sudden economic shocks can mitigate the risk of debt crises.

10. Additional Considerations

- **Addressing Root Causes:** Tackling underlying economic vulnerabilities, such as inequality and corruption, can help reduce the risk of debt crises.
- **Private Sector Involvement:** Encouraging responsible lending practices by private creditors can contribute to a more sustainable debt landscape

Publicly Guaranteed Loans (PPG): PPG loans are external obligations of the private sector whose servicing (interest and principal repayments) is contractually guaranteed by a public unit, such as the government. These loans typically have longer maturities and are often used for development projects.

Impact on Debt Sustainability:

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- Because they are backed by government guarantees, PPG loans often come with lower interest rates compared to other forms of debt, which can enhance debt sustainability by reducing overall borrowing costs.
- The guarantee provided by the government can encourage lenders to extend more credit, allowing countries to finance essential development projects. However, this can lead to higher levels of debt if not managed properly.
- If the private sector fails to meet its repayment obligations, the government must step in to cover these debts, which can strain public finances and lead to increased debt levels.

Privately Non-Guaranteed Loans (PNG): PNG loans are debts incurred by the private sector without any government guarantees. These loans can be more volatile as they depend on market conditions and the creditworthiness of the borrowing entity.

Impact on Debt Sustainability:

- PNG loans typically carry higher interest rates due to the lack of guarantees, which can increase the financial burden on borrowers and affect their ability to service debts sustainably.
- The availability and terms of PNG loans can fluctuate based on market conditions, making them riskier for borrowers. Economic downturns can lead to increased default rates, further complicating debt sustainability.
- If private entities engage in excessive borrowing without adequate revenue generation or economic growth, this can lead to unsustainable debt levels that may require government intervention.

An in-depth analysis of the total external debt stocks for different regions divided on the basis of income:

The chart shows that the external debt burden of low and middle-income countries has increased significantly over the past few decades. While the debt as a percentage of GDP has fluctuated, it is still at a relatively high level. A growing number of LMICs are spending more on debt servicing

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than on essential services like health care. This number increased from 33 countries in 2010 to 54 by 2019. The period from 1995 to 2021 has seen fluctuating trends in external debt stocks among low and middle-income countries, characterized by significant growth in total debt levels and shifting creditor dynamics. While there has been some improvement in debt-to-GDP ratios for low-income countries, the rising costs of servicing this debt pose substantial risks to economic stability and essential public spending.

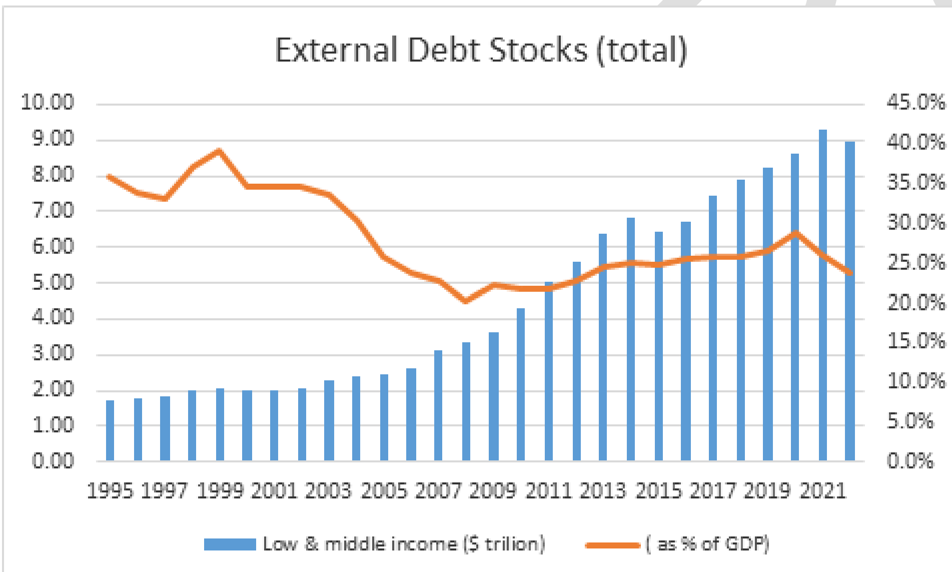

Figure 4-1: External Debt Stocks for Low and Middle Income Countries

Source: World Development Indicators

Moving forward, addressing these challenges will require coordinated international efforts aimed at enhancing transparency and potentially restructuring existing debts to foster sustainable economic growth

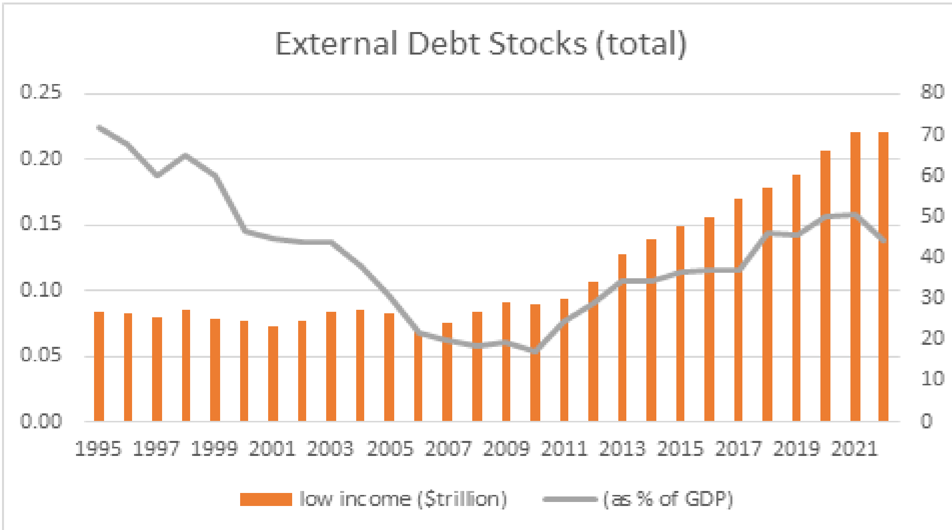

Figure 4-2 External Debt Stocks for Low Income Countries

Source: World Development Indicators

From 1995 (.1 trillion $), the external debt stocks have doubled to .2 trillion dollars in 2021 which can be summarized due to infrastructural development, trade deficits, political instabilities in many of the LICs. The decline in external debt stocks as a percent of GDP reflects some improvements in debt management and economic conditions over the years but despite this reduction, many LICs have experienced a resurgence in debt vulnerabilities since 2009, with median government debt rising by about 20 percentage points of GDP. A substantial portion of LIC borrowing is now sourced from non-concessional loans and private creditors. By the end of 2019, obligations to private creditors had increased fivefold since 2010, totalling approximately $102 billion. The reliance on foreign currency-denominated debt poses additional risks, particularly in the face of currency depreciation. Many LICs are now at high risk of debt distress; as of recent reports, 28 countries eligible for World Bank assistance are categorized as high-risk, with eleven already in distress

The external debt situation for low-income countries (LICs) from 1995 to 2021 has undergone significant changes, marked by periods of relief and subsequent vulnerabilities. There is a pressing need for improved debt transparency and management practices among LICs to

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mitigate risks associated with rising external debts. Policymakers are encouraged to focus on mobilizing domestic resources and strengthening institutional frameworks to better handle future crises.

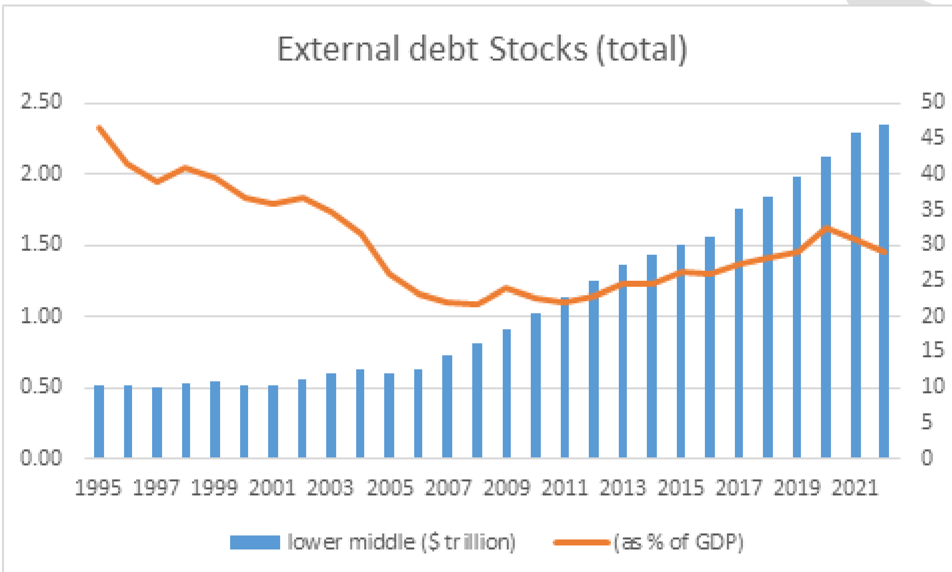

Figure 4-3 External Debt Stocks for Middle Income Countries

Source: World Development Indicators

The total external debt stocks of lower middle-income countries have increased significantly over the past few decades. In 1995, the total debt was around $0.5 trillion, while in 2021, it reached over $2 trillion from both traditional and non-traditional sources, including commercial creditors and private lenders. The external debt-to-GDP ratio for lower middle-income countries fluctuated significantly over the years. It declined from **46.7 % in 1995** to approximately **21.8% by 2008**, largely due to a significant increase in nominal GDP. However, the ratio began to rise after 2009 during the periods of economic distress, particularly after the global financial crisis and subsequent commodity price declines. The structure of debt shifted more towards non-concessional loans indicating a growing reliance on market-based financing.

An in-depth analysis about Brazil and India’s assets and liabilities has been done for better understanding for the time period of 2002 to 2023.

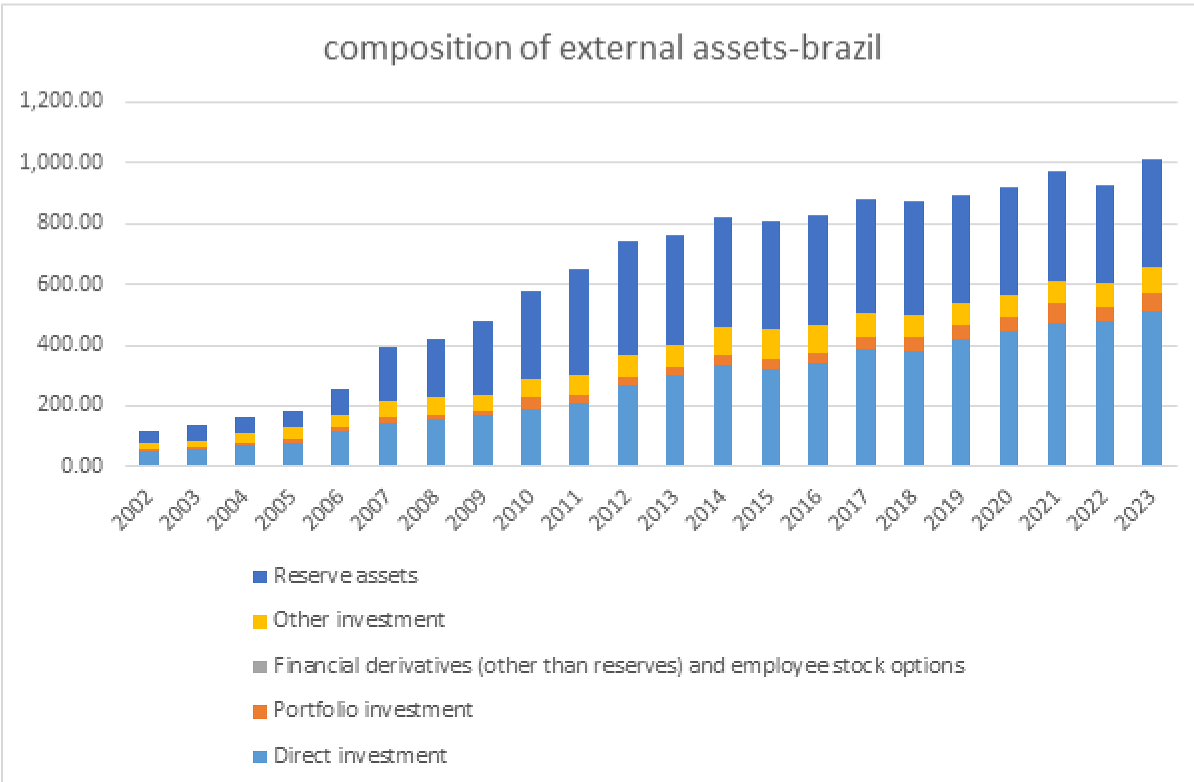

Figure 4-4 Composition of External Assets for Brazil (billion dollars)

Source: Internal Monetary Fund

Brazil experienced significant FDI inflows, particularly from 2002 to 2014, driven by its large market size and abundant natural resources. FDI has been crucial for technology transfer, job creation, and infrastructure development, enhancing Brazil's economic resilience. Portfolio investment constituted such a small amount of assets for Brazil because of periods of economic volatility including recession and political instability; also, it is more sensitive to changes in global economic conditions and interest rates. Brazil also has a complex regulatory framework which discourages portfolio investment in favour of more straightforward investment avenues.

Brazil maintains substantial foreign exchange reserves as a buffer against external economic shocks, such as fluctuations in commodity prices and global financial crises. This strategy helps stabilize the economy and supports the Brazilian real during volatile periods. It also enhances the confidence in Brazilian currency, reducing risk of depreciation.

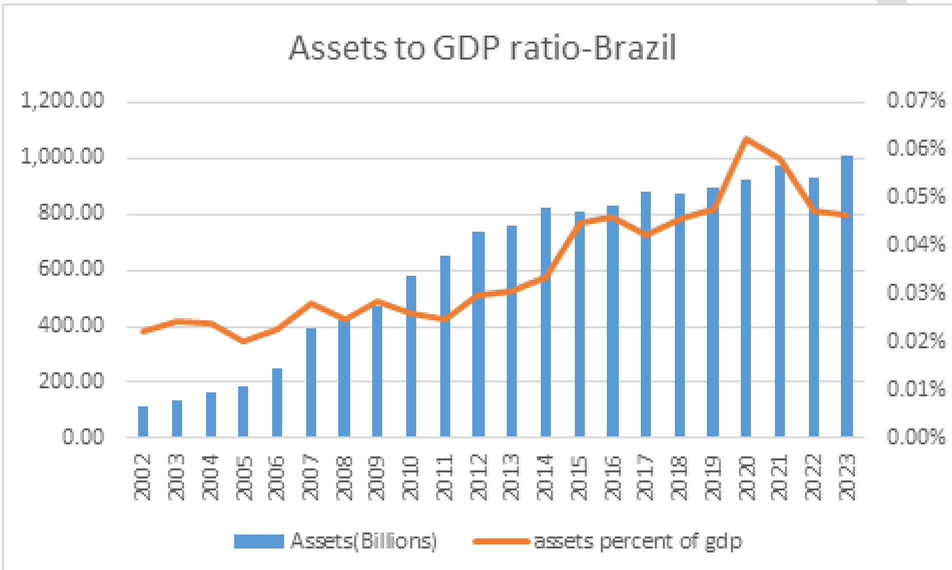

Figure 4-5: Brazil's Assets to GDP Ratio

Source: International Monetary Fund

The influx of FDI and the development of financial markets led to a substantial increase in Brazil's total assets, including investments in infrastructure, real estate, and financial instruments from 2002 to 2014. Brazil entered a recession in 2014, leading to negative growth rates and a decline in asset values relative to GDP. The economic downturn resulted in increased debt levels and reduced investment, impacting the overall asset-to-GDP ratio. As Brazil navigated its recovery after covid-19, there has been an emphasis on improving fiscal management and enhancing productivity. The focus on sustainable growth strategies may lead to a gradual improvement in the asset-to-GDP ratio as the economy stabilizes.

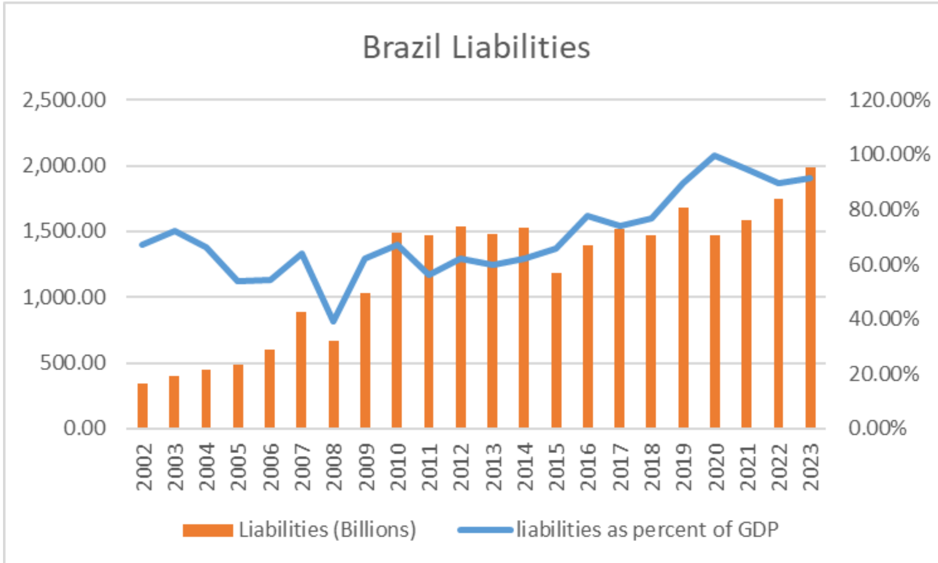

Figure 4-6: Brazil's Liabilities to GDP Ratio

There is a steady increase in Brazil's total liabilities over the years, especially noticeable from 2008 onwards. There are fluctuations in the liabilities-to-GDP ratio, generally increasing over time with some dips around 2007, 2011, and 2015-2016. By 2023, it approaches 100%, indicating that liabilities are nearly equal to the country's GDP. Brazil have increased government spending during economic downturns, particularly during the 2008 financial crisis and the COVID-19 pandemic in 2020. This increase in spending lead to higher liabilities as the government borrows more to fund programs and stimulus packages. A depreciating Brazilian real against US Dollar has increased the cost of external debt and impacted liabilities. The percentage of liabilities relative to GDP also rose when the economy grew slowly or contracted, as seen in periods like 2015-2016 and during the pandemic. Lower GDP means the ratio of liabilities to GDP will increase, even if liabilities are not increasing as fast.

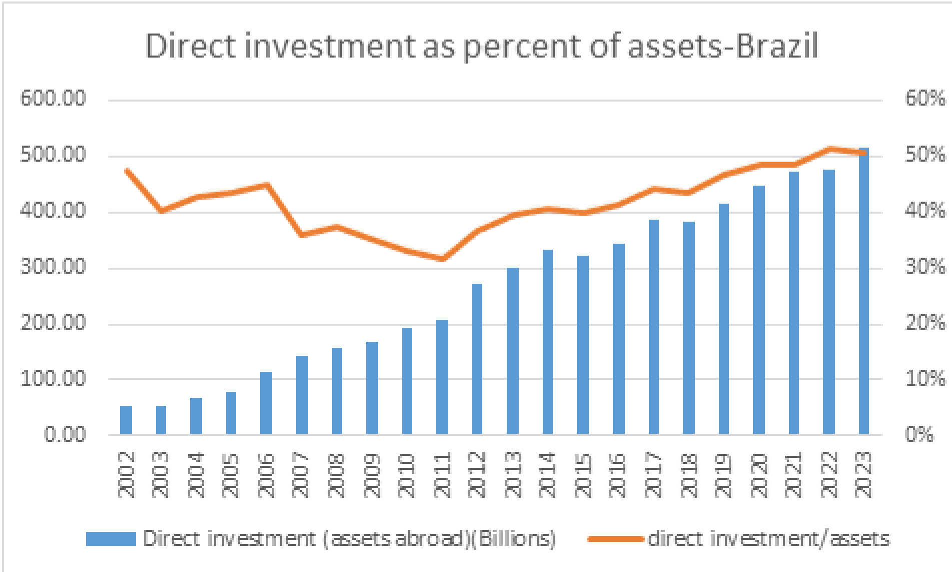

Figure 4-7: Foreign Direct Investment done by Brazil across the world

Source: International Monetary Fund

Brazil experienced substantial foreign direct investment (FDI) inflows during 2002 to 2014. This influx contributed positively to Brazil's asset base, increasing the ratio of direct investment to total assets. Brazil faced economic recession and political instability starting in 2014, leading to decreased FDI inflows. As the economy struggled, public and private debt levels rose, further complicating the asset-to-investment relationship. The focus shifted towards managing existing liabilities rather than increasing direct investments. The recovery phase (after Covid-19) has allowed Brazil to reassess its investment strategies, potentially leading to a more favourable direct investment-to-assets ratio as economic conditions stabilise

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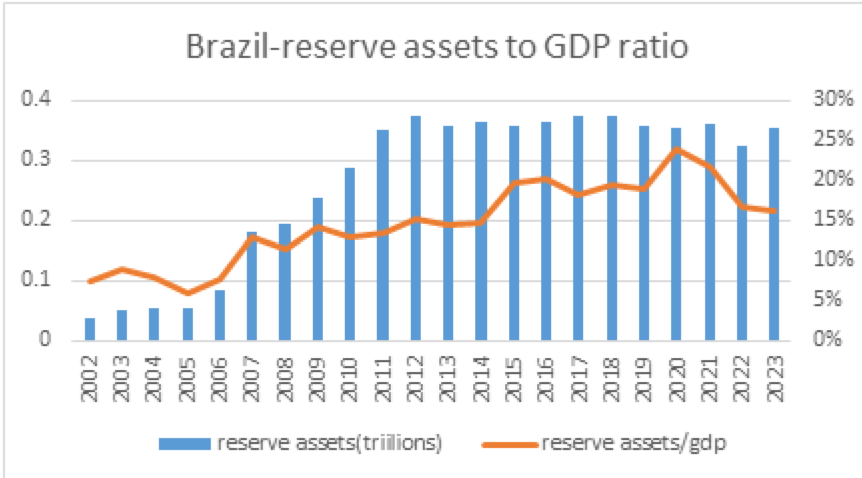

Figure 4-8: Brazil's Reserve Assets to GDP Ratio

Source: International Monetary Fund

Reserve assets are financial instruments that are controlled by a country's monetary authorities and are available to help with payment imbalances, regulate exchange rates, and maintain confidence in the economy

Brazil implemented policies aimed at bolstering its foreign exchange reserves, which included maintaining trade surpluses and attracting foreign direct investment. This contributed to higher reserve assets to GDP ratio during 2002 to 2014. Rising public debt during this period put pressure on the country's fiscal situation, impacting the overall reserve assets to GDP ratio as the economy contracted from 2015 to 2020. Reserve assets remained relatively stable but GDP of Brazil fell down hence, giving higher reserve assets to GDP ratio during this time period. After Covid-19, Brazil's economy started to recover but the absolute level of reserve assets remained stable hence, the ratio declined. This is in par with the ongoing efforts to stabilise and enhance these reserves amid global economic uncertainties.

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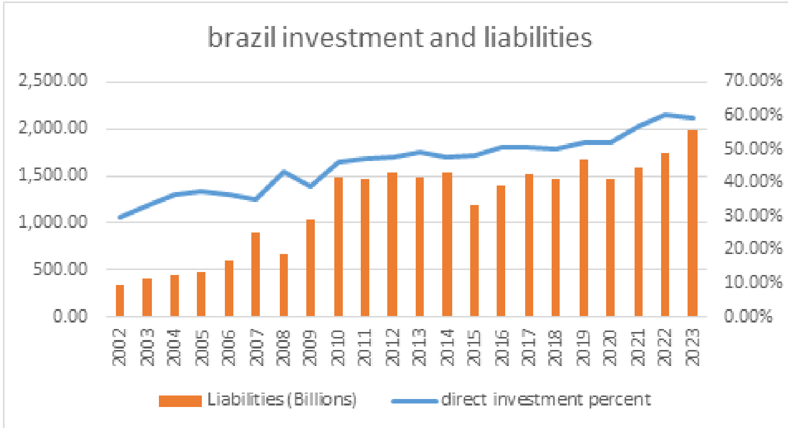

Figure 4-9: Foreign Direct Investment done in Brazil and its Liabilities

Source: International Monetary Fund

FDI in Brazil increased significantly over this period, reflecting the country's attractiveness as an investment destination. Brazil has consistently been one of the largest recipients of FDI in Latin America. It is driven by Brazil's large market size, natural resources, and political stability. Brazil's total gross external debt, which represents its total liabilities to foreign creditors, rose sharply from 2002 to 2023. As a percentage of GDP, external debt more than doubled from 3.5% in 2017 to 8.8% in 2023. Brazil entered a recession in 2014 which increased debt levels and reduced investment. public debt rose significantly, reaching approximately 88.9% of GDP by 2023.

Foreign direct investment (FDI) in Brazil increased significantly over this period, reflecting the country's attractiveness as an investment destination. The United States, Spain, the Netherlands, and Luxembourg were the top investors in Brazil by FDI stock. Brazil's outward international investment activities are mostly associated with exporting strategies, dominated by fixed assets from Brazilian headquarters. Compared to the overall size of its economy, Brazil has presented a relatively low level of outward FDI. From 2002 to 2014, both inward and outward FDI flows increased, with Brazil attracting significant foreign investment while also expanding its own investments abroad. After 2014, concerns over debt sustainability and economic challenges led to a decline in new FDI commitments in Brazil. The composition of FDI shifted, with a growing

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proportion coming from market-based sources (equity financing, bonds, commercial papers, bank loans) rather than traditional concessional loans

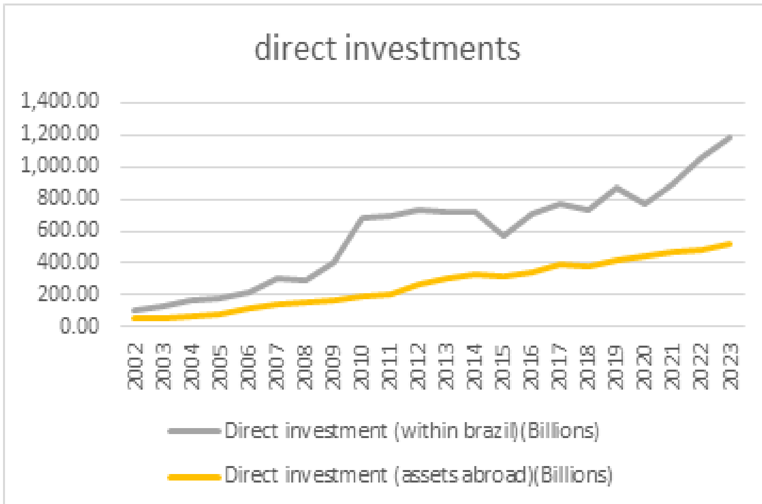

Figure 4-10: Brazil's Liabilities and Assets in terms of Foreign Direct Investment

Source: International Monetary Fund

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Analysis of Performance of India

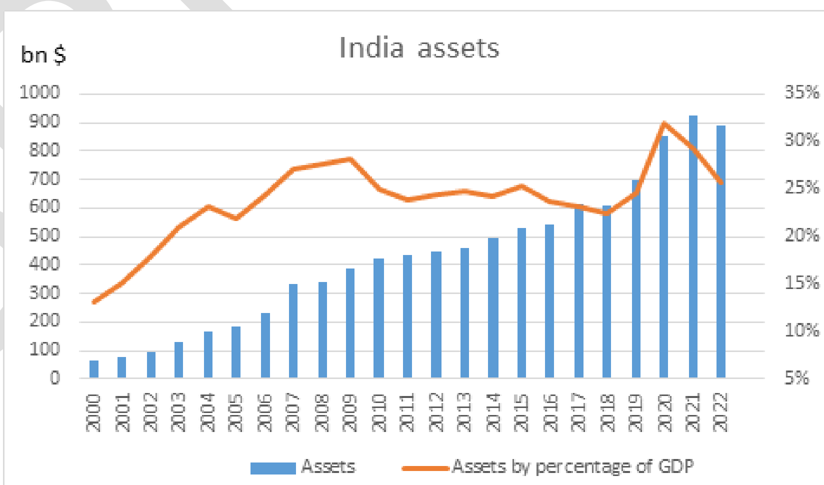

Figure 4-11: India’s total assets and assets as percentage of GDP

(International Monetary Fund, 2024)

Trade policies were liberalized in India in 1991. India did not have much to invest abroad and that's why the assets were relatively low. Over the years, development in the country led to more investments abroad[A1] which led to assets. Despite the Global Financial Crisis of 2008, India's assets did not decline due to its large domestic market and less investments in the US[A2] [AJ3] [AJ4].

Due to an economic slowdown during the pandemic, assets declined in value. Post-Covid, the economy rebounded sharply which again, led to a rise in assets.

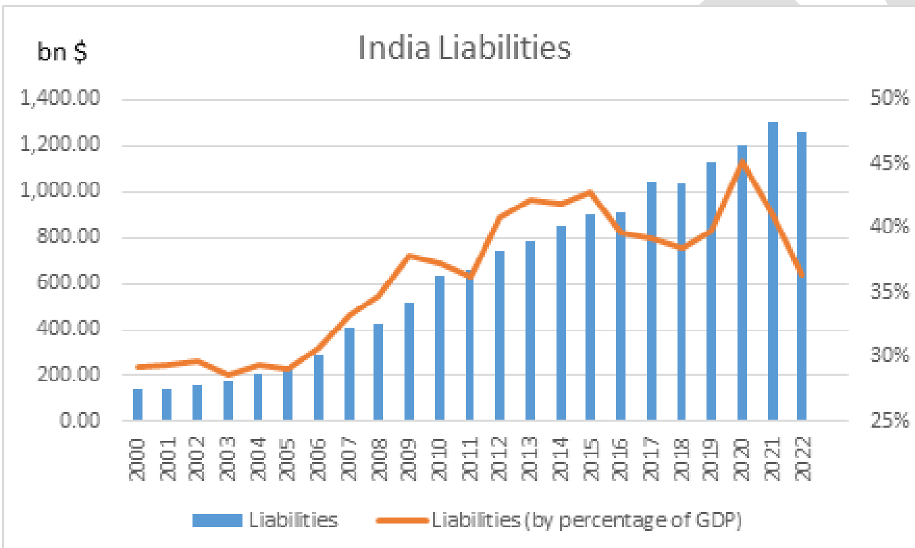

Figure 4-12: India's total liabilities and liabilities as percentage of GDP (International Monetary Fund, 2024)

In the early 2000s, globalisation in India attracted many foreign countries to invest in India due to cheap availability of labour and favourable trade policies. In 2007-08 the crisis prompted a surge in government spending to stimulate the economy, leading to a spike in public debt.

The pandemic resulted in significant fiscal burdens, causing total liabilities to increase sharply. Post COVID, liabilities started to fall owing to prudent management strategies.

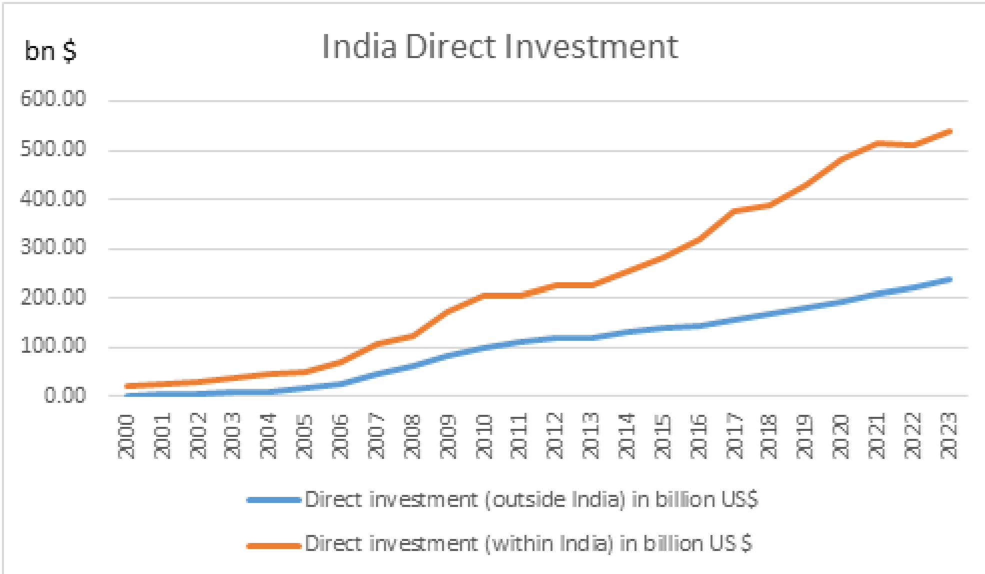

Figure 4-13: Direct investment outside India and direct investment within India (in bn US $) (International Monetary Fund, 2024)

As we can see from the graph, direct investment within India by foreigners is way higher than direct investment outside India by Indian investors. This is due to availability of cheap skilled labour in India, favourable investment policies like SEZs and tax rebates on investment, potential of economic growth in India and improved infrastructure.

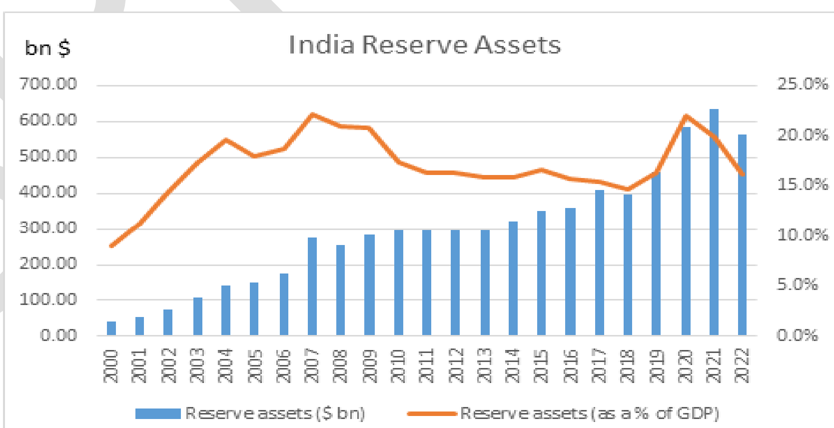

Figure 4-14: India's reserve assets and reserve assets as percentage of GDP (International Monetary Fund, 2024)

Reserve assets are those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing). They include gold and tradeable foreign currencies. The same are invested in low yielding Treasuries abroad.

Trends:

There was a steady growth in the reserve assets till 2007 but they declined in 2008 due to the Global Financial Crisis. In the following years, there was growth despite the COVID 19 pandemic. This was due to the reduced demand for imports during the pandemic. Also, the US Federal Reserve pumped liquidity into the global economy, leading to inflows into emerging markets, including India.

However, the assets declined in 2022 due to a rise in oil prices as a result of the Russia-Ukraine war. The Indian rupee experienced depreciation in 2022 due to a stronger US dollar and capital outflows. (Bank, 2024)

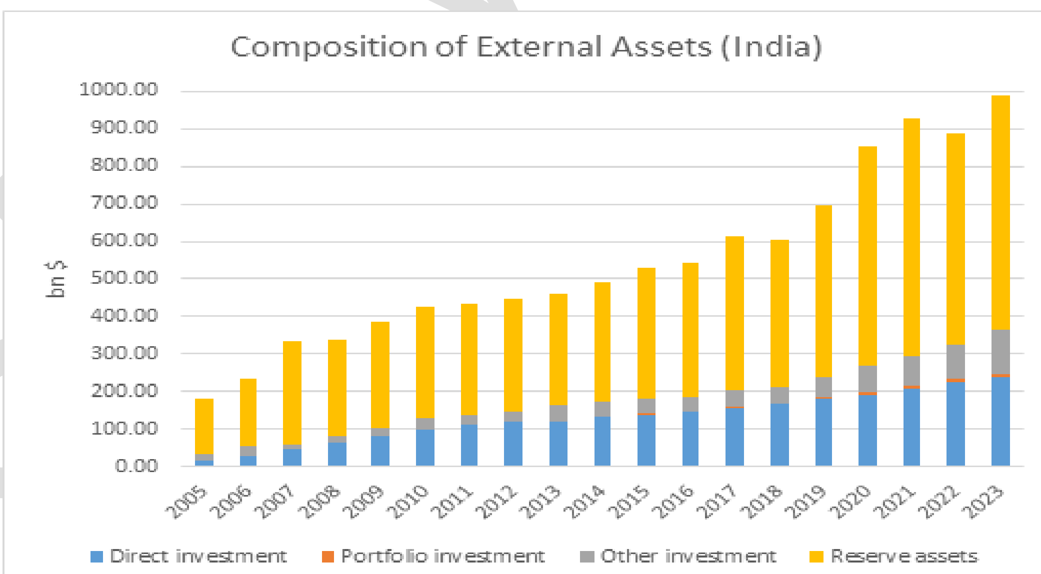

Figure 4-15: Composition of external assets of India (in bn $)

(International Monetary Fund, 2024)

There is a steady growth in direct investment over the years in India. This can be attributed to our industrial growth. There has been significant and consistent growth in reserve assets due to accumulation of a large stock of foreign currency and gold. There was a dip in 2008 due to the Global Financial Crisis. Portfolio investment makes up a very small portion of the total assets. Portfolio investments form a smaller portion of the external assets because it is riskier and less stable than direct investments or reserves.

Other investments include external debt and banking sector liabilities, which are influenced by global liquidity, India's creditworthiness, and economic policies regarding capital inflows. That’s why there is no trend in other investments.

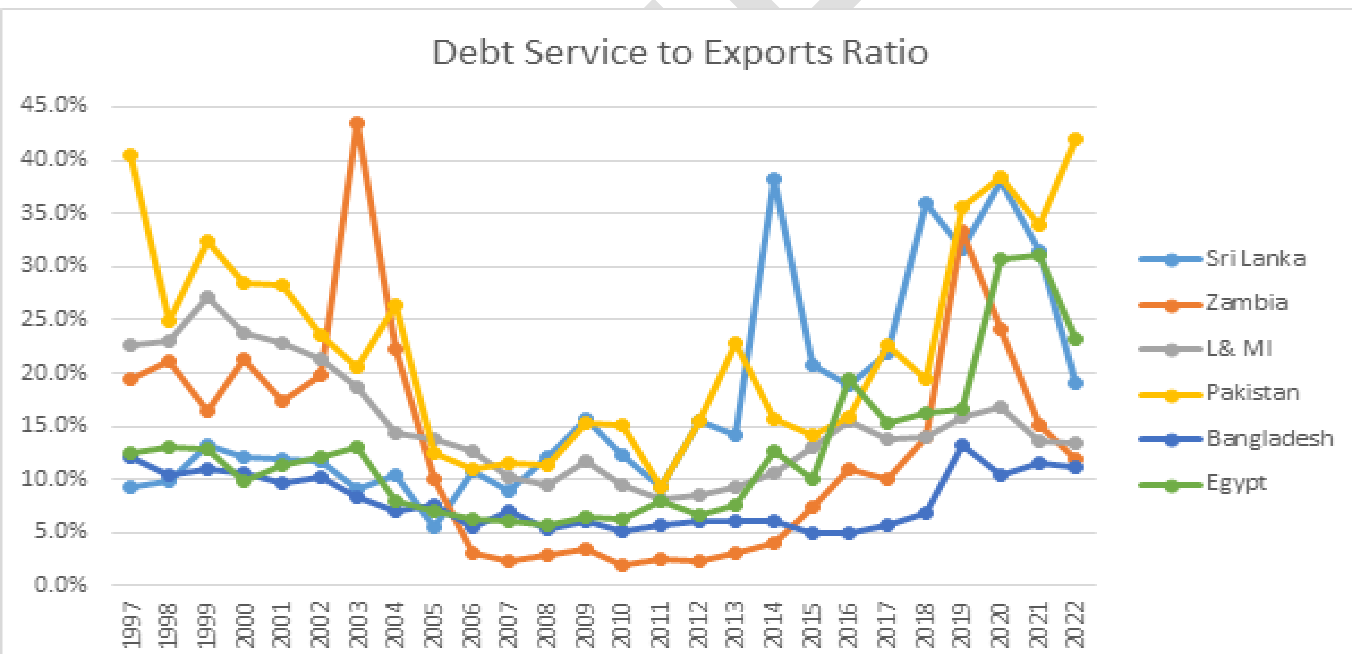

Figure 4-16: Debt service to export ratio of Sri Lanka, Zambia, Pakistan, Bangladesh, Egypt and other Low- and middle-income countries.

(World Bank, 2024)

The given graph shows the Total debt service as % of exports of goods, services and primary income of the countries mentioned.

Looking at the general trend, all the lines are going through a peak before 2007, following which is a period of low debt service ratio. The ratios again rose up after 2013. This is shown by the graph of Low- and Middle-Income countries.

Reason: The period of low debt service ratio between 2007 and 2013 can be explained by the fact that after the Global Financial Crisis of 2007-08, The Federal Reserve lowered the interest rates to pump in money in the economy. As a result, many developing nations started obtaining loans from the US as they got it at a lower interest rate. Consequently, the debt servicing was low and hence a lower debt service ratio. After 2013, the Fed started increasing the interest rate as the US economy had recovered from the Financial Crisis. Hence, the debt service ratio began to increase.

Country-Wise Analysis

Sri Lanka: There are a lot of fluctuations in the graph of Sri Lanka. The ratio peaked in 2014 at 38.2%. This was due to many factors such as fall in value of the Sri Lankan Rupee, decline in exports (textile and tea industries) and maturities of previous borrowings. The Civil War in Sri Lanka concluded in 2009 (another year of high debt service ratio), after which the country needed to carry out infrastructure development activities. Hence, borrowing rose which resulted in increase in debt service. (Mohammad Zubair Khan)

The ratio declined in 2022 as the country's foreign reserves declined and it was unable to service debt on foreign loans.

Zambia: It is evident from the graph that debt service ratio in Zambia peaked in 2003 at 43.5% and eased after that till 2014.

Zambia's exports have been dominated by the Copper industry. Historically, Copper mining was the most lucrative business in Zambia due to the high demand of copper overseas. Around

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2003, copper prices collapsed due to which the money from exports fell down. Hence the debt service ratio increased.

Although Zambia had qualified for support under the HIPC initiative, it only reached the completion point in 2005. Therefore, it had to service debt before 2005 without the benefit off HIPC.

Pakistan: From the graph, it can be seen that the debt service ratio of Pakistan was 40.6% in 1997. A devaluation of 8.5 percent in Pakistani rupee and fiscal measures amounting to 1.5 percent of GDP may be the reason for increase in debt service. (Mohammad Zubair Khan)

Again, in 2022, debt service was high. Amid the COVID-19 pandemic, the catastrophic 2022 floods, political instability and macroeconomic volatility, the Pakistani government had to borrow more which resulted in more debt service. (The World Bank in Pakistan , 2024)

Bangladesh: Bangladesh's graph has remained more or less consistent at a low debt service ratio. Bangladesh has a strong track record of growth and development, even in times of elevated global uncertainty. Despite uncertainties and frequent natural disasters, Bangladesh has witnessed robust economic growth and poverty reduction since its independence in 1971.

Egypt: Leveraging large-scale investments and financing, Egypt undertook monetary and exchange rate adjustments to address the foreign currency crisis. The Central Bank of Egypt (CBE) allowed the Egyptian pound to depreciate with respect to the dollar. This may be the reason for the high debt service ratio in 2021. (The World Bank in Egypt, 2024)

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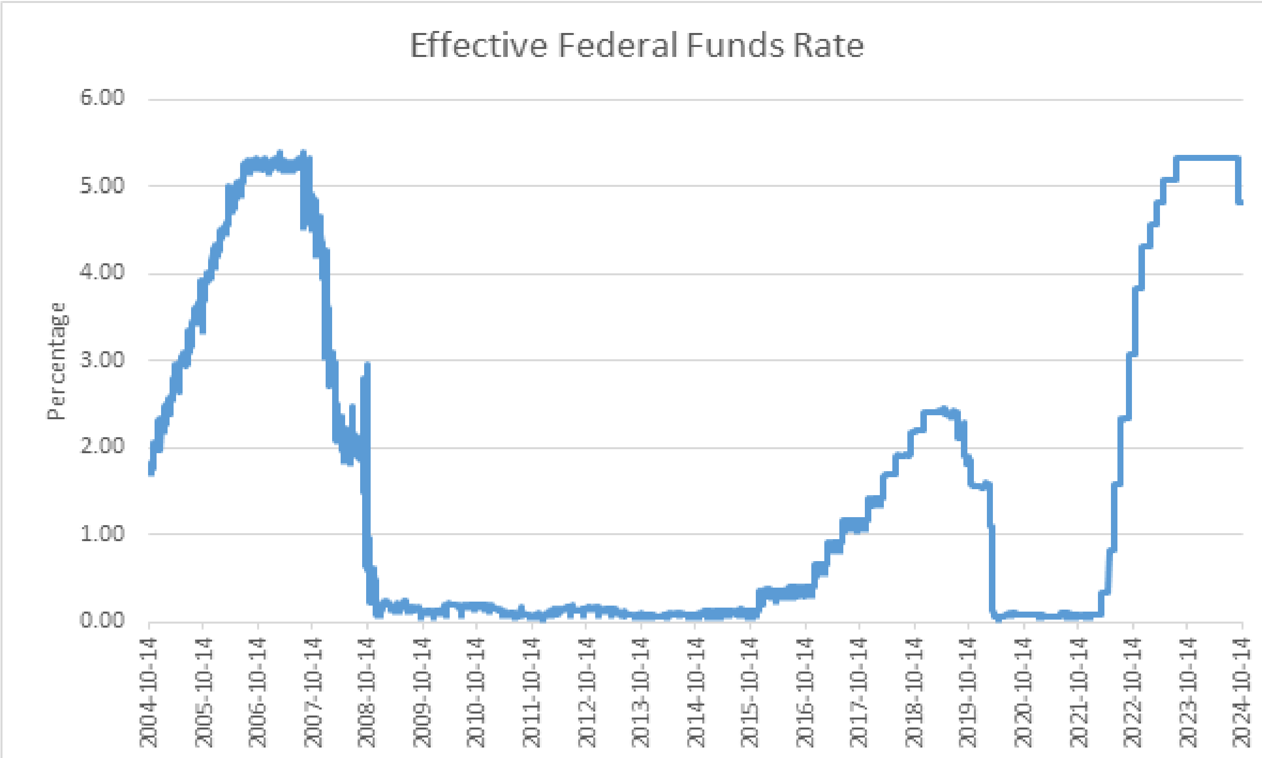

Figure 4-17: Effective federal funds rate (in percentage)

(ST. LOUIS FED, 2024)

The federal funds rate is the interest rate at which depository institutions trade federal funds (balances held at Federal Reserve Banks) with each other overnight. The rate that the borrowing institution pays to the lending institution is determined between the two banks; the weighted average rate for all of these types of negotiations is called the effective federal funds rate.

The graph shows the variation of Effective Federal Funds Rate from 2004 till 2024. It is evident from the graph that the interest rate fell down after the year 2007 and went further down after 2008. This was a consequence of the Global Financial Crisis. After the crisis, The Fed had to cut down interest rate in order to promote consumption and pump liquidity into the economy. Hence, the interest rates were near zero following the year 2008. (ST. LOUIS FED, 2024)

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The US economy improved after 2015 and hence The Fed increased the interest rate in order to keep the inflation level within the target range.

Around 2020, we can see a dip in the graph which is a result of the COVID 19 pandemic. Business closures, event cancellations, and work-from-home policies—triggered a deep economic downturn. In order to limit the economic damage, The Fed cut its target for federal funds rate by a total of 1.5 percentage points at its meetings on March 3 and March 15, 2020. These cuts lowered the funds rate to a range of 0% to 0.25%. As the pandemic concluded, the federal funds rate rose again.

Conclusion

To conclude, the need for reform in the global debt architecture is more urgent than ever, particularly for developing countries facing unsustainable debt burdens exacerbated by external shocks such as the COVID-19 pandemic and the climate crisis. There are many challenges associated with obtaining debt by developing countries. As evident from the graphs, developing countries like India and Brazil have significantly more liabilities than assets. Their investments outside the country are way lower than those made by foreigners in the country. Developing countries are at a disadvantage because most of the loans are taken in dollars. There are exchange rate changes due to which these countries have to pay more. Current debt workout mechanisms, such as the Debt Service Suspension Initiative (DSSI) and G20 Common Framework, have provided temporary relief but have proven inadequate for long-term development needs. Transforming the global financial system to better align with sustainable development requires increased concessional finance, enhanced transparency, and coordinated global efforts to create a more inclusive and resilient debt management framework. A multi-faceted approach that combines international cooperation with robust domestic policies is necessary to create a more equitable global financial system. In doing so, we can ensure that developing nations can pursue essential goals such as healthcare, education, and infrastructure without being crippled by debt.

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The proposed reforms aim to establish a debt ecosystem that promotes responsible lending, timely debt relief, and the long-term resilience of vulnerable economies, safeguarding their development trajectory amidst future crises.

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CHAPTER 5 CHINESE BANKING SYSTEM & THE G-SIBS

Overview on the History of Banking in China

1. Early 20th Century: The Emergence of Modern Banking (1900-1949)

Modernization Efforts: In the early 20th century, China saw the emergence of more formal banks, influenced by Western banking practices. The establishment of the Bank of China (BOC) in 1912 and the Bank of Communications (1908) marked the beginning of China's modern banking industry. These banks aimed to support industrialization and handle foreign trade.

Foreign Banks: During this period, foreign banks, particularly from Britain, Japan, and Russia, dominated much of the trade finance and international banking in China, especially in port cities like Shanghai.

Chaotic Political Landscape: The banking system struggled during periods of warlordism and political instability, particularly during the Chinese Civil War (1927–1949) between the Nationalists (Kuomintang) and the Communists.

2. Post-1949: State Control and the Socialist Economy

Nationalization of Banks: After the establishment of the People's Republic of China (PRC) in 1949, the Communist government nationalized all private banks. The central government established the People's Bank of China (PBoC) in 1948 as the country's central bank. It was responsible for controlling currency issuance, supervising state-owned banks, and managing monetary policy.

Planned Economy: During the Maoist period, China operated under a planned economy, and banks primarily functioned as tools of the state. The banking system was tightly controlled, and all financial transactions were aimed at supporting government economic plans, such as the Great Leap Forward (1958–1962) and Cultural Revolution (1966–1976).

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Monopoly of the PBoC: The People's Bank of China held a monopoly over all banking activities until the late 1970s. Before the late 1970s, the People's Bank of China (PBC) functioned as both the central bank and a commercial lender, effectively holding a monopoly over the entire Chinese banking system. The PBC controlled all financial activities, handling everything from issuing currency to lending to state-owned enterprises. There were no separate commercial banks at the time, and all economic transactions were tightly regulated by the state under a planned economy.

Banks did not engage in commercial activities; instead, they managed state funds and administered policies.

3. Reforms and Opening Up (1978-Present)

Economic Reforms Under Deng Xiaoping: The economic reforms initiated by Deng Xiaoping in 1978 paved the way for the transformation of China's banking sector. The focus shifted towards building a market-oriented economy, which required the establishment of commercial banking services.

Separation of Central and Commercial Banking: In the 1980s, China began to restructure its banking system. The People's Bank of China was made the central bank, while four major state-owned commercial banks were created:

i) Industrial and Commercial Bank of China (ICBC) – corporate banking

ii) Bank of China (BOC) – international trade

iii) Agricultural Bank of China (ABC) – rural development

iv) China Construction Bank (CCB) – infrastructure financing

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Rise of Private and Foreign Banks: The 1990s saw the introduction of smaller private banks and the entry of foreign banks into China. The government allowed joint ventures between Chinese and foreign financial institutions as part of its efforts to integrate with the global economy.

Modern Financial Reforms: From the 1990s onward, China has undertaken extensive reforms to liberalize the banking sector, including recapitalization of state-owned banks, promoting private banking, and gradually opening the financial system to foreign investors. Reforms also focused on improving risk management, expanding financial services, and regulating non-performing loans (NPLs).

Evolution of the Modern Chinese Banking System

Dominance of the People's Bank of China (PBC): Prior to the late 1970s, the PBC held a monopoly over the banking sector, functioning as both a central bank and commercial lender.

Emergence of Specialized Banks: The 1970s saw the establishment of specialized banks (ABC, BOC, CCB, and ICBC) to handle specific sectors, marking the beginning of commercial banking in China.

Commercialization and Reform: In the 1980s and 1990s, Chinese banks underwent commercialization, with the "Big Four" becoming state-owned commercial banks.

Non-Performing Loans (NPL) Crisis: Excessive lending to state-owned enterprises and the real estate and stock market bubbles of the early 1990s led to a severe NPL crisis, with the NPL ratio exceeding **30%** for the large state-owned banks.

Government Intervention: To address the NPL crisis, the Chinese government injected **US$33 billion** of capital into the Big Four banks and established asset management companies (AMCs) to handle bad loans.

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What are GSIBs?

In November 2011, the Financial Stability Board (FSB) published an integrated set of policy measures to address the systematic risk and moral hazard associated with systemically important financial institutions. It identified an initial group of Global Systemically Important Banks (G-SIBs), using a methodology developed by the Basel Committee on Banking Supervision (BCBS). The list of G-SIBs is updated every November.

A financial institution whose distress or disorderly failure, because of its size, complexity and systematic interconnectedness would cause significant disruption to the wider financial system and economic activity and is therefore subject to additional capacity buffers and increased supervisory scrutiny.

History of the Chinese GSIBs

1. Industrial and Commercial Bank of China (ICBC)

- **Founded**: 1984
- **Early Focus**: Initially established to manage China's industrial and commercial banking needs.
- **Growth**:
    - ICBC benefited from China's rapid economic growth during the **reform and opening-up era** in the 1980s and 1990s.
    - The bank expanded its operations, becoming the largest in China and globally in terms of total assets.
- **Global Expansion**:
    - ICBC's **2006 IPO** was the largest in history at the time, signaling its move toward international markets.
    - It established a global presence with branches across Asia, Europe, and the Americas.

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- **Today**: ICBC is the largest of China's Big Four banks, and it plays a significant role in international finance, offering services ranging from retail banking to investment banking.

2. China Construction Bank (CCB)

- **Founded**: 1954
- **Early Role**:
  - Originally focused on **infrastructure financing**, CCB played a key role in funding China's urbanization and large-scale construction projects.
- **Modernization and Expansion**:
  - In the 1990s, as China restructured its economy, CCB diversified its services beyond construction financing into corporate and retail banking.
  - In **2005**, CCB went public with an IPO on the **Hong Kong Stock Exchange**, marking the beginning of its global expansion.
- **Current Status**:
  - Today, CCB is a leading player in China's infrastructure financing and has a significant global footprint in corporate and investment banking.

3. Agricultural Bank of China (ABC)

- **Founded**: 1951
- **Initial Mission**:
  - Established to serve the **rural and agricultural sectors** of China, providing financial support to farmers and rural businesses.
- **Growth and Modernization**:
  - Over the years, ABC expanded its scope to include a wide range of commercial banking services.
  - ABC's **2010 IPO** was one of the largest in history, with dual listings in **Shanghai** and **Hong Kong**.

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- **Global Presence**:
  - Although it started with a focus on rural China, ABC now has a growing international presence, especially in regions involved in agriculture and infrastructure.
  - The bank remains a crucial institution for rural financial services in China but has diversified its operations.

4. Bank of China (BOC)

- **Founded**: 1912
- **Historical Significance**:
  - BOC is the oldest of the Big Four and was originally established to replace the Imperial Bank of China.
  - It played a central role in **international trade financing** during China's early years of economic development.
- **Global Expansion**:
  - BOC was the first Chinese bank to set up overseas branches, starting its international presence early in the 20th century.
  - The bank has since become one of the most **internationally focused Chinese banks**, supporting China's foreign trade and overseas investments.
- **Key Milestones**:
  - BOC has continued to evolve, expanding its presence in Europe, North America, and Africa, aligning with China's increasing global economic presence.

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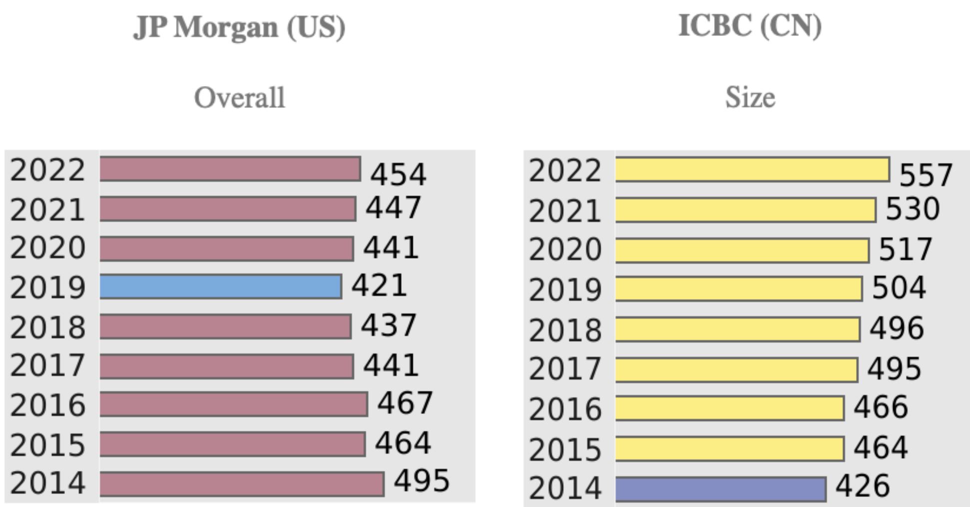
G-SIBs Scoring Criteria

The methodology used by the Basel Committee on Banking Supervision for identifying G-SIBs can be classified into 12 indicators that are further grouped in five categories: size, interconnectedness, substitutability, complexity, cross jurisdictional activity.

Under the Basel methodology, five risk categories determine the G-SIB score.

Size: The failure of a larger bank is harder to resolve and can have a broader impact on the financial system. Size is measured using a single indicator of a bank's total exposures, which includes derivatives, securities financing transactions, and off-balance-sheet exposures.

JP Morgan has the highest overall score as of November 2022. ICBC is the highest scoring bank in terms of size.



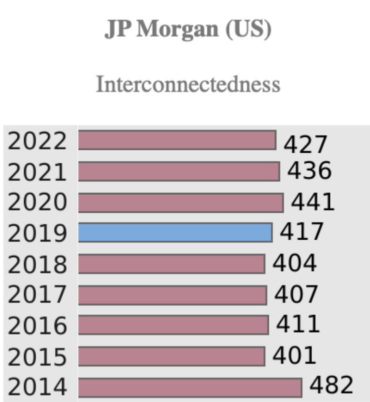
Interconnectedness: A bank with a more extensive network of contractual obligations within the financial system can accelerate the spread of a financial shock. Interconnectedness is measured by three indicators: intra-financial system assets, intra-financial system liabilities, and securities issued by the bank.

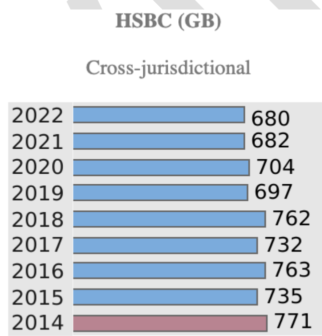
Substitutability: A bank is more systemically important if it provides a service that would be difficult to replace if the bank were no longer able to provide that service. Prior to 2022, three indicators go into the measure of substitutability: payments activity, assets under custody, and underwriting activity. Beginning in 2022, a fourth indicator – trading volume - was added to the substitutability measure. The substitutability measure is capped at <u>500</u> in calculating the overall score.

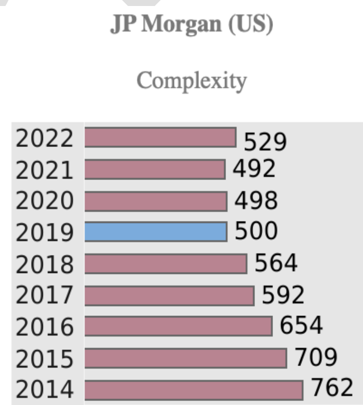
Complexity: A bank with more complex operations can be more difficult to resolve, and its failure could have a broader impact within the financial system. Complexity is measured by three indicators: a bank's notional amount of over-the-counter derivatives, its trading and available-for-sale securities, and its illiquid and hard-to-value assets.

Cross-Jurisdictional Activity: The failure of a bank with international operations requires cross-border coordination to resolve and can have a far-reaching impact. Cross-jurisdictional risk is measured through two indicators: the bank’s cross-jurisdictional claims and its cross-jurisdictional liabilities.

JP Morgan has the highest under the criteria of interconnectedness, substitutability and complexity whereas HSBC has the highest score for cross-jurisdictional activity.







GSIBs Risk Buckets

G-SIBs fall into five risk buckets, bucket 1 being the lowest and bucket 5 being the highest. The higher the score, the greater is the risk of the failure of the particular bank spreading to the global economy. Each bucket score corresponds to the additional capital buffers the banks are required to keep. This capital buffer is to ensure that the banks have enough financial resources to not have to resort to tax-payer bailouts during a crisis.

Bucket division as per G-SIB scores:

Bucket 5 (+3.5% CET1)   530-629

Bucket 4 (+2.5% CET1)	430-529
Bucket 3 (+2.0% CET1)	330-429
Bucket 2 (+1.5% CET1)	230-329
Bucket 1 (+1.0% CET1)	130-229

List of Global Systemically Important Banks

The last available list from the FSB, as of November 2023, includes these G-SIBs that are required to have more than 1.0% in additional capital buffers:[1]

- JPMorgan Chase & Co., 2.5%
- Bank of America (BAC), 2.0%
- Citigroup (C), 2.0%
- HSBC Holdings (HSBC), 2.0%
- Agricultural Bank of China (ACGBY), 1.5%
- Bank of China (BACHY), 1.5%
- Barclays (BCS), 1.5%
- BNP Paribas (BNP), 1.5%
- China Construction Bank (0939.HK), 1.5%
- Deutsche Bank (DB), 1.5%
- Goldman Sachs (GS), 1.5%
- Industrial and Commercial Bank of China (IDCBY), 1.5%
- Mitsubishi UFJ FG (MUFG), 1.5%
- UBS Group (UBS), 1.5%

Importance of Chinese G-SIBs

It becomes important to study the rise of Chinese G-SIBs when researching the global financial sector in the first quarter of the current century because of the growing influence of China in the world of banking. Rise of the Chinese economy to become the second largest in the world has significantly increased the influence of its banks globally which have grown to become big players in the international financial markets, shaping capital flows, investment patterns and financial stability worldwide.

This rise can be observed through China's integration in the global economy, the Belt and Road Initiative (BRI), and efforts to internationalize its currency. In the context of the first quarter of the current century, examining the ascent of Chinese G-SIBs is crucial for understanding how emerging markets influence global finance, how financial power is redistributed, and how international cooperation and regulatory frameworks adapt to these changes.

Chinese Banks: Achieving G-SIB status

The global financial landscape has witnessed a significant shift over the past two decades, characterized by the rise of Chinese banks to Global Systemically Important Banks (G-SIBs). Institutions such as Industrial and Commercial Bank of China Ltd., China Construction Bank Corp., Agricultural Bank of China Ltd. Bank of China Ltd. and Bank of Communications Co. have not only grown in size and influence but have also adopted strategies that propelled them onto the global stage. The data provided shows the scores of Chinese Global Systemically Important Banks (G-SIBs) from 2014 to 2023, reflecting their evolving systemic importance. The **Industrial and Commercial Bank of China (ICBC)** demonstrates a consistent upward trend, starting from a score of 181 in 2014 and reaching 306 in 2023, with only a slight drop in 2022. The **Agricultural Bank of China** displays more variability, increasing from 132 in 2014 to 235 in 2023, with notable dips, such as from 191 in 2016 to 176 in 2017, but recovering steadily afterward. The **China Construction Bank** shows a rise from 157 in 2014 to 249 in 2023, with peaks in 2016 and 2023, and some fluctuation in between. The **Bank of Communication** only appears in 2023 with a score

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of 134. Meanwhile, the **Bank of China** consistently grew from 182 in 2014 to 288 in 2023, with significant increases in 2018-2019 and minor fluctuations between 2021 and 2023. Overall, the trend for most of these banks is one of increasing global systemic importance, though certain years reflect temporary declines or stagnations for some banks.

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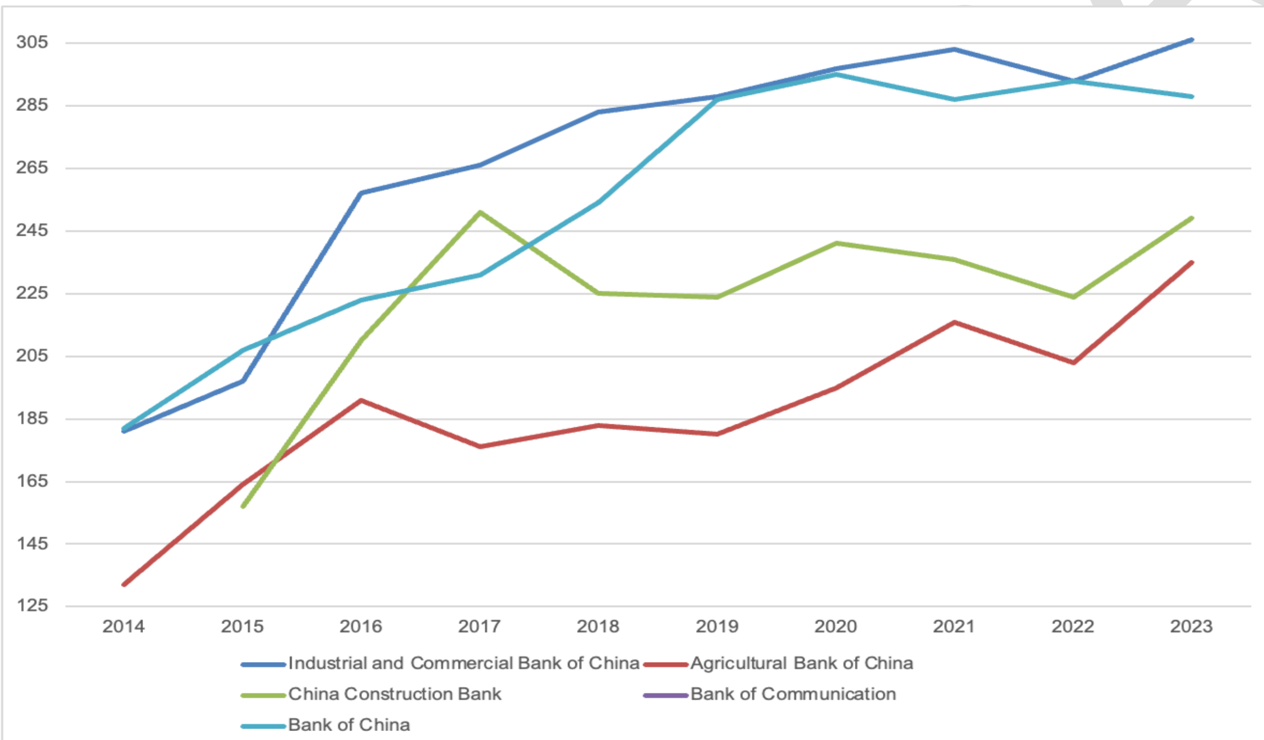
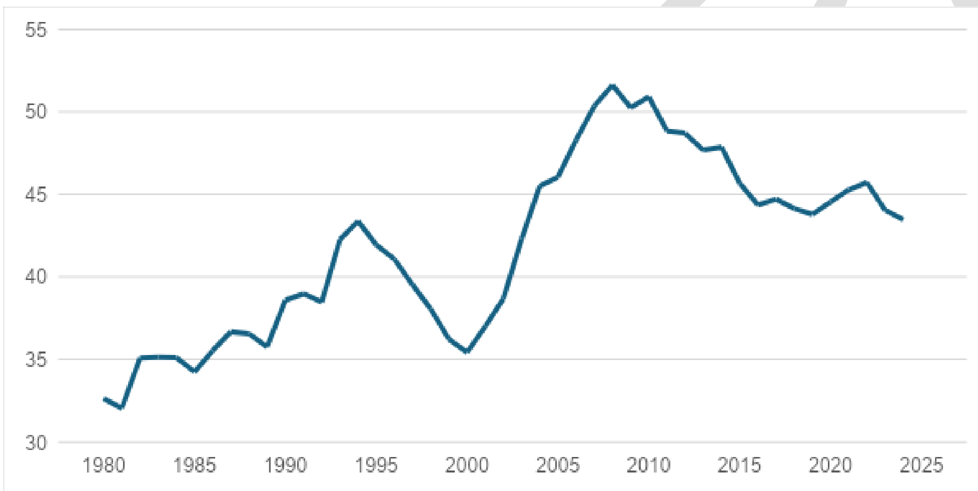


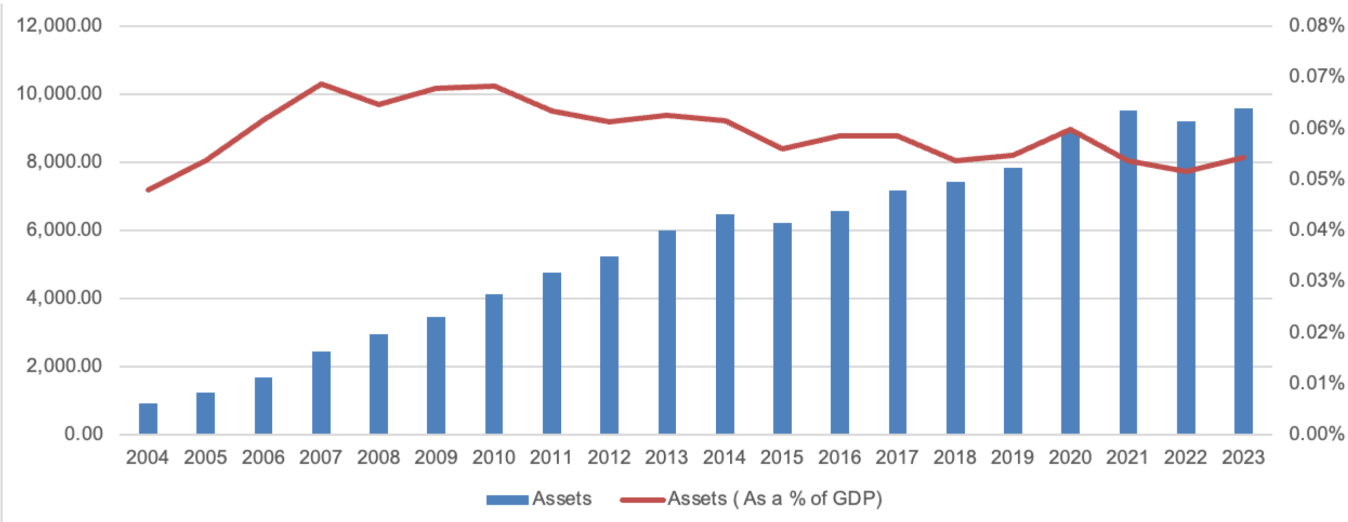
*Chinese Banks G-SIB Scores (2014-2023); **Source:** Office of Financial Research*

The cross-jurisdictional activity scores of Chinese G-SIBs are relatively lower, with the Agricultural Bank of China standing at a low score of 42, Bank of Communications at 53, China Construction at 63, Industrial and Commercial Bank of China at 137 and Bank of China at 262, whereas giants like JP Morgan stand at a hefty cross-jurisdictional activity score of 410 and HSBC at 680. Much of the gains of Chinese banks' G-SIB scores are because of their large size (one of the factors used while scoring G-SIBs). The scores of other elements, such as complexity, cross-jurisdictional activity and non-substitutability, which indicate the difficulties of coordinating resolution and the spillover effects from any failure, are still markedly lower than many other G-SIBs of similar ranks from the U.S., Europe and Japan. But the interconnectedness activity scores have increased quite significantly with the Industrial and Commercial Bank of China's interconnectedness activity score having spiked from 320 in 2019 to 406 in 2023, having started with a score of 234 in 2014.



*Gross National Savings (1980-2024); **Source:** World Economic Outlook Database*

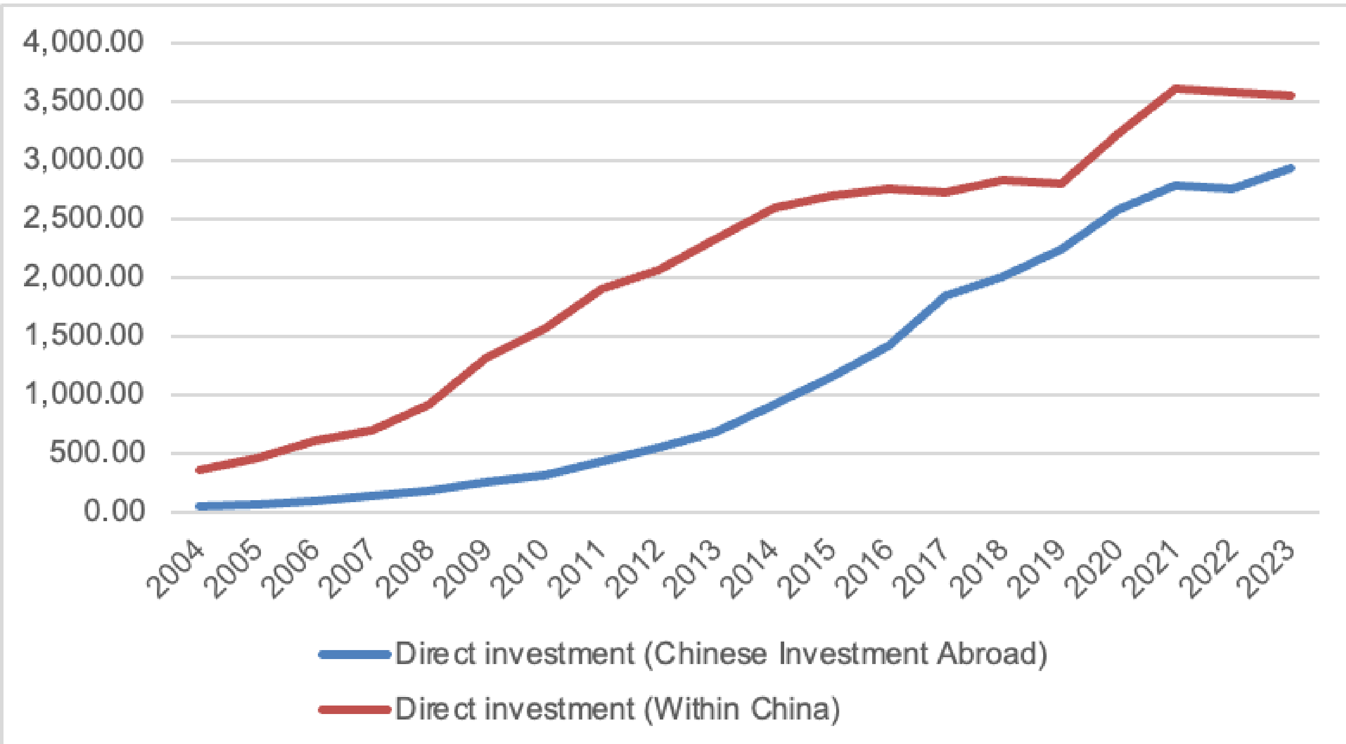
China's rapid economic growth has been a fundamental driver behind the rise of its major banks. The country's transition from a centrally planned economy to a market-oriented one resulted in unprecedented economic expansion, averaging around 10% annual GDP growth for several decades. This economic boom created a fertile ground for the banking sector to flourish. Chinese banks tapped into the high domestic savings rate, mobilizing vast amounts of capital. This accumulation of deposits provided a stable funding base, enabling banks to expand their lending activities. Chinese government's focus on infrastructure development and urbanization spurred demand for financing. Chinese banks played a pivotal role in funding large-scale projects, thereby embedding themselves deeply into the fabric of the national economy.



Assets (2004-2023) in Billion USD; ***Source:*** *IMF*

The graph illustrates the trends in assets from China's international investment portfolio between 2004 and 2023, measured in $ billion and as a percentage of GDP. Over the years, the assets have shown a steady increase, with significant growth especially after 2008. The total assets rise from really low levels in 2004 to over 10000 Billion USD by 2020, remaining relatively stable at this level through 2023.

The line representing assets as a percentage of GDP follows a different pattern. It climbs steadily until around 2008, peaking near 80%, but then fluctuates between 50% and 70% over the subsequent years. This trend indicates that while the total asset value has consistently increased, its share relative to GDP has been more volatile. The percentage of GDP experienced several drops, notably after 2014, with a slight recovery in 2020, but it did not reach the previous peaks. This suggests that while China's international investment portfolio has grown, its pace relative to GDP has varied, possibly due to broader economic fluctuations.



Foreign Direct Investment (2004-2023) in Billion USD; ***Source:*** *IMF*

The graph illustrates the trends in Foreign Direct Investment (FDI) related to China from 2004 to 2023, tracking both Chinese investment abroad and FDI within China in million USD.

- **Direct Investment within China** (represented by the red line) shows a steady increase from 2004, rising sharply after 2009. It reached a peak around 2021, nearing 3.5 trillion USD, before experiencing a slight decline in 2022 and leveling off in 2023. This indicates sustained growth in foreign investments entering China, peaking during the early 2020s as

China remained an attractive investment destination, though the recent dip suggests some challenges or shifts in investment patterns.

- **Chinese Investment Abroad** (represented by the blue line) starts at a lower level compared to FDI within China but grows steadily from 2004. By 2015, the trend accelerates significantly, with Chinese outbound investments rising sharply to cross the 3 trillion USD mark by 2023. This reflects China's increasing role as a global investor, with a noticeable upward trajectory, suggesting that China's economic influence abroad has strengthened considerably over the years.

Overall, both trends point to China's growing integration into the global economy, with substantial growth in outbound investments indicating China's shift towards becoming a major global economic player. Meanwhile, the plateauing of FDI within China in recent years suggests potential changes in global investment sentiment or domestic policy shifts.

The Chinese government's strategic support and regulatory reforms were instrumental in the ascent of its banks. The state-owned nature of major Chinese banks ensured that they benefited from policy support and favourable regulatory conditions.

The Chinese government recapitalized major banks, improving their financial health. Subsequent public listings on domestic and international stock exchanges enhanced their capital base and global visibility. Chinese regulatory authorities implemented stringent regulatory frameworks to ensure financial stability. These measures included capital adequacy requirements, risk management protocols, and stress testing, which fortified the banks' resilience. Chinese banks pursued an internationalization strategy by establishing branches and subsidiaries abroad. This expansion was often supported by bilateral trade agreements and China's Belt and Road Initiative (BRI), which provided opportunities for overseas lending and investment.

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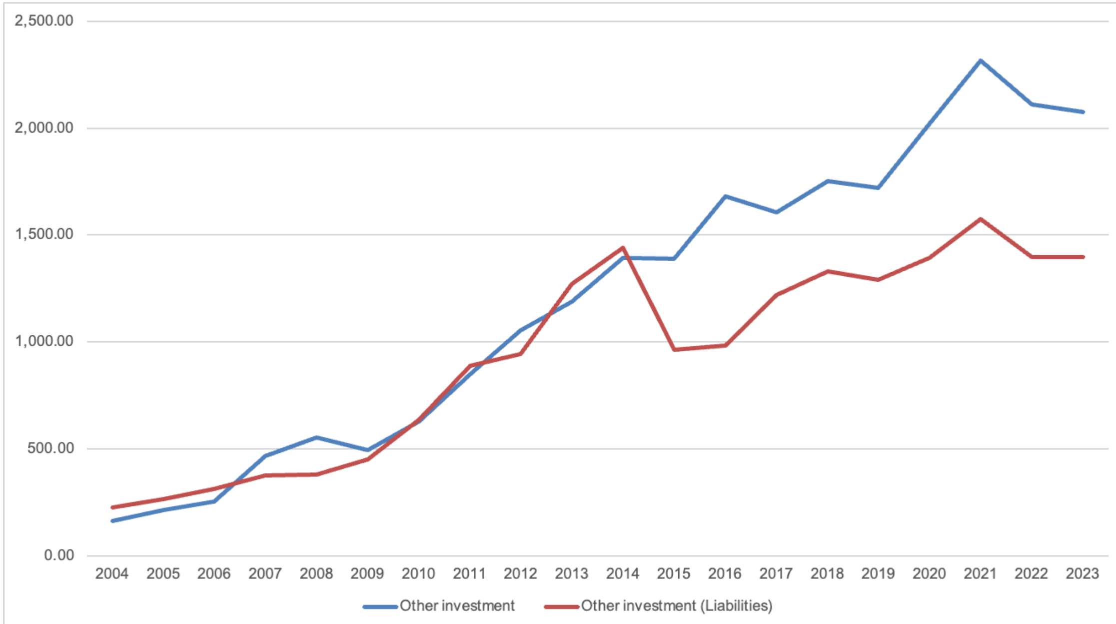


Other Investment (Assets and Liabilities) (2004-2023) in Billion USD; ***Source:*** *IMF*

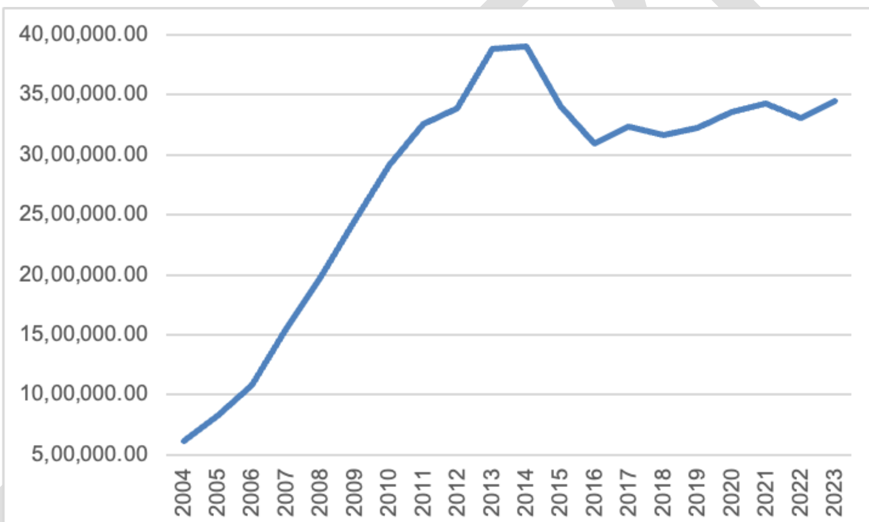
The graph depicts the trends in "Other Investment" as part of assets and liabilities in China from 2004 to 2023, as reported by the IMF.

From 2004 to 2008, both asset and liability investments show a gradual and steady increase, reflecting China's growing engagement in international financial activities. During the global financial crisis of 2008-2009, the assets dip slightly but quickly recover, outpacing liabilities from 2010 onwards. This suggests that China increased its foreign asset holdings more aggressively than its liabilities.

Between 2013 and 2014, liabilities experience a significant drop, potentially due to regulatory tightening or external financial pressures. However, from 2015 to 2019, both asset and liability investments grow in tandem, although assets continue to lead. The growth in assets outpaces liabilities, indicating that China is increasingly holding more external financial assets relative to its liabilities.

Post-2020, there is a peak in asset investments, followed by a slight decline, which could be attributed to the global economic uncertainties brought on by the COVID-19 pandemic and subsequent recovery measures. Liabilities, on the other hand, remain more stable but display some fluctuations, reflecting possible adjustments in international borrowing or investment flows into China.

Overall, the data showcases China's expanding role in global finance, with a notable focus on growing its external assets, though both assets and liabilities show volatility due to global economic conditions.



Reserve Assets (2004-2023) in Million USD; ***Source:*** *IMF*

Between 2004 and 2013, China's reserve assets experienced a rapid and sustained increase, reflecting the country's significant accumulation of foreign exchange reserves. This growth aligns with China's booming export economy, large trade surpluses, and active management of its currency during this period. By 2013, reserve assets peaked at around $4 trillion, marking the highest point in the data.

However, post-2013, there is a noticeable decline in reserve assets, particularly between 2014 and 2016. This decline may be attributed to capital outflows, efforts to stabilize the yuan, and China's strategic use of reserves to manage economic risks during this period of economic transition and global financial volatility. These reserves have been held so that it does not fall to the caprices of international finance capital. However, here, now they might not be as keen, they are keen on lending abroad, so their other investments have been on the rise, they are interested in doing direct investment abroad, therefore the direct investment assets abroad are on the rise.

From 2017 onwards, the reserve assets stabilize, showing relatively less volatility compared to the previous decade. Although the reserve levels do not return to their peak, they remain substantial, fluctuating between $3 trillion and $3.5 trillion, suggesting that China continues to maintain a robust level of reserves. This stabilization likely reflects China's efforts to balance economic growth, manage capital flows, and ensure financial stability in a more complex global economic environment.

Overall, the trend shows China's transition from aggressive accumulation of reserves to a more measured approach, focusing on maintaining sufficient reserves to manage economic risks and support financial stability.

The graphs showing China's international investment portfolio, foreign direct investment (FDI), and reserve assets directly relate to the expansion and evolving dynamics of China's financial sector. The steady increase in total assets and the significant rise in outbound FDI highlight the growing global footprint of Chinese financial institutions, particularly the large state-owned banks. This outward investment aligns with the increased global systemic importance of Chinese banks, as they accumulate more foreign assets and play a larger role in international finance.

On the domestic side, the rise in FDI within China, peaking around 2021, indicates the financial sector's role in attracting and managing large volumes of foreign capital, reflecting confidence in the stability and growth prospects of Chinese financial institutions. However, the recent plateau in FDI and the fluctuations in assets as a percentage of GDP suggest that the financial sector faces challenges in maintaining the same level of growth relative to the broader economy.

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The trends in "Other Investment" (assets and liabilities) demonstrate China's increased foreign asset accumulation relative to liabilities, underscoring the financial sector's focus on expanding its global assets base. This expansion is critical for Chinese banks, as it enhances their global influence and interconnectedness, key factors in their systemic importance. The stability of reserve assets in recent years also reflects the sector's role in maintaining financial stability amid global uncertainties, further supporting the resilience and growth of Chinese financial institutions on the global stage.

Conclusion

Chinese G-SIBs, including ICBC, CCB, ABC, and BOC, have transformed from national banking institutions into global financial powerhouses. Their rise has been driven by China’s economic expansion, strategic international investments, and government support.

Despite challenges such as asset quality risks and increased regulatory scrutiny, these banks continue to shape global finance, playing a pivotal role in international trade, infrastructure projects, and the Belt and Road Initiative. As Chinese banks expand their global reach, their influence on global financial stability would raise new concerns and they could contribute to the financing of economic development.

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CHAPTER 6 SVB AND SIGNATURE BANK CRISIS: BANKING CRISIS IN THE USA AFTER THE GFC

Introduction

The successive collapse and bank runs on Silicon Valley Bank and Signature Bank in March 2023 were, at the time, the second-largest and fourth-largest bank failures in the history of the United States since 1934. Both banks were highly reputed and their sudden collapse came in the light of the 2021-22 inflation spike, causing great ramifications to the economy and triggering unease among the depositors.

Historical Context and Pre-Collapse Conditions

To understand the gravity of these collapses, it is crucial to look at the historical contexts that shaped the operations of Silicon Valley Bank and Signature Bank:

> Silicon Valley Bank was founded in 1983 as a subsidiary of Silicon Valley Bancshares by Bill Biggerstaff and Robert Medearis. The primary focus of the bank was to cater to emerging startups and gain credibility in the venture capital community. The bank initially structured its loans with the understanding that startups do not earn revenue immediately. SVB diversified into high-risk real-estate loan business in the 1990s, and the wave of technology startups in the 2000s created a niche for the bank to focus on and thrive in. Throughout the early 2000s, the bank continued to expand into private banking and international trade.
>
> In December 2022, the bank had around $15 billion in unrealized losses. Weeks before its collapse, Silicon Valley Bank was ranked 20th in the list of Best American Banks and it was highly influential in the startup and innovation industry, where 24% of the depositors in the bank were startup companies and 14% were high net-worth individuals. It

was also ranked as a high-performing bank by Moody's Investor Services with a 13.8% return on equity.

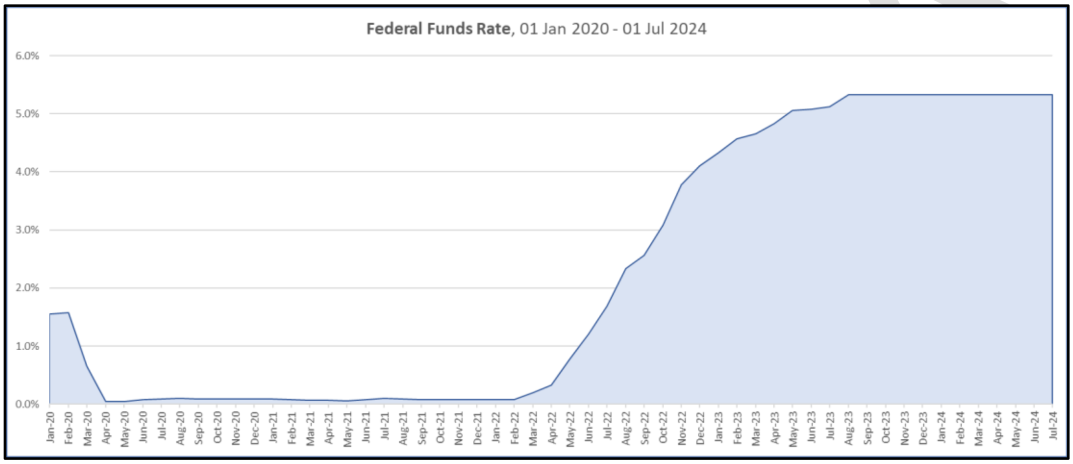
Signature Bank was a commercial bank founded in 2001 by former Republic of New York Bank employees Joseph J.DePaolo, Scott A. Shay, and John Tamberlane. The clientele of the bank was majorly wealthy clients and business managers with around $250,000 in assets. Signature expanded rapidly, with 6 branches within the year of opening and $950 million in assets by 2003. The bank had a private client operation that heavily emphasized personal relationships and focused on the niche of high-profile real estate loans. Signature had private client offices in New York, Connecticut, California, Nevada and North Carolina, and had nine national business lines which included digital asset banking and commercial real estate.

The bank expanded into digital banking in 2018, launched its own blockchain payments platform in 2019, and even ranked in the S&P 500 Index in 2021. However, by September 2022, a quarter of Signature Bank's assets consisted of cryptocurrency clients like Coinbase Global and USDC issuer Circle Internet Financial Ltd. The bank shed about $1.3 billion in crypto assets by February 2023. Due to the implosion of the cryptocurrency market, there was a loss of trust among investors, which was amplified during the period of SVB's collapse, causing them to pull out.

The Conditions Surrounding the Collapse

Between 1980 and 1995, more than 2,900 banks and thrifts with collective assets of more than $2.2 trillion failed. More recently, the mortgage meltdown and subsequent global financial crisis took down more than 500 banks between 2007 and 2014, with total assets of nearly $959 billion. Aside from that, the collapse of SVB marked the second largest bank to fail at the time since 1934, with $209B in assets, and Signature Bank was the fourth largest bank to fail, with $110.36B in assets. The largest bank failure in US history was Washington Mutual (WaMu) with $307 billion in assets, which is equivalent to more than $424 billion in today's dollars. The collapse of the First Republic Bank in March 2023 eventually surpassed SVB to become the second-largest bank failure.

The major reason for the collapse of these banks in such quick succession was the joint combination of the interest rate risk and the liquidity risk these companies faced.

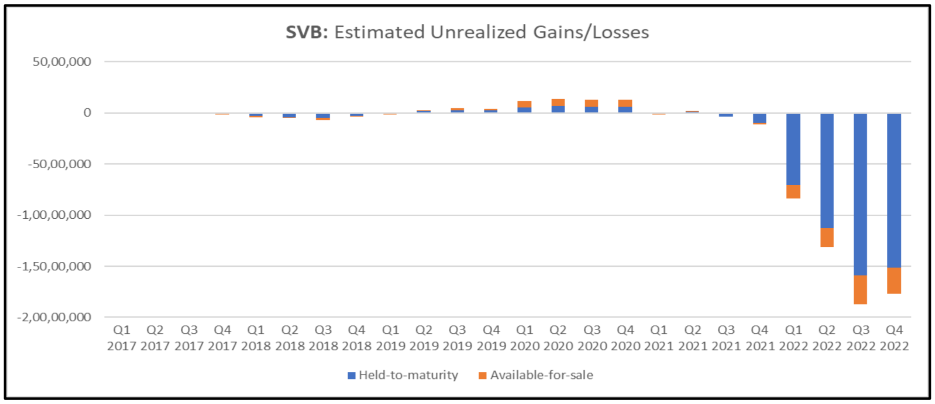


Source: FRED St. Louis

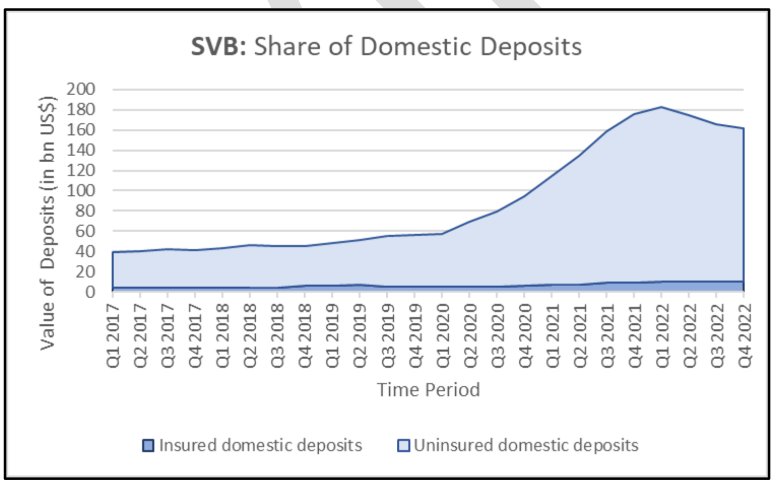
1. Interest Rate Risk: A bank faces an interest rate risk when the interest rates rise rapidly in a shorter period, like in 2021-22. Due to the increase in interest rates, the prices of bonds decrease and the value of holdings also decreases. This leads to an unrealized loss in the bank's balance sheets. However, if the owner has to sell the security before its maturity at a lower market value than the face value, the unrealized loss becomes an actual loss.

2. Liquidity Risk: The liquidity risk is closely linked since the loss faced by the bank leads to reduced liquidity, and so the bank is unable to meet its obligations when they are due without incurring further losses. These losses are not covered by the FDIC, which only insures deposits up to $250,000 per account. The government agency collects fees or insurance premiums from banks if their deposits need to be covered by the government. A significant liquidity risk arose when customers of SVB were withdrawing their deposits beyond what it could pay using its cash reserves, and so to help meet its obligations the bank decided to

sell $21 billion of its securities portfolio at a loss of $1.8 billion. The bank had 88% uninsured deposits, which were not covered by FDIC.



Source: Federal Reserve



Source: Federal Reserve

The Aftermath

POTUS tried to distinguish these moves to prevent more bank runs. These contingency actions were distinct from those taken during the 2008 financial crisis, when hundreds of billions of dollars were provided to rescue the banking industry. Taxpayers shouldered much of that rescue, while the costs to make depositors of Silicon Valley Bank and Signature Bank whole was financed by fees paid by banks into the F.D.I.C.

The Federal Reserve counteracted quickly to the failures of Silicon Valley Bank (SVB) and Signature Bank. It amassed other regulators in lifting the $250,000 per account deposit insurance for customers of the two banks.

The Federal Reserve Bank of San Francisco was Silicon Valley Bank’s primary regulator. Meanwhile, Signature Bank was regulated primarily by the Federal Deposit Insurance Corporation (FDIC). Both banks also were overseen by state regulators.

In 2023, The FDIC invoked a “systemic risk exception,” which allowed the government to repay uninsured depositors to prevent extreme consequences for the economy, or financial instability in any manner. The Fed announced setting up an emergency lending program, approved by the Treasury, to supplement additional funding to banks that fulfilled the eligibility criteria and help ensure that they can “meet the needs of all their depositors.”

The Causes of the Collapse

Silicon Valley Bank specialized in lending services to venture capital firms as well as technology startups, while Signature Bank specialized in providing services to law firms and real estate companies.

Both Silicon Valley Bank and Signature Bank had large amounts of uninsured deposits, and due to fears that the banks may be susceptible to collapse, they were more vulnerable to a bank run. Signature had $88.59 billion in deposits at the end of 2022, according to New York state's Department of Financial Services. Signature relied heavily on uninsured deposits and experienced a boom between 2019 and 2020, seeing 64% growth in assets, according to Gruenberg.

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On April 28, Vice Chair for Supervision Michael S. Barr released a lengthy review of the Fed's supervision and regulation of SVB. The Fed highlighted four causes of the Silicon Valley Bank's failure:

1. The failure of SVB's management and board of directors to appropriately assess and manage their risks.
2. As SVB grew in size and complexity, the extent of their vulnerabilities intensified in ways that Fed supervisors did not fully appreciate.
3. In instances where the supervisors did identify vulnerabilities, the steps taken were insufficient and inadequate to fix the problem promptly.
4. The Economic Growth, Regulatory Relief, and Consumer Protection Act or the Dodd-Frank package, a law introduced in 2018, lightened the oversight of mid-sized banks. The Federal Reserve Board's response and the accompanying shift in top Fed policymakers' guidance to supervisors impeded effective supervision. These new measures reduced standards, increased complexity, and promoted a less assertive supervisory approach.

In April 2023, the Federal Deposit Insurance Commission released a report studying the failure of Signature Bank.

1. The report blamed Signature's failure on bank mismanagement, a lack of corporate governance, and failure to listen to and respond quickly to the FDIC's recommendations.
2. Signature Bank's failure raised many policy questions about FDIC insurance, and bank and cryptocurrency oversight.

In the digital age, there is an increased vulnerability to bank runs due to a quick loss of trust. Information spreads rapidly through social media and that accelerates and aggravates the situation beyond control.

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The Consequences

The FDIC estimated the cost of Signature Bank’s failure to the Deposit Insurance Fund at around $2.5 billion. The Deposit Insurance Fund is the private insurer that guarantees deposits at FDIC-insured institutions. But regulators said that instead, the banking industry would pay for the rescue and taxpayers would not foot any of the bill. The taxpayer impact was a subsequent backdoor tax increase in the upcoming months.

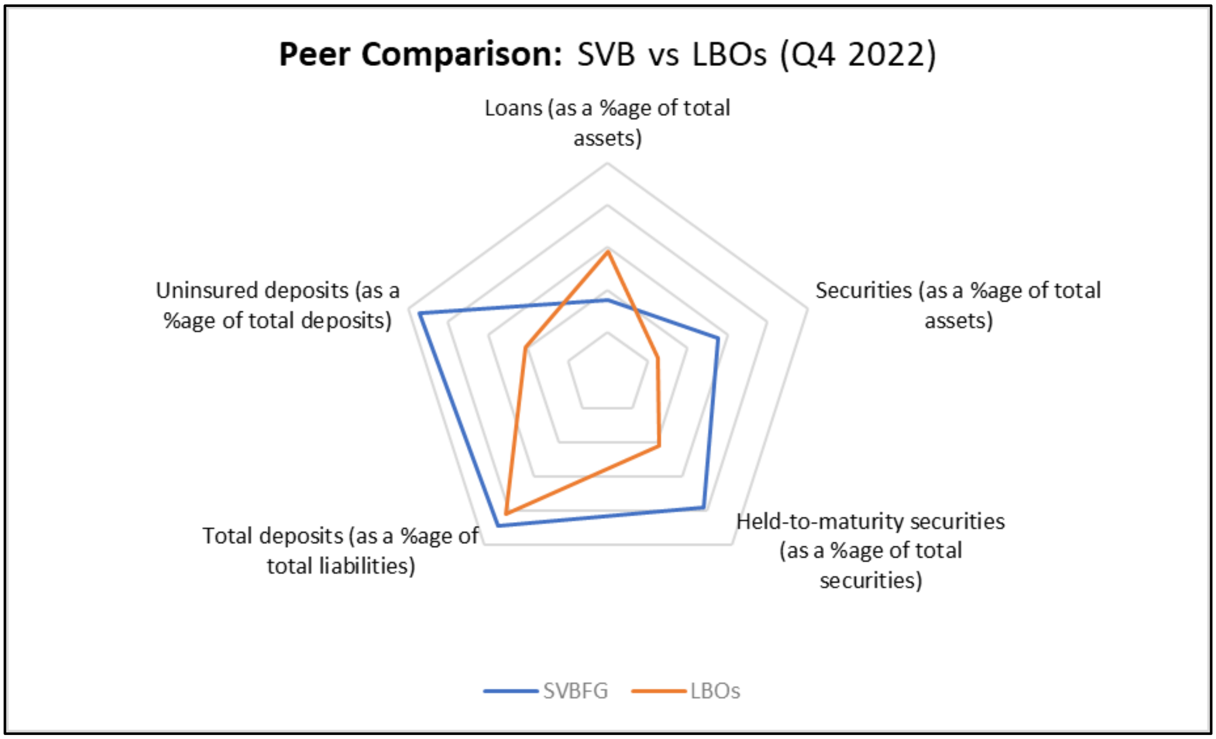
The collapse of these major banks triggered a systemic contagion in the industry, since depositors were plagued by a sense of unease and banks were suddenly working to absorb the damage caused by the events of March 2023. The commercial banking operation of Silicon Valley Bank was acquired by FirstCitizens Bancshares on 26 March 2023, while Signature Bank was acquired by the FDIC and a bridge bank was immediately formed. By March 20th, it was declared that the New York Community Bancorp, the parent New York Community Bank would assume certain deposits and loans of the Signature Bank. Approximately $60 billion worth of loans were still under receivership, and $4 billion worth of deposits in digital assets were repaid to depositors.

Due to the immediacy of the events, the role of social media was highlighted as well, since the digital age meant that banks with unrealized losses and uninsured deposits were more vulnerable to sudden bank runs.

Both Silicon Valley Bank and Signature Bank were some of the highest-ranked banks in the country, and one of the major reasons for their collapse was the failure to maintain the requisite 7% capital asset. Both banks had approximately 3-4% capital assets and a high concentration in long-term securities. Their collapse raised concern for the way banks maintained their capital asset requirements, and the composition of their larger portfolio.

Peer Comparison

Silicon Valley Bank Financial Group's (SVBFG's) Venture Capital & technology-focused business model made it an outlier relative to its peers in terms of growth, funding mix, and composition of their respective balance sheets. As of the fourth quarter of 2022, SVBFG's securities portfolio as a share of total assets was more than twice of the large banking organization (LBO) peer group, and SVBFG's Held-to-Maturity (HTM) portfolio, as a percentage of total securities, was also nearly double that of the LBO average. SVBFG's uninsured deposits as a percentage of total deposits were also more than twice the LBO average.



Note: Values for large banking organizations (LBOs) represent weighted averages of all U.S. bank holding companies and savings & loan holding companies with total assets greater than $100 billion, with the exception of banking organizations in the Large Institution Supervision Coordinating Committee (LISCC) supervisory portfolio.

Source: Federal Reserve

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