Subprime Crisis: Causes and Responses

Yuxuan Zhang *

School of Mathematics and Physics, University of Liverpool, Liverpool, United Kingdom

*Corresponding author: Yuxuan.Zhang2103@student.xjtlu.edu.cn

Abstract. Since the Great Depression, the U.S. has had only one more catastrophic economic crisis than the one that began in 2008.The economic crisis not only dealt a decisive blow to the economic development of the United States but also affected most countries in the world, causing substantial financial losses to many countries. The lessons of history can be learned by studying and analyzing historical events. This paper's main goal is to explain the causes of the financial crisis in terms of lax monetary policy, the lending environment, subprime mortgages, and credit default swaps (CDS), as well as to provide examples of the effects of the financial crisis by examining the perceptions and analyses of well-known experts and scholars. Next, this paper analyzes the market and government methods and policies in response to the crisis in terms of several acts of the D-Act housing market, central banks, Basel III-CAR capital adequacy ratio, and the COVID-19 crisis. The reasons for this financial crisis's outbreak and the implications for the market, government, and regulators to be summarized and reflected are explored comprehensively in this paper.

Keywords: Global financial crisis; subprime mortgage; real estate market; financial regulatory system.

1. Introduction

The financial crisis is a historical phenomenon with a long history, and a large body of literature is available on the subject. Despite being a well-known historical phenomenon, the 2008 financial crisis was a big shock to many nations, including the United States. The 2008 U.S. financial crisis, commonly referred to as the U.S. subprime crisis, is a global economic catastrophe that the U.S. precipitated in 2008. Studies indicate that the 2008 financial crisis cost the United States between 40% and 90% of its yearly GDP, or between $6 trillion and $14 trillion, or between $50,000 and $120,000 each American household [1]. This graph demonstrates the severity of the 2008 financial crisis's effects on American society. The 2008 financial crisis was the biggest financial catastrophe to hit the United States since the Great Depression of the 1930s, according to study [2]. The financial crisis not only had an immediate effect on the government and businesses of the United States, but it also had an international influence, posing a threat to the operation and growth of the global financial system. Beginning with the collapse of New Century Financial, the second-largest subprime mortgage provider in the US, the risks of subprime mortgages started to come to light in April 2007.

Additionally, the Federal Reserve began injecting liquidity into the financial system in August 2007 to control and boost market confidence, keeping the U.S. stock market at high levels. However, starting in August 2008, the stock prices of Fannie Mae and Freddie Mac, the two titans of the US mortgage business, fell precipitously, resulting in significant losses for the financial institutions holding the "two houses" bonds. In the early 2000s, the real estate interest rates' decline led to a home price rise. In the early 2000s, the demand for housing increased, so the banks opened subprime lending. They bought debt securities from investment banks. To optimize risk avoidance, they then bought the debt instruments from the investors and divided the recovered loans into smaller amounts. Investment banks and risk-rating organizations support the rising housing default trend by lowering lending scrutiny, which encourages everyone to purchase homes and sustainably raises home values. It was only when home prices peaked that people realized they could afford to borrow more than they could afford to buy, and the Federal Reserve raised interest rates, causing home prices to fall gradually. In order for the investors who bought the debt instruments to pay for the initial homebuyers' mortgages to the banks. Due to the American debt problem at this time, significant sums of money started to be retrieved from all over the world. Due to the fact that numerous nations had previously

bought U.S. real estate bonds, this quickly escalated from a domestic financial crisis to a global economic disaster.

The crisis was caused by a series of chain reactions triggered by the failure of many U.S. financial institutions due to excessive speculation in the real estate securities market, which turned the real estate subprime crisis into a global economic crisis. The issue is that idealizing financial policy in the American real estate industry and abusing financial derivatives extended the flow of financial transaction and encouraged a culture of financial speculation. Finally, the monetary policy of the United States contributed to the bankruptcy and collapse of many domestic financial institutions, resulting in a financial crisis that far exceeded expectations.

2. Causes

2.1 Loose Monetary Policy

The report claims that one of the factors that led to the financial crisis in the United States in 2008 was the government's then-lackluster monetary policy [3]. During 2007-2009, the U.S. government regulated monetary policy too loosely [3]. Furthermore, compared to the conventional interest rate that had followed the Taylor rule, the real interest rate of U.S. monetary policy at this time was significantly lower, fostering a low-interest rate borrowing situation for both borrowers and lenders. This low-interest-rate lending environment prompted lenders to use the environment to develop subprime mortgage policies that attracted lenders to lend. Lenders were eager to market and offer risky mortgages to lenders, magnifying the impact of low-interest rates on home prices. When banks offered low-interest rates to lenders over time, it led to lower net interest rates for banks, and banks raised those rates by taking on more risk themselves to improve their yields. Banks loosen their original credit and lending eligibility checks on borrowers by including high-risk borrowers who would otherwise be excluded from their lender lists.

Moreover, the false real estate boom was further fueled by actively working with rating agencies to package high-risk lending programs as A-rated safe lending programs to lenders. During this formative period, the Federal Reserve deregulated monetary policy and created a prosperous U.S. real estate bubble with low-interest rate monetary policy, which ultimately led to the depression of the then real estate economy when the lump disappeared. Furthermore, in the bubble formation process, the U.S. regulators overindulged the market, relaxed the effective regulation of monetary interest rates, and indulged in excessive innovation in the financial market, allowing it to develop freely and over-inflate. After the real estate bubble developed, the government made a mistake by incorrectly boosting interest rates, which ultimately caused people to file for bankruptcy because they were unable to pay their obligations. As a result, the bubble burst and the global financial crisis was created.

2.2 Subprime Mortgage

The deregulation of finance has sharpened the competition in the U.S. capital market. From the late 1990s, the subprime mortgage market increased dramatically, driven by subprime mortgages. At the same time, due to the rapid development of information technology, the securitization of real estate subprime mortgage loans in the United States has intensified to pursue further maximization of profits. During this period, many financial institutions, including banks and investment banks, packaged and securitized subprime loans issued to the public and sold them to financial intermediaries such as New Century. The subprime loans were packaged and sold to financial intermediaries such as New Century, which then repackaged the securities and sold them to insurance companies and funds. The large real estate bubble was effectively transferred to the financial market in this manner, where it was then further distributed to social investors across society. The various financial derivatives made it possible to utilize the cash flow of investment institutions better while sharing the benefits and risks. Reports showed that mortgage quality had been declining for six years in a row prior to the crisis, implying a significant decrease in market performance during a time of rapid expansion of the subprime loan market [4]. The information asymmetry and unknown risk of loss

throughout the process led to the collapse of the skyscrapers built on these securities in the event of significant risks and losses in subprime mortgages. As investors' risk-averse instincts accelerated the selling of these securities, this further accelerated the turmoil in the financial markets and contributed to the outbreak of the financial crisis.

2.3 Credit Default Swaps

CDS are the world's most widely traded over-the-counter credit derivatives, accounting for more than 97% of the total credit derivatives market by market value. With the existence of the CDS system, credit insurance agencies provided guarantees for these hazardous financing activities. The onset of the financial crisis brought to light flaws in the then-existing CDS market structure. A significant problem was the low transparency of the CDS market due to the bilateral trading model typically used in the OTC market, where buyers and sellers entered the market freely. This endogeneity leads to a heterogeneous trading model, meaning that the same large dealers are more likely to exit the market if a negative shock hits them. The study also found the need to be "strong but fragile," with the CDS market highly concentrated around 14 dealers [5]. CDS and other OTC transactions deal with counterparty collateral risk by requiring both parties to post collateral, which results in terms that are not standardized and carry significant foreclosure risk [5].

3. Consequences

The 2008 financial crisis in the U.S. exceeded the two most significant recessions in the U.S. since World War II, both in terms of duration and the extent of the downturn in the financial markets. According to the research, a number of intricate factors that interacted with one another caused the financial crisis of 2008 to start. One of the most direct effects of the financial crisis was its socioeconomic impact. Once the financial crisis breaks out, it will directly impact the operation of enterprises, from financing, production, sales, and other aspects, leading to the immediate closure of many enterprises. At the same time, the surviving enterprises will also lay off employees and reduce salaries to make the enterprise life cycle longer and reduce the enterprise's personnel expenses so that a large area of society faces unemployment or pay cuts. The second significant impact of the crisis is the reduction of society's overall consumption level and quality of life due to the failure of enterprises to earn money and the reduction of employees' income. The third significant impact of the financial crisis is that it will make people's assets depreciate and increase debt pressure. The financial crisis outbreak will decrease society's consumption power and depreciate people's help. Since many people have taken out loans to buy houses, people's income will drop when the financial crisis comes. However, they will have to pay back the original amount of the loan every month, which will bring more debt pressure on the people, and most of them will not be able to pay back the mortgage on time. The fact that Lehman Brothers, founded 158 years ago, filed for bankruptcy on September 15, 2008 as a direct result of the financial crisis's onset is one of its most significant effects. Lehman Brothers was a mainstay of Wall Street's first-line investment banks, and his bankruptcy caused the financial crisis to collapse. This signaled that the subprime mortgage crisis had now formally become a global economic storm and had shaken the foundation of the U.S. financial system.

4. Responses

4.1 The U.S. Government

The U.S. macroeconomic management authorities focused on real estate to spur economic growth on the verge of the financial crisis. The government required banks to ease lending conditions to adopt cyclical expansionary monetary and fiscal policies and tried to prevent a pullback in the overall economy through a combination of interest rate cuts and tax cuts to activate traditional U.S. manufacturing. However, as the U.S. housing crisis worsened in 2007, the Fannie Mae and the Freddie Mac eventually went bankrupt by 2008. Meanwhile, the government's efforts to address the

current U.S. housing crisis culminated in Congress's passage of the HERA of 2008. The housing reform provisions of the Act, which were essentially a revision and amendment to the FHEFSSA of 1992, were signed by President Bush on July 30, 2008. When the applicable conforming loan limit is exceeded by 115% of the median home price for a given size home, the 2008 Act allows for an increase in the conforming loan limit for that property [6]. The U.S. Treasury Department relied on the Act to provide sufficient credit to Fannie Mae and Freddie Mac and fund their stock purchase when necessary. At the same time, the government created a new regulatory agency to strengthen its supervision of the two financing institutions. The Act is a series of laws designed to help homeowners at risk of losing their homes and those who cannot afford to own them. Congress and the President enacted the HERA of 2008, which allows the FHA to provide billions of dollars to insure the refinancing of endangered mortgages for homeowners. It also requires more regulation in the mortgage finance system to prevent foreclosures. The bill was signed into law creating the FHFA for "regulating the agency and all agencies necessary to oversee the essential components of our secondary mortgage market. At the same time, the Housing and Economic Recovery Act created a permanent Affordable Housing Trust Fund that can use to create and maintain low- and non-low-income housing.

4.2 Banking Institutions

Finally, it was found that the long-term sustained profitability of banks in the pre-crisis period created a period of relative calm and prosperity that convinced people that banks were very skilled in managing various complex risks, undermining many levels of risk management [7]. After the financial crisis of 2008, the quality of corporate governance in the banking sector came under public scrutiny. It was widely believed that banks should be required to operate with higher capital levels and to have the ability to prevent future crises and deal with the risk of insolvency. The importance of the capital value of banks has increased after the financial crisis compared to the pre-financial crisis period [8]. According to studies, properly designed capital requirements can cut the risk of a systemic crisis by 25% [9]. This point also implies that the risk of insolvency and liquidity can be decreased by raising the level of capital in the banking industry. When the crisis first began, the central bank identified a liquidity shortage that affected the entire market and offered liquidity support that successfully stabilized the situation. The "gold standard" tied currencies to gold stocks, and when demand fell as gold outflows caused balance of payments crises in several nations, central banks decided to respond by tightening their monetary policy, according to many, this is why what started as a recession turned into a depression. This gave rise to the idea that measures to stimulate the economy, like interest rate cuts and quantitative easing, were necessary to address the crisis.

4.3 Basel III

The global economic and regulatory governance structure has undergone significant changes as a result of the 2008 financial crisis. The Basel Committee responded to the unsound performance of the banking industry in the international financial crisis by expanding its membership twice and introducing regulatory guidelines on bank capital and liquidity, many of which eventually formed the critical building blocks of Basel III. The Basel Capital Accord frequently reflects the most recent shifts in the approach to international banking regulation. The Basel Committee revised the capital regulatory framework and released a number of new standards for international banking supervision in the wake of the financial crisis of 2008. Raising the regulatory capital requirements and concentrating on bolstering both the quality and quantity of bank capital are two goals of the Basel Accord. It also prioritized safety over efficiency in choosing core values for banking supervision and supported bank capital regulation. The Basel Committee revised the definition of capital after the financial crisis. It emphasized the importance of common equity in regulatory capital to expand the risk coverage of capital regulation to the whole banking business area. Under Basel II, the minimum required ratios for common equity and Tier 1 capital were 2% and 4%, respectively, in terms of the amount of regulatory capital.

Compared to Basel III, which raised it from 2% to 7%, the minimum amount of core Tier 1 capital required for banks [10]. Basel III also mandates that commercial banks develop countercyclical excess wealth in order to reduce systemic risks that could result from high levels of credit risk within the banking system. The adoption of the leverage percentage regulatory standard establishes a risk ceiling for the banking system's leveraged operations, reduces the detrimental effects of deleveraging on the economic system and economic stability, and successfully prevents the negative effects of banks' innate vulnerabilities. The Accord also sets supervisory requirements for liquidity risk. The Basel Committee introduced two supervisory liquidity indicators, LCR and NSFR, to further strengthen the banking system's ability to maintain liquidity.

5. Conclusion

This paper examines the causes, consequences, and measures the government and the central bank took to address the worst financial crisis to hit the United States since the Great Depression in 2008. The study shows that the 2008 U.S. financial crisis resulted from many factors: loose monetary policy, low-interest rate lending environment, subprime mortgages, and CDS. Furthermore, there is evidence that these factors contributed to the bankruptcy crisis, contrasting with the more prevalent belief that the liquidity crisis was its primary cause. The research found that after the financial crisis in 2008, the U.S. government introduced the Housing and Economic Recovery Act to prevent the economy from falling back and address the problem of many people losing their homes. To lessen the effects of the financial crisis, central banks tightened monetary policy after it occurred. Following the start of the crisis, the Basel Committee introduced the Basel III Accord, which established stricter capital requirements, a risk floor for operations involving leveraged banking systems, and regulatory targets for the liquidity coverage ratio and net stable funding ratio. Some inspirations can be drawn from these studies: macroeconomic policies should focus on careful balance and strengthen risk management, regulators should be in place to supervise banks, and the government should quickly make corresponding adjustments and changes to inherent policies according to the reality when a crisis occurs.

References

[1] Atkinson, T., Luttrell, D., & Rosenblum, H. How Bad Was It? The Costs and Consequences of the 2007-09 Financial Crisis. Staff Papers, 2013.

[2] Erkens, D. H., Hung, M., & Matos, P. Corporate governance in the 2007–2008 financial crisis: Evidence from financial institutions worldwide. Journal of Corporate Finance, 2012, 18(2): 389–411.

[3] Gennaioli, N., Shleifer, A., & Vishny, R. Neglected risks, financial innovation, and financial fragility. Journal of Financial Economics, 2012, 104(3): 452–468.

[4] Taylor, J. B. (2009). Economic policy and the financial crisis: an empirical analysis of what went wrong. Critical Review, 2009, 21(2–3): 341–364.

[5] Augustin, P. Credit default swaps: a survey. Foundations and Trends in Finance, 2014, 9(1–2): 1–196.

[6] The Housing and Economic Recovery Act of 2008: An Analysis. https://www.sidley.com/en/insights/publications/2008/12/the-housing-and-economic-recovery-act-of-2008-an-analysis. Last accessed 2022/12/10.

[7] Gauthier, C., Lehar, A., & Souissi, M. (2012). Macroprudential capital requirements and systemic risk. Journal of Financial Intermediation, 2012, 21(4): 594–618.

[8] Calomiris, C. W., & Nissim, D. (2014). Crisis-related shifts in the market valuation of banking activities. Journal of Financial Intermediation, 2014, 23(3): 400–435.

[9] Thakor, A. V. The highs and the lows: A theory of credit risk assessment and pricing through the business cycle. Journal of Financial Intermediation, 2016, 25: 1–29.

[10] Madrid, Basel III: towards a safer financial system. Bank for International Settlements, the 3rd Santander International Banking Conference, 2010.