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Subprime Crisis: Causes & Consequences

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Abstract: The 2007-2009 financial crisis, considered the worst crisis in human history since the Great Depression of the 1930s was not expected to end the period of the Great Moderation when financial and economic stability lasted from the mid-1980s to 2007. Although more than a decade has passed since the crisis, the analysis of the causes and consequences of the 2007-2009 financial crisis remains relevant for today's global economy, which is affected by both COVID-19 and the war in Ukraine. The crisis came as a surprise to almost everyone, but its roots were already in the U.S. financial system a decade ago. The explosion of the housing market in the United States at the beginning of the 21st century attracted a large number of banks and financial institutions to invest. The immediate cause of the financial crisis was the Federal Reserve's monetary policy, inflation in subprime mortgages, and the abuse of credit default swaps. The financial crisis also triggered a large number of banks to go bankrupt due to insolvency or default, and after the collapse of Lehman Brothers, the US government had to use a large number of emergency funds to bail out the market. These bailouts largely saved these too-big-to-fail companies and had no significant effect on the years of high unemployment.

Keywords: financial crisis, securitization, government bailout

1. Introduction

The Nobel Prize in Economics for this year was given to three Americans: Douglas W. Diamond, Philip H. Dybvig, and Ben S. Bernanke, the former chair of the U.S. Federal Reserve, for their work in preventing a banking and financial collapse, according to a 2022 announcement from the Royal Swedish Academy of Sciences [1]. The three laureates' research, which dates back to the 1980s, attempts to identify the possibilities that make banks less vulnerable and fragile in times of crisis by examining their vital role in the economy, particularly during financial crises. Their research, based on the actions or policies taken by governments, businesses, and banks in past economic crises, especially the Great Depression, suggests that the study of financial crises is a response to a range of unanticipated occurrences [1, 2]. Research on the effects of these responses, whether valid or ineffective, positive or negative, will provide regulators and the banking system with a reference to reduce the likelihood of a potential future financial crisis in advance [2].

However, the Russia–Ukraine conflict has exacerbated global economic uncertainty and financial risks in the post-COVID-19 era. The global COVID-19 outbreak that began in December 2019 has killed an estimated 7 million people worldwide as of June 2023, and the Russia–Ukraine conflict, which began in February 2022, has exacerbated this tragic loss of life and the deepening humanitarian

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crisis. Kristalina Georgieva, a Managing Director of the IMF Executive Board, warned that the Russia–Ukraine conflict could worsen the COVID-19-hit global economy, as these two highly liquid factors potentially lead to detrimental economic consequences. The combination of these two events has caused a global spike in energy and commodity prices, as supply chain crises triggered by the war and the pandemic have exacerbated inflationary pressures around the world [3]. The multinational sanctions against Russia have had an additional negative risk spillover to the global economy and financial markets, and have made the prospects for the global economy to recover from the COVID-19 pandemic very vulnerable [3]. Therefore, in this complex economic background, the selection of the most representative 2007 financial crisis as the research object has very important reference significance for coping with new global potential financial risks or even a financial crisis. This paper attempts to take this crisis as a research object, evaluate its causes, consequences, and changes, and draw conclusions.

The 2007-2009 financial crisis is considered the worst global financial crisis since the Great Depression of the 1930s. The crisis caused a global collapse in financial markets and sharp plummets in stock prices, both in developed countries such as the United States and Western Europe, as well as emerging markets in Asia and elsewhere. Governments have had to raise billions of dollars to bail out fragile large financial institutions or their own stock markets, leading to declines in consumer borrowing and confidence, credits in long- and short-term financial products, and a decline in investment in the real sector. In September 2007, the collapse of Lehman Brothers and American International Group (AIG) marked the culmination of this financial crisis. Under the influence of the too-big-to-fail policy, governments tried to save credit markets from collapse [4]. However, investor and consumer confidence did not lift, and global markets fell, triggering a following severe recession. The roots of this complex and severe financial crisis were laid decades ago. Since the United States' housing bubble burst in the 1990s, numerous banks and other financial institutions—from small local banks to major financial credit companies—have been forced to offer low-interest mortgages to high-risk borrowers who have weak repayment capacity. Inadequate government regulation and management, along with toxic mortgages and various forms of financial derivatives, make the entire financial system extremely vulnerable and inevitable of a potential financial crisis.

After the real estate and credit bubble burst in 2006, trillions of dollars in risky bonds, mortgage delinquencies, and mortgage-related securities became embedded throughout the financial system. During the credit boom, these derivatives were packaged or repackaged and sold to investors in various countries, inflating their value and increasing financial leverage [4]. However, after the bursting of the bubble in August 2007, under market pressure, the value of these derivatives was exposed to market scrutiny, and the value of financial derivatives such as mortgage loans worth tens of billions of dollars fell sharply, causing a chain reaction of global stock and financial markets [4]. The 2007 financial crisis affected every household and business entity in the United States to varying degrees. About 4 million families across the United States lost their homes because they couldn't pay their loans, trillions of dollars of household assets and business wealth were wiped out, and millions of Americans lost their retirement accounts and savings. Not to mention the millions of Americans who lost their jobs, bankruptcy, or even entire wealth in this crisis, about a generation has been suffering the severe consequences of this crisis. It is estimated that the crisis cost at least 40 percent of annual U.S. output. Between 100% and 190% of current and future U.S. revenues disappeared during the crisis [2].

2. Causes

The 2007 financial crisis was not brought on by a single deciding reason, but rather by a combination of complicated events that either directly or indirectly led to the greatest financial catastrophe since the Great Depression of the 1930s. Some of these factors are rooted in years of monetary policy in

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the United States, some from the invention of new finance, and some from the blind expansion and risk-shifting behavior of financial institutions.

2.1. The Fed's Monetary Policy

The Fed's generally excessively loose monetary policy between 2001 and 2007 aims to stimulate economic growth, despite of raising property prices and causing a housing bubble. After the collapse of the housing market in 2007, this loose monetary policy is considered one of the important factors leading up to the 2007 financial crisis.

Since the Fed began to exercise loose monetary policy in the 1980s, cyclical fluctuations in the U.S. economy began to decline in frequency and intensity, and in the last two decades of the 20th century, U.S. monetary policy succeeded in causing two recessions, 1991 and 2001, to fade without far-reaching losses [5]. This period is considered to be the "Great Moderation" and is considered to be decisive for monetary policy to eliminate the high inflation that began in the 1970s. The Fed's exceptionally extreme expansionary monetary policy caused another recession after the inflated dot-com bubble in 2001, and this time the Fed did not intervene in any monetary policy in response to the stock market surge. Instead, in 2001, as the Internet company bubble collapsed, the Fed began to adopt a more aggressive monetary policy to stimulate the economy. In 2001, the Fed's federal funds rate fell from 6.25% to 1.75% in 8 months. In mid-2003, the Fed argued that this active monetary policy had not had a significant effect on sustained growth, and that further interest rate reductions were necessary and ultimately to stimulate growth while avoiding inflationary pressures [5]. The main reason for this expansionary monetary policy is to reduce the negative impact of the bursting of the dot-com bubble in 2001 and the pressure on the stock market caused by the 911 terrorist attacks, as well as to increase employment by stimulating investment. The Fed gradually raised interest rates and raised them to a high of 5.25% in June 2006, a stable monetary policy that was believed to lower inflation expectations and establish stable markets [5]. By 2005, after the economy gradually stabilized, the Fed shifted to tightened monetary policy and believed that financial markets were under control.

However, after 2006, the Fed adopted prudent monetary policy and the adopted of credit crunch, a policy change that forced the housing market to adjust its transaction and lending patterns over the past decade. Federal Reserve Chairman Ben Bernanke believes that over the past decade, both borrowers and lenders in the U.S. credit market have been convinced of rising housing prices, so lenders are encouraged to use mortgages that exceed their ability to repay in the long run, and borrowers expect that the increased value of the property will be refinanced by more sustainable loans, or the risk of refinanced loans will be passed on to other investors through packaged sales. The one-year low-interest rate policy from June 2003 to June 2004, to some extent, directly or indirectly, was seen as amplifying the incentive of credit institutions to provide investors with riskier mortgages [2]. This policy of too long and low-interest rates has induced financial institutions such as banks to include previously excluded high-risk home buyers among borrowers, which has indeed increased the real estate boom but also weakened the stability of the entire U.S. financial system.

To be able to lend mortgages to these borrowers, credit institutions design an Alt-A loan for those borrowers who have higher credit scores than subprime borrowers but lower credit scores than prime borrowers. In addition, teaser rates can also help attract these borrowers without adequate repayable abilities, who often enjoy attractively low-interest rates for the first few years, only to expect to increase property values over time and refinance mortgages [6]. Beginning in 2006, however, too much construction devalued the overall property, leaving many borrowers unable to repay their loans. Those delinquent loans were securitized and converted into AAA ratings, even though they were worth less than that rating, and sold to trusts and other fund companies [6]. This sectoral approach

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eventually contributed to the creation of subprime loans, which spread like dominoes throughout the financial system.

2.2. Subprime Mortgage

Subprime loans are loans given to subprime borrowers whose credit scores are lower than prime borrowers who lack a stable income to ensure adequate repayment of the loan. In a low-interest rate environment, financial institutions tend to issue subprime loans because they tend to have higher returns than standard loans and can be securitized to pass on risk. In 2005, financial institutions began to shift from the traditional standard loan model to the subprime loan model, which lacked traditional asset-based, income-proof, fixed-rate lending methods that did not require borrowers to provide any proof of income and assets, so many borrowers who were traditionally excluded by financial institutions became real estate investors through this method [7]. Subprime loans differ from traditional prime loans, and even a minimal depreciation of the property of subprime home buyers can cause them significant losses and eventually lead to loan defaults. Traditional borrowers, they have 20% net worth when they buy a property, so a small drop in property prices has not had a serious impact on them. And for subprime borrowers, even a 2% price drop would doom them. Before 2005, subprime properties accounted for about 10% of U.S. real estate loans, but by 2006, the share of subprime loans had skyrocketed to 13 %; 20% of new housing loans generated are subprime loans [7]. As a result, subprime loans became an indispensable form of lending for U.S. home buyers, and the resulting securitization and refinancing of housing loans generated a large number of CDS, which became a source of shock to unstable financial markets.

2.3. Credit Default Swaps

Credit default swaps are quite simple financial instruments in theory; essentially, one party must pay a regular price to another to guarantee another party's obligations against default for a predetermined duration, such as three years. They have been disguised as debt insurance plans to avoid the restrictions that are sometimes placed on insurance contracts. In a credit default swap or bond insurance arrangement, the insuring party does not make an initial investment in the debt; thus, just a credit risk premium is required. The systematic risk premium and the default risk premium must both be included in this premium, though. This unregulated market, which was worth about $900 billion in 2000, reached $50 trillion in 2008. Financial derivatives and new inventions in finance represented by CDS have expanded rapidly in the early 21st century. In 2001, the value of derivatives trade was $106 trillion, or about 10.39% of US GDP and 3.31% of world GDP. In 2008, that figure reached a staggering $531 trillion, or 36.88 percent of U.S. GDP and 8.68 percent of world GDP.

This huge financial market is not effectively regulated. First, CDS itself lacks transparency in trading and value as a financial derivative, and is not regulated by the Federal Reserve and other financial regulations, and it is difficult for other regulators to coordinatively estimate or manage the accurate value and behavior of this market [2]. Unlike other financial products such as stocks and bonds, CDS does not have a clearinghouse to make it easier to manipulate. The Commodity Futures Modernization Act of 2000 failed to make any improvements in the regulation of such derivatives [8]. In addition, in 2004, the U.S. Securities and Exchange Commission relaxed the net capital rule, which allowed investment banks to substantially raise their debt ceilings and allowed the subprime mortgage market and CDS trade to grow rapidly. This lack of regulation and transparency greatly weakens the tolerance of the entire financial system to potential risks. After a large number of financial institutions securitized these derivatives, investors, even Freddie Mac and Fannie Mae, could not estimate the actual value and risk of these derivatives. In the absence of regulation, a CDS trade that lacks

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transparency is highly susceptible to manipulation, so the reliability of the entire financial system is weakened. Some financial institutions, such as Bear Stearns and Lehman, collapsed [8].

3. Consequences

3.1. Banks Breakdown

Since 2005, the U.S. housing market has entered a saturation state of home construction and sales, and property values have declined. This directly leads to the inability of many subprime loan holders to repay and refinance their loans, leading to loan defaults. At the same time, MBSs issued by many U.S. banks, bonds built on subprime loans, are also depreciating, exacerbating financial constraints at financial institutions such as banks. By 2007, the crisis was deepened by a sharp decline in the value of MBSs. MBSs, in which many banks once invested billions of dollars, are now downgraded by credit rating agencies as toxic or worthless assets, forced to liquidate their investments, seek financing from healthier-looking companies, seek loans from the government, or even declare bankruptcy.

In September 2008, the U.S. investment bank Lehman Brothers declared the largest bankruptcy in U.S. history. Lehman Brothers is one of the four largest investment banks in the United States, with more than a hundred years of history and assets of more than $600 billion. Lehman Brothers went bankrupt due to insolvency, with $6,390 in assets and $6,130 in debt [7]. Since Bear Stearns announced its collapse in March 2008, Lehman Brothers was considered on the brink of bankruptcy, largely due to the bank's large real estate investments and short-term funding sources, including $7.8 billion in commercial paper and $197 billion in repurchase bonds maturing in the first quarter of 2008 [2].

The collapse of Lehman Brothers was largely due to the bank's longstanding culture of high-risk operations, an investment bank accustomed to seeking highly leveraged and high-risk operations through limited net asset value to obtain high-output investment returns [7]. At the same time, the lack of internal supervision of banks overlooked the risks and values of long-standing complex financial inventions and derivatives, making it difficult for Lehman Brothers to cope with the losses caused by the decline in the value of its MBS holdings during the subprime mortgage crisis. Although Lehman Brothers were considered to be ‘too big to fail’, and Lehman Brothers tried to seek loans from the Federal Reserve to provide short-term liquidity, or government intervention to facilitate interbank transactions to save the bank from bankruptcy, the Treasury rejected the request. The U.S. government argues that government intervention creates moral hazard and leads the rest of the banks to use government aid as a sanctuary to endorse their possible recklessness. The bankruptcy of Lehman Bank thus produced a series of chain actions, and the financial and credit trust between banks was weakened.

3.2. Government Bailout

Scholars have called the period from 2008 to 2009 “the Great Bailout” when the U.S. government provided financial support and intervention to bankrupt banks and other financial institutions to rescue these too-big-to-fail companies. AIG, Fannie Mae, Freddie Mac, and other companies were in a tight financial situation during the same period, with JP Morgan buying Bear Steams with the backing of the Treasury Department, while others desperately needed government funding to rescue the crisis. On September 7, 2008, Fannie Mae was taken over by the government; On September 15, Lehman Brothers applied for bankruptcy; On September 16, the Fed took over AIG [9]. At the time, the Fed had poured up to $180 billion in taxpayer money into AIG. This series of events culminated in the passage of the Emergency Economic Stabilization Act ("EESA") by Congress on October 3,

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which would use $700 billion in earmarked funds to buy toxic assets of financial institutions, namely worthless mortgages and mortgage-backed bonds [9].

Global stock markets did not restore credit confidence in the financial system as a result of this bailout by the US government, but instead fell sharply. Many critics argue that such a move would cost too much taxpayer money to save financial firms and would put the government in ethical peril. Instead of repricing worthless junk bonds or other derivatives at a price higher than they are, the U.S. government bailed out the market by buying preferred stock in large financial institutions. In early 2009, the U.S. government enacted a new bailout operation, the Troubled Asset Relief Program (TARP) and the Financial Stability Plan (FSP). The TARP will initially invest $350 billion in emergency funding, while the FSP will spend the other half of EESA's capital to buy convertible preferred shares from banks [9]. To reduce the pressure on paying back mortgages, the U.S. Treasury Department invested $50 billion to reduce the total amount of monthly mortgages payable through Freddie Mac and Fannie Mae, and issued the Troubled Assets Loan Facility (TALF) program to help and encourage large financial institutions to buy more asset-backed securities [9].

The success of the U.S. Treasury's bailout by buying preferred shares in large financial institutions depends largely on the viability of these companies and the extent of the recession. Only if these companies were happy to buy back preferred stock and were able to weather the financial crisis did the bailout fail to waste taxpayers' money. One-third of the financial institutions that receive these subsidies, such as banks, fail to change their fortunes in bankruptcy or default, according to a February 2009 congressional hearing [10]. The Treasury bailout sought to increase the value of the preferred stock by avoiding direct capital injections into large financial institutions, both to avoid the huge costs of restructuring the assets of these financial firms and to benefit pension insurance, hedge funds, and other financial companies that hold shares in these companies. Otherwise, the bankruptcy liquidation of these too-big-to-fall companies could last for years, and shareholders, depositors, and holders of financial derivatives would suffer freezing or loss of funds. The bailout plan did not restore the value of the securities of all financial firms to their original levels, and in this case, the main beneficiaries were the employees of these large financial firms, not the small capital-starved companies or small financial institutions with insufficient government injections [10].

3.3. High Unemployment

The 2007 financial crisis had a catastrophic impact on labor force participation and employment in the United States. The recession is generally thought to have officially begun in December 2007, but unemployment peaked in October 2009. In November 2010, a year after the financial crisis, official U.S. statistics suggest that the unemployment rate is still hovering around 10 %, but the actual unemployment rate, that is, those who give up full-time employment or look for work, will exceed 17 % of the population. Real unemployment is higher in a large metropolis, where 40 percent of the labor force has not been employed in the past six months. Never since records began in 1940 has there been a recession that wiped out 3.6 million jobs in a year, as it did in 2008? At the end of 2009, another 4.7 million jobs had disappeared. Although the economy recovered slightly at the end of 2010, with some 1 million jobs added again, the reduction in demand for jobs is a drop in the bucket.

The underemployment rate, which reached an all-time high of 17.4 percent in October 2009 since its inception in 1994, is used to illustrate the unemployed who are actively seeking work, those who are looking forward to full-time work but are currently in part-time work, and those who have suffered setbacks in their job search and are unable to find employment. Underemployment rose rapidly during the financial crisis and in the years that followed, from 8.8 percent at the end of 2007 to 17 percent at the end of 2010. For job seekers, the loss of jobs means longer job search time, which has not been shortened with the government's bailout policy but is gradually extending as the recession deepens.

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The average time individuals spend seeking a job has skyrocketed from less than two months in June 2008 to more than six months in mid-2010.

Of all the unemployed, young men, especially minorities such as blacks, bear the highest unemployment rate. The unemployment rate for young men increased rapidly from 12.1 percent at the beginning of 2008 to 19.8 percent in mid-2009. The rapid increase in the unemployment rate in general, and among men belonging to ethnic minorities, is influenced by multiple factors. Start-up of new investments has been limited due to the overall recession, while industries such as construction, manufacturing, and services, where young people, especially young men, are concentrated, have been hit harder by the financial crisis [11]. Panic in financial markets has also left investors less confident, with many companies cutting staff to reduce spending and maintain necessary liquidity. Insufficient investment, both at home and abroad, has also slowed the unemployed to find work again. At the end of 2010, when the financial crisis was official, a large number of unemployed people eventually dropped out of the labor market altogether after a long period of unemployment [11].

4. Conclusion

The 2007-2009 financial crisis is considered the worst financial crisis humanity has experienced since the Great Depression of the 1930s. The financial crisis hit the U.S. economy and the global economy hard, and its subsequent effects may not only affect a generation's work, possessions, and lifestyles, but permanently change the attitudes of governments, banks, financial institutions, investors, and even ordinary people towards financial behavior and financial products. The crisis came as a surprise to almost everyone, but its roots were already in the U.S. financial system a decade ago. The explosion of the housing market in the United States at the beginning of the 21th century attracted a large number of banks and financial institutions to invest. The immediate cause of the financial crisis was the Federal Reserve's monetary policy, inflation in subprime mortgages, and the abuse of credit default swaps. Before 2006, the Fed's low interest rate policy lured financial institutions to a certain extent to engage in high-leverage and high-risk financial product development and financial derivatives trading, and encouraged investors to apply for housing loans that exceeded their ability to repay. Financial institutions have issued subprime mortgages to a large number of investors and tried to securitize these loans to pass on the risk to other investors, or to refinance them in the event of a credit default. The opacity and lack of regulation of the CDS market make this over-inflated market potentially risky for the entire financial system. The financial crisis also triggered a large number of banks to go bankrupt due to insolvency or default, and after the collapse of Lehman Brothers, the US government had to use a large number of emergency funds to bail out the market. These bailouts largely saved these too-big-to-fail companies and had no significant effect on the years of high unemployment. Although more than a decade has passed since the crisis, the analysis of the causes and consequences of the 2007-2009 financial crisis remains relevant for today's global economy, which is affected by both COVID-19 and the war in Ukraine. The combination of these two uncertainties, which has led to turbulence in global financial markets, supply chain disruptions, and inflation in many countries, suggests that a new global financial crisis may be inevitable in the future. In this context, studying the causes and consequences of the 2007-2009 financial crisis can provide valuable references for future economic decision-making and avoid repeating the mistakes of the past.

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