

A Systemic Failure: Understanding the Role of Regulation and Risk in the 2008 Financial Crisis

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Abstract. With the advent of the 21st century, the world is slowly developing in the direction of diversification, and world diversification also brings economic diversification. The cooperation between countries is getting closer and closer, economic exchanges are becoming more and more frequent, and the possibility of financial hidden dangers is slowly increasing, and the deepening of the international division of labor means that once there is a financial problem, then the world will suffer serious consequences, which makes the study of financial crisis an indispensable matter at present. Based on the subprime mortgage crisis of 2008, this paper analyzes the macroeconomic policies of the United States before the crisis, the loose financial regulatory system and lending standards, and the direct factors that led to the crisis, and finally explains the impact of the crisis on the world after the crisis, as well as the remedial measures of countries around the world represented by the United States. By discovering the fundamental cause of the subprime mortgage crisis of 2008 and improving the policies of various governments in financial supervision after the crisis, this paper aims to illustrate the importance and necessity of studying the financial crisis to the development of the world economy.

Keywords: Subprime mortgages; securitization; regulatory responses.

1. Introduction

Former Federal Reserve Chairman Ben S. Bernanke, University of Chicago professor Douglas W. Diamond, and Washington University St. Louis professor Philip H. Dybvig were awarded the 2022 Nobel Prize in Economics by the Royal Swedish Academy of Sciences Nobel Prize Jury for their research contributions to banking and financial crises. Through the research of these three economists, countries around the world see a clear and visible path to making global finance more stable. Therefore, the research results of the above three economists have brought immeasurable contributions to the global financial industry, and have really affected the future situation and trends of the global financial industry. Especially in the context of COVID-19, which suddenly appeared in 2020 and has continued to this day, the global financial market has experienced considerable turbulence. As a global financial center, the financial problems of the United States can even affect the world's financial markets. The financial turmoil caused by the US financial market from March 9 to 23, 2020 has made people faintly see the shadow of the global financial crisis. Although the global financial crisis has not broken out until now, it has not left us and may rage again on a global scale at any time [1]. U.S. stocks have fused a total of five times in history, and four times in the ten days from March 9, 2020, which also means that the US financial market has undergone earth-shaking changes under the violent impact of COVID-19. Therefore, studying financial crises allows us to predict or prevent such crises in time. It can greatly safeguard the safety and interests of people all over the world and avoid falling into dangerous situations such as the unemployment of ordinary people and bankruptcy of enterprises. And since we want to study the financial crisis, one topic that cannot be avoided is the financial crisis of 2008, also known as the subprime mortgage crisis. Specifically, after the policy of expanding interest rates in the United States, due to the negative impact of the Internet on the economy in 2001, the government decided to lower interest rates, so that residents' saving intentions were greatly reduced, and loan intentions rose rapidly, the purpose of this was to reduce or offset its negative effects, so the price of the real estate continued to rise, because more and more investors entered the real estate industry in order to seek benefits, in order to continue

to obtain higher profits, banks made loose adjustments in loan policies. As a result, loans can be easily obtained by some people with not very high credit levels, but the risks gradually increase, like an economic balloon that can accumulate, and such balloons were inflated until 2008 [2]. Although it is a balloon, when it explodes, it is no less powerful than an atomic bomb, spreading from the US economy to the global economy. For the United States itself, the outbreak of the financial crisis has caused the complete evaporation of huge assets, the unemployment of a large number of people in related industries in society, and a huge number of homeless people. At the global level, the United States has shifted some of the negative effects of the financial crisis to some countries around the world. The impact on the employment situation in many countries and the increased risks in the financial markets of those countries have been shared by the world as a result of the explosion of the bubble in the subprime mortgage crisis.

2. Causes

There are many reasons for the 2008 financial crisis, but in general, the main reason is the loose monetary policy that the Federal Reserve Board began to implement, and then the interest rate expansion slowly brought about the subprime housing lending crisis, and before that, the bank issued residential mortgage-backed securities, which made the credit default swap also greatly nourished, and finally rose to an uncontrollable height, and then slammed to the ground.

2.1. Federal Reserve's Monetary Policy

The dot-com bubble burst in early 2001, coupled with the 9/11 terrorist attacks that shocked the world that year, and the U.S. economy entered a new round of downturn. In order to change this situation, the US federal government decided to reduce interest rates to stimulate the consumption and investment intentions of its own citizens [3]. When the level of consumption and investment rises, the domestic economy can naturally be fully developed, and it can be said that this measure is not a problem even today. As a result of the Fed's repeated interest rate cuts, the world economy seemed to be moving in a good direction at the time, and the U.S. economy was steadily rising, and this steady rise also included the real estate industry. Because in the context of that time, the real estate industry in the United States has a good prospect and is optimistic about almost everyone, both residents and investors firmly believe that the real estate industry will only get better and better, so investors in other fields are willing to enter the real estate field, investors who have invested in real estate are willing to continue to invest more, and American residents are full of intention to buy houses because of the housing boom. In the case of further promotion by capitalists, demand increases, and the number of properties remains unchanged, the price of real estate is constantly being raised, making it more profitable. Faced with such a huge temptation, the bank decided to lower the loan standard to make it easier for buyers to obtain a mortgage from the bank, and the loan for the purchase of a house at that time was an adjustable-rate mortgage, this form of loan will change with the change of the standard financial index when the interest rate rises, it is likely that the borrower will not be able to pay the loan, and bad debts will occur. This accommodative lending policy, along with the debt burden that slowly grew over time, led directly to the formation of subprime mortgages loan.

2.2. Subprime Mortgages

Subprime mortgage loan refers to the US mortgage market according to the specific credit score to credit classification, the borrower's credit conditions are divided into three categories: the prime mortgage market, the subprime mortgage market, and the subprime mortgage market, and the second refers to the borrower with a credit score of less than 620 [4]. Such loans are generally aimed at people with low-income levels, low levels of education, etc. Such people are likely to be unable to repay when repaying loans with high loan amounts, so subprime lenders generally need to pay higher interest than lenders with higher credit ratings to offset the risks they need to bear in the loan process [5]. At that time, the US real estate market was full of such subprime lenders. In the short term, the

rapid growth of subprime loans promoted economic development at that time to a certain extent, especially the expansion of profits of subprime loans through a series of derivative products. One of the most typical is Mortgage-Backed Security (MBS). MBS simply means that lenders issue loans to subprime lenders, and then integrate and package these claims and sell them to subprime mortgage companies, the most well-known of which is Freddie Mac and Fannie Mae, and then there will be investment banks or investors to buy these claims that have securitized the loan to achieve the purpose of investment [4]. The biggest advantage of MBS is that it can diversify risks to the greatest extent, and only need to sell the packaged bonds to others, which is equivalent to transferring the risk of overdue repayment of the lender to the buyer, and you can earn the difference in the buying and selling process. The derivative product of MBS is the collateralized debt obligation (CDO), which is a certain amount of MBS and other types of securities packaged together into a type of bond after the credit rating company and other institutions have assessed the risk coefficient of the bond, and then purchased by investors or investment banks. Unlike MBS, CDO not only accommodates MBS but can even contain other CDOs, which determines the exponential superposition between CDO and CDO that is CDO square. However, the credit rating agencies at that time were in fact unreliable, and there was a lot of rating fraud, in order to obtain a large number of profits, rating agencies rated a large number of high-risk bonds as AAA, consistent with the grade of US Treasuries. This directly leads to an exponential increase in potential risks in CDO. With both potential risks and current returns significant, the momentum of credit default swaps is also difficult to suppress.

2.3. Credit Default Swap

A contract that allows investors to offset risk, and allows the buyer to pay a fixed sum to the seller on a regular basis for a specified period of time. In the absence of an event of default, the buyer loses the fees paid to the seller, thereby reducing the return on earnings, but does not have to worry about the more serious consequences of the event default. In the event of an event of default, the buyer also avoids greater risk resulting from total loss, although the buyer still loses the costs paid prior to the event of default. At that time, many experienced financial practitioners saw the potential risk of CDO, so they chose to buy a large number of CDS, hoping to obtain greater profits through the bursting of huge bubbles such as real estate in the future. And banks and securities institutions are extremely optimistic about the prospects of the real estate industry at that time and do not refuse to buy CDS people, buyers are willing to buy as much as they are willing to sell because in their view the decline of the real estate industry at that time is almost impossible to happen, it can be said that they even expect buyers to buy more CDS. Therefore, the volume of CDS is extremely large for a while, and both the demand side and the supply side are willing to trade as much as possible. And at that time, CDS lacked attention in terms of supervision, and it was not a systematic exchange transaction in trading, and over-the-counter trading was the mainstream transaction at that time, so CDS trading was very lack of transparency [6]. It can be said that the CDS at that time was already like a neatly arranged domino, just waiting for someone to push down one of them, then the entire financial industry would usher in a devastating blow. Due to the inclusive relationship between CDO and CDO, even if the initial bond value is not high, after the operation between investment banks and investors, the final amount involved by CDO reaches a terrifying figure, and investors are tightly tied together because of CDO. When the mortgage cut-off rate reached a record high and large-scale debt defaults began to surface, CDS buyers should have received default bonds smoothly, so as to achieve their purpose of making profits. However, due to the huge amount of CDS purchased, the seller could not get such a sudden huge compensation for a while, so under the collision of these two huge waves, the real estate bubble finally exploded.

3. Consequences

Founded in 1995 and based in California, New Century Financial Corporation is the second-largest subprime mortgage company in the United States and once had more than 7,000 full-time employees.

However, in April 2007, New Century Financial Corporation declared bankruptcy, and since then it has officially opened the prelude to the subprime mortgage storm. In July of the same year, Bear Stearns Cos., founded in 1923 and once the world's leading financial services company and formerly the fifth-largest investment bank on Wall Street faced bankruptcy until March 16, 2008, when J.P. Morgan Chase & Co. confirmed its acquisition of Bear Stearns for about \$236 million (about \$2 per share). The purchase price was about one-third of Bear Stearns' share price when it went public in 1985, and it is a stark contrast to the 2007 peak of about \$159 per share. Such an event naturally caused great turmoil on a global scale. The bankruptcy of Lehman Brothers, which was later considered a sign of a runaway financial crisis, triggered a major earthquake in the financial industry. Founded in 1850, Lehman Brothers Holdings is an international financial institution and investment bank headquartered in New York, a major dealer of U.S. Treasury bonds, and the fourth largest investment bank in the United States. On September 15, 2008, the day before that, Lehman Brothers faced bankruptcy due to Bank of America and Barclays Bank of the United Kingdom choosing to abandon the acquisition negotiations of Lehman Brothers. On the 15th, Lehman Brothers announced that it had filed for bankruptcy protection, with debts as high as \$613 billion [7]. On the same day, Bank of America, which had completed a deal with Merrill Lynch, the third largest investment bank in the United States, for US\$50 billion, announced the news [8]. In the month following Lehman Brothers' bankruptcy, the U.S. stock market lost about a quarter of its value, an amount that more than offsets the growth of the past five years. The crisis has spread not only among major financial institutions and investment banks, but also from country to country, and from person to person. During the recession, a large number of construction projects in New York were forced to stop. Total U.S. unemployment rose to 3.6 million after the recession began, and the three-decade decline in employment peaked in January 2009, with as many as half of those unemployed in the past three months. In February of the same year, the U.S. unemployment rate climbed to 8.1 percent, the highest in 26 years. In March of the same year, the US stock market bottomed out, and the maximum decline reached 56%. According to data released by the US Treasury, the US federal government's budget deficit tripled in 2008 to a record \$454.81 billion. According to a January 2009 report by the United Nations Economic Commission for Latin America and the Caribbean, the economic crisis added nearly 9 million people to poverty in Latin America and the Caribbean in 2009, noting that a quarter of the total number of people lifted out of poverty in the past seven years was equal to the number of new people living in poverty in 2009. It has horrific effects not only on the United States and the Americas but also on other continents and the world at large. For Asia, Japan's economy was in recession for 14 months from November 2007 to January 2009, and government officials said the recession could be worse. On January 27, 2009, South Korean media reported that a number of economic indicators in South Korea fell extremely rapidly, hitting a record low. For Thailand, whose export trade grew rapidly in 2008, 2009 was not a year of continued efforts, but a thick haze over Thailand's export industry. As far as Europe is concerned, the United Kingdom, Iceland, Germany, and other countries have all been affected by the financial crisis to a certain extent. Under the large-scale impact of the financial crisis on a global scale, governments of various countries have to introduce new economic policies to deal with the crisis.

4. Regulatory Responses

To avoid a recurrence of this crisis in the future, we must start with the root causes of the financial crisis. One of the important factors contributing to the financial crisis was the inadequacy of the financial regulatory system, which led to the large number of subprime loans in CDO. Therefore, it is necessary to establish and improve the financial supervision system and vigorously reform the supervision. So in this context, the Dodd-Frank Wall Street Reform and Consumer Protection Act (hereinafter referred to as the "Dodd-Frank Act") is officially signed. The enactment of the Act means that the main position is left to financial regulation, and its scope, depth, and intensity are unprecedented, in order to be more adaptable in the face of product complexity and development

globalization in the future [9]. Its specific content can be roughly divided into the following six categories:

(1) Increased oversight of Wall Street, that is, the establishment of the Financial Stability Oversight Council, to assess and monitor the systemic risks of the Wall Street financial industry. Control large companies by implementing strict regulatory regimes.

(2) Establish the Consumer Financial Protection Bureau, which oversees U.S. financial institutions with assets of more than \$10 billion, as well as investor safeguards to protect minority investors from discrimination, fraud, and unfair treatment by financial institutions.

(3) To establish an orderly liquidation Authority, the "Volcker Rule" in the Dodd-Frank Act proposes to prohibit banks from investing in hedge funds and private equity funds for their own benefit, prohibits banks from using customer deposit funds for transactions, and banks can spend up to 3% of their income on transactions [10].

(4) regulate the derivatives market so that derivatives must be traded on trading venues that have been reviewed and registered by the regulatory authorities. This makes the derivatives market more open and transparent, and regulators can more easily identify their inherent risks and effectively avoid the occurrence of crises.

(5) Hedge funds, private equity funds, and venture capital funds are required to publicly disclose trading information, requiring them to register with the SEC and provide their details in order for the SEC to assess market risk.

(6) Established the Office of Credit Ratings at the Securities and Exchange Commission to oversee credit rating agencies, which have the power to require rating agencies to submit rating models and review them, and at the same time disqualify those with erroneous ratings.

In addition to the Dodd-Frank Act, the Basel Accords also played an important role in maintaining financial stability. In the aftermath of the subprime mortgage crisis, Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems (hereinafter referred to as Basel III) played a crucial role in reducing market risk and credit risk in order to improve the financial regulatory system. The specific content of Basel III mainly includes four sectors: strengthening capital adequacy requirements, introducing leverage regulatory standards, establishing liquidity risk quantitative standards, and determining the transition period for the implementation of new regulatory standards [11]. The first is to strengthen the capital adequacy ratio, which is an important indicator to measure the bank's ability to resist risks and sustainable development. The specific content of strengthening the capital adequacy ratio includes increasing the regulatory standards of the three minimum capital adequacy ratios: common equity adequacy ratio, tier 1 capital adequacy ratio, and total capital adequacy ratio, as well as increasing the two excess capital requirements of capital conservation buffer and counter-cyclical excess capital. The second is to introduce regulatory standards for leverage, thereby improving the quality of safety in financial transactions. The third is to establish quantitative standards for liquidity risk, mainly to establish short-term liquidity covered ratio and medium and long-term net stable funding ratio. Finally, there is a transition period of 8 years for the implementation of the new regulatory standard. Compared with Basel II and Basel I, Basel III significantly increases the minimum requirements for core tier 1 capital, introduces leverage supervision to prevent risks in the process, builds a standardized regulatory framework to prevent systemic risks, introduces liquidity regulatory standards to prevent liquidity crises, extends from maintaining the robustness of individual banks to the soundness of the entire financial system, and most of the provisions are written for the direct factors that led to the financial crisis. Therefore, it has a more obvious effect on weakening the ripple effects of the financial crisis. And the possibility of adequately preventing a similar financial crisis in the future.

5. Conclusion

This paper derives the general situation of the 08 financial crisis through the research direction of the 2022 Nobel Prize winner in economics. Specifically, it discusses the macroeconomic background

of the United States before the financial crisis, as well as the various factors that led to the financial crisis, such as the monetary policy of the Federal Reserve to cut interest rates, the low-interest credit of banks and loose lending standards, and explained the hidden dangers brought by subprime loans in CDO and CDS, explaining that the size of CDO and CDS is so large and the amount is difficult to control, which is also the direct cause of the financial crisis. Then this article elaborated on the impact of the financial crisis and the serious consequences of the financial tsunami that ravaged the world, not only on the financial industry but also on the world's economic and political patterns. Finally, it describes the response and solutions of governments led by the United States after the financial crisis, including the drafting of new bills and the introduction of new agreements. This shows that the world has paid more attention to the financial crisis than ever before. By studying the financial crisis, we can clearly and intuitively understand the importance of financial supervision behind the 08 subprime mortgage crisis, so that we can pay more attention to financial supervision in subsequent financial activities, avoid the recurrence of mistakes that have occurred before, and at the same time find and solve new problems when financial problems occur next time, so that the development of the world economy as a whole presents a spiraling trend.

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