A Retrospective on the Subprime Crisis and its Aftermath

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Abstract. The paper focuses on researches about 2008 financial crisis. It uses past data and facts to explain the cause, process and aftermath of the event. It is stated that the lack of regulation in financial market enabled banks to release a lot of unqualified financial derivatives to those who were attracted by the seemingly high price of the housing market bubble. However, the rating agencies did not declare the bad quality of these mortgages, leading to more people buying in the bad mortgages while they believed they were safe. When the housing bubble broke, all the bad mortgages and other derivatives could not be paid off, and this caused a huge effect to the whole world. The crisis forced many banks to file for bankruptcy, and the unemployment rate increased noticeably in a number of nations. The Dodd-Frank Wall Street Reform and Consumer Protection Act and the establishment of a capital adequacy ratio for banks to assure their safety are only two of the steps governments have taken to ensure that the crisis doesn't happen again. As can be seen, people today place a high value on understanding the 2008 financial crisis, and a thorough investigation can aid in preventing a similar catastrophe.

Keywords: 2008 financial crisis; housing market bubble; subprime mortgage; lack of regulation.

1. Introduction

Ben S. Bernanke, Douglas W. Diamond, and Philip H. Dybvig received the 2022 Nobel Prize in Economic Sciences for their in-depth studies on banks and financial crises, and ever since, more people have shown an interest in the research on financial crises. Ben S. Bernanke indicated that greater attention is supposed to be paid on the developments of credit market. He stated that this is beneficial for both analyzing the economic effects brought by financial crises and study of ordinary business cycle [1]. Their researches help demonstrate the importance and meaning studying financial crisis., which enables human to have a clear picture about the cause, detailed process and significant consequences of financial crises. The studies reveal the potential problems and defects existing in our international financial system by reckoning on the crises happened in the past. They provide human with a chance to learn from the past and take actions to prevent the serious problems from happening again in the future. Besides prevention, the studies direct people how to react properly when faced with a financial crisis. The importance is even amplified in today's society, especially under complex international situation which is deeply affected by COVID-19 and Ukraine conflict. In this paper, the writer conducts a research on financial crises, choosing the 2008 world financial crisis as an example. As one of the most influential financial crises in history, the 2008 financial crises is considered proper to be the object of study.

The breakout of 2008 financial crisis was never a sudden event. Before the crisis, a number of consequences caused by poor economics, implying the upcoming global crisis. The improper financial policies on real estate contributed the 2008 financial crisis. In order to stimulate the economics and increase domestic demand, the US government had published policies and provided citizens with support to finance for their housing, which lead to the abuse of financial derivatives, such as subprime mortgage. Since the beginning of the 21th century, real estate became a prevailing industry as a great number of real estate speculators emerged in the US. Most speculators asked for a loan from lending company and used their houses as collateral. Seeing the existing risk in the market, the lending companies cooperated with and finance from investment banks to spread the risk.

The investment banks floated bonds to further spread the risk to bond holders, who then chose to buy in insurance, leading a lot of insurance companies set up fund committee. Consequently, the price of real estate in the USA rose in an incredible speed and countless financial institutions bought in

funds, while no efficient regulation and supervision was implemented. In 2006, Subprime Lending crisis appeared, as the result of Bubble Economy in real estate. The US real estate market's supply and demand were out of whack in 2007, which had severe ramifications for the sector. Many homebuyers were directly made unable to repay their debt as a result of the financial crisis. Numerous subprime mortgage institutions incur fatal losses as a result, and funds were also impacted. The growing unemployed were the ones who suffered the most, closely followed by those who were still working but had to accept lower wages and living conditions due to changes to assistance services given by the government. The issue spread fast to every country in the world [2].

2. Causes

With the over-estimation of real estate market, a great number of people enter the market, which further exacerbate the over-estimation. Without efficient regulation and proper monetary policy, the scale of financial derivative expanded rapidly. In Credit Default Swaps, people use their house as mortgage, leading to the limited cash flow in the market after the bubble broke.

2.1. Monetary Policy

Government's policies, which aimed to stimulate the US economy, gradually increased the price of houses, leading to the bubble of real estate market. Before the cheap credit, the US government had implemented the large-scale tax reduction policies, which, to their disappointment, had fairly tiny effect on stimulating the economy in America. However, cutting interest rate, a means used by Alan Greenspan who was the Federal Reserve Chairman at that time, worked extremely well. The interest rate was reduced for as many as 11 times and it dropped rapidly from about 6.5% in 2000 to around 1% in 2003. After the reduction, the interest rate was nearly zero, which made America an ideal place to get cheap credit. In addition, the standard for getting a debt was extremely tolerant. Debt could even be released to those without a good credit level, a good income or a strong pay back ability, implying a deadly effect in the future. One popular theory for the real estate market's boom was that widely accessible credit, maybe brought on by a "global savings glut," resulted in low real interest rates, which significantly increased home demand and prices [3]. The notable bubble in real estate market contributed to the abuse of financial derivatives, which mainly consists of subprime mortgage.

2.2. Subprime Mortgage

Subprime refers to the bad credit scores of individuals taking the loan. A subprime mortgage is usually issued to borrowers who have low credit ratings. These borrowers are normally refused by a conventional prime mortgage because according to their credit ratings, the lenders view them as individuals riskier than others on defaulting on the loan. Lending institutions raise subprime mortgage interest rates substantially higher than prime mortgage rates to make up for the enormous risk they are incurring by disreputable borrowers. The subprime mortgage can often be adjustable-rate mortgages (ARMs) at the same time, which means their interest rate might be increased at a specific point of time.

A subprime mortgage can be offered by any financial institution and lenders who mainly focus on high-interest subprime loan also exist. These institutions, often viewed as the biggest culprit of subprime mortgage crisis, freely granted debt to people who were definitely unable to cover the loan because of the real estate bubble in the beginning of 2000s. From the borrowers' perspective, the higher interest rate of subprime mortgage brings them a much costlier loan in the long time, implying the huge risk of their defaulting on the debt. From a systemic view, the uncontrolled subprime mortgage is often considered a significant factor leading to the 2008 financial crisis. In reality, as home prices started to plateau in the late stages of the boom (2006–2007), originations of U.S. subprime mortgages almost immediately collapsed, making it challenging for overleveraged borrowers to restructure their variable rate mortgages [4]. The rising credit default swaps were also made possible by the iffy subprime mortgage.

2.3. Credit Default Swaps

A CDS, involving bonds or forms of securitized debt, is a financial derivative that enables an investor to transfer his credit risk with that of another investor. By buying a CDS, the lender successfully swap the risk of default to another investor who has agreed to reimburse them if the borrower is not able to pay off the debt. In a contract of credit default swaps, the buyer side pays an ongoing premium which is much like the payments on an insurance. In turn, the seller is willing to pay the value and interest of the security if any default occurs.

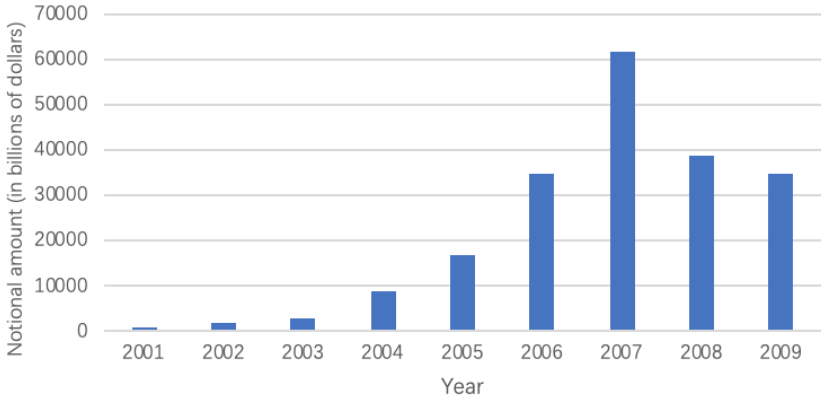


Fig 1. Total credit default swap notional amounts outstanding (Photo credit: Original)

In Figure 1, Nearly $920 billion was the entire notional amount outstanding in 2001. It rose to $17.1 trillion in only four years and peaked in 2007 at almost $62 trillion. This demonstrates how widespread this instrument spread [5]. Since many years before the large numbers of defaults in 2008, banks had been sold a large number of CDS on seemingly reliable AAA mortgages. Until 2009, the banks selling CDS were still unregulated, causing their significant role in the 2008 financial crisis. In fact, a lot of these banks were undercapitalized and did not have the ability to cover the default once it happened. Eventually, because of the incredibly high interest rate for those who were not able to pay the debt on time, a lot of people got default and subprime crisis became extremely severe. Under this situation, the banks which sold the credit default swaps to those people were all on the hook. The bubble burst, sent the banking industry into an unexpected downfall.

3. Consequences

The financial crisis brought human serious consequences which went far beyond anyone's expectation at that time. On September15, 2008, Lehman Brothers Holdings Inc. publicly declared its bankruptcy. The fourth-largest U.S. investment bank with a long history of 164 years old, Lehman Brothers Holdings Inc. went bankrupted and kicked off the 2008 international financial crisis. The bank has taken on excessive risk without having a matching fast cash flow. Technically, its $639 billion in assets in 2008 were more than enough to pay down its $613 billion in debt. However, it was challenging to sell the assets [6]. The major lack of cash flow ultimately resulted in the collapse of the big corporation since the assets were difficult to sell and convert into cash flow. Because of overconfidence, the firm bought heavily into real estate market and gained a strong profitability at the beginning. Without good timing, they still kept the financial products in real estate market on their books when the market started to fall rapidly, directly causing the firm's bankruptcy. The USA's GDP decreased by 4.3% as a result of the financial crisis, and the recession continued for 18 months. The unemployment rate increased from 5% to 10%. 8.8 million individuals experienced employment losses. Following, there was a considerable decline in production and many had trouble finding work. Home values fell by 40% while household wealth shrank by $19.2 trillion [7]. High unemployment rates were caused by the financial crisis, which also spread to many other nations and resulted in weak economic development globally. Apparently, EU was deeply affected by the recession. A few of the European countries experienced a prolonged debt recession and serious debt crisis. Many

governments immediately lowered interest rates and engaged in quantitative easing in reaction to the financial crisis. Many nations announce further fiscal stimulus measures, mostly greater government spending and tax reductions, to help their home economies recover. Some nations, including Spain, Ireland, Greece, and others, were forced to incur significant debts in order to mitigate the effects of the collapse of the financial market on their domestic economies. Exports were more competitive and sparked economic development as a result of their variable exchange rates and the devaluation of the Polish Zloty in 2008–2009. Though the subprime crisis was really powerful, still some countries in some way avoided the recession. Poland, one of the countries which successfully avoided the recession, had low private debt and flexible currency. Exports became more competitive and sparked economic development due to their variable exchange rates and the weakening of the Polish Zloty in 2008–2009. Energy, oil, and other commodity prices have finally significantly decreased as a result of the financial crisis and recession.

4. Regulatory Responses

4.1. Dodd-Frank Act

The Dodd-Frank Wall Street Reform and Consumer Protection Act was approved by the U.S. Congress in 2010 during the Obama administration in reaction to the irregular financial practices that ultimately caused the global financial crisis in 2008. The legislation aimed to provide a safer environment for both consumers and tax payers. The Dodd-Frank Wall Street Reform and Consumer Protection Act created a number of new government organizations to oversee different legal matters and the whole financial sector in the country. Major financial firms' financial health is monitored by the Financial Stability Oversight Council and the Orderly Liquidation Authority, which were established in accordance with a requirement of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Additionally, it compels banks to raise their reserve requirements [8]. CFPB was in charge of preventing predatory mortgage lending and helping consumers to know clearly about a mortgage which they would like to buy before doing the purchase. The Volcker Rule was also implemented to reduce speculative trading, end proprietary trading, and restrict how banks can invest. In order to ensure that agencies offer accurate and useful credit rating and evaluation data, the SEC office works [9]. The existing whistleblower program was expanded and strengthened as well. Supporters of Dodd-Frank believed that the law would help the economy avoid from experiencing a customers against many of the practices that fueled the 2008 financial crisis. Opponents countered that this regulation would actually reduce American businesses' ability to compete with their international counterparts. They specifically claim that community banks and smaller financial institutions are unjustly burdened by the regulations' compliance requirements, despite the fact that these organizations had little to do with the financial crisis' development [10]. The Dodd-Frank Wall Street Reform and Consumer Protection Act's overarching objective is to safeguard taxpayers and consumers against outrageous actions in the financial system.

4.2. Basel III

Starting in 2009, Basel 3is still being implemented until 2023. An international regulatory agreement called Basel III included a number of changes and innovations aimed at reducing risk in the global banking industry. Banks must meet specific leverage ratios and maintain a minimum amount of available reserve capital. Shortly after the financial crisis of 2007-2008, Basel III was introduced by the Basel Committee on Banking Supervision, an association of central banks from 28 countries with headquarters in Basel, Switzerland. Despite the fact that prior reforms had been put in place, many banks were still deemed to be undercapitalized and overleveraged.

The three primary factors that determine a bank's capital adequacy are outlined in prudential rules on "Capital Adequacy." These include market risk brought on by banking activity, credit risk related to exposures, and the kind and caliber of capital on hand to support such exposures [11]. The Basel 3 main indexes included the CAR. The capital adequacy ratio, commonly referred to as the capital-to-

risk weighted assets ratio (CRAR), is used to improve depositor protection and guarantee the stability and effectiveness of international financial systems. In order to prevent banks from going bankrupt, it is important to make sure they have a big enough safety net.

A bank's capital is divided by its risk-weighted assets to get its capital adequacy ratio; note that the capital is split into two categories. Equity capital, common share capital, intangible assets, and audited revenue reserves make up Tier-1 capital. With the first form of capital, there is no requirement to halt activities in order to absorb losses. Unaudited reserves, unaudited general loss reserves, and unaudited retained profits make up Tier 2 capital. This form of capital reduces protection for depositors and creditors by absorbing losses during the bank's bankruptcy.

According to the findings of the multiple regression analysis, the ratio of capital adequacy to average assets showed a strong positive link with non-interest income. The ratio of non-interest income to average assets and Tier 1 capital to total assets were significantly inverse. The net interest margin was significantly inversely correlated with asset quality. Other variables and the dependent variables exhibited an insignificant connection. CAR has drawbacks of its own when in use. One drawback is that it does not take into account order to mitigate this risk during a financial crisis, which might affect a bank's capital and the cost of capital. Basel III also imposes restrictions on several banks. For instance, according to the current BASEL III laws in force in India, banks are required to keep a capital adequacy ratio due to restrictions set out by the Reserve Bank of India. The problem for India's private sector banks has only grown more difficult as a result of the merger of public institutions [12].

5. Conclusion

In general, the financial crisis was mainly caused by the predatory lenders who agreed to offer mortgage to those people who might not be able to pay off the debt. People were all attracted by the extremely high value of houses, which were actually far beyond its intrinsic value. A lot of unqualified financial derivatives were put into the public. The lenders helped the people to achieve the homeownership which they could not afford. The rating agencies contributed a lot to the spreading of the crisis. They gave a lot of bad mortgages the best ratings, creating a illusion that the mortgages were safe and attracting more people to buy them. The bubble, which exists all the time in real financial world, finally broke in 2008. It caused wide-spread public indignation and a lot of bankers received their award for their recklessly taking the economy. The economic damage and human suffering were immense and it took years for countries to fully recover from the crisis.

The 2022 Nobel Prize in Economic has helped to demonstrate the significance of studying pat financial crisis. Only when we know about past events thoroughly, we could fully learn valuable experiences from it, which helps to prevent the crisis from happening again and find the most efficient solution if it does happen in the future. Nowadays, with complicated international situation, turbulence always exists in financial market. Learning from the past financial crisis enable people to better control the market at present and in the future.

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