Unraveling the Subprime Crisis

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Abstract. This paper investigates the importance of studying the financial crisis in 2008, especially under current situation of COVID-19 and Ukraine Conflict. The three primary factors that contributed to the financial crisis in 2008 were the Fed's monetary policy, the credit default swaps, the crisis of subprime mortgage crisis. The Fed's monetary policy was loosen and then the subprime mortgages were induced, which in turn caused the credit default swaps lending to the collapse of the financial system worldwide. There were several severe consequences caused by the financial crisis, including the sharp fall in GDP of both developed and developing countries, breakdown of banks, especially the collapse of Lehman Brothers, decrease in unemployment and the rise of household risk. In order to recover from this crisis, several changes has been proposed, implemented and revised, including the Dobb-Frank Act and Basel III. Overall, the importance of studying and understanding the financial crisis has been addressed effectively in this article in order to better the existing financial system and learn from history.

Keywords: 2008 Financial Crisis; subprime mortgage; consequences; regulatory responses.

1. Introduction

Financial crises are one of the most significant topics under discussions currently within the economics and finance fields. The theoretical and empirical findings of Ben S. Bernanke, Douglas W. Diamond and Philip H. Dybvig who won the Nobel Prize in Economic Sciences in 2022 provide crucial insights into conducive role that banks play in the economy and society [1]. Moreover, how banks vulnerabilities can trigger destructive financial crises is also demonstrated by them. Therefore, the issue of financial crises has received considerable critical attention and understanding the complexity of it is vitally important. Especially under current complicated economic circumstance, central banks and any other similar financial intermediaries might encounter the Great Recession and economic downturn generated by COVID-19 and Ukraine conflict. Thus, research of financial crisis is crucial and significant. Central to the research of financial crisis is the Financial Crisis in the year of 2008.

The 2008 financial crisis has been acknowledged as the most devastating economic slump for capitalism since the Great Depression of 1929. After a bursting of housing market speculative bubble in the United States, fueling a large credit expansion brought on by the use of new financial instruments, especially the subprime mortgages, the financial crisis quickly spread throughout the world in just a few months. The representative event was the bankruptcy of Lehman Brothers which triggered the crisis after the Feral Reserve (Fed) did not intend to bail it out. This decision of Fed broke the thought of 'too big to fail' and caused a tremendous panic among financial institutions that affected by the bursting of housing bubble [2]. Which in turn stimulate those financial institutions, especially commercial banks, valued their liquidity much more. Additionally, it led to a sharp decline in asset prices and the availability of credit for almost all types of commercial and industrial transactions.

As consequences, industrial production and GDP in developed countries fell dramatically during the time period of financial crisis in the year of 2008; in some cases, the reduction of annualized rate of GDP exceeded 10%. Even those developing countries, like Brazil, who did not had issues on their financial system had seen a sharp decline in industrial output and GDP. For instance, industrial production in Brazil decreased by roughly 30% in the fourth quarter of 2008, while the GDP shrank by 11% annually during this time period. Governments of developed countries expanded their monetary and fiscal policies in response to this financial crisis. In order to infuse liquidity into the

US financial markets, the Fed almost doubled its balance sheet and cut the short-term interest rate, or Fed funds rate, to zero percent. Similar tactics were also used by the European Central Bank and the Bank of Japan. Far-reaching economic consequences will result from the financial crisis in 2008. The major industrial economies in 2009 saw sharp declines in GDP. As a matter of fact, the GDP of the US fell by 2.7%, that of the European region by 4.2%, that of Japan by 5.4%, and that of the UK by 4.44% [3]. Apart from the huge fall in GDP, the banks were forced to re-examined their rules, the unemployment rate increased significantly and the household risk was also rising dramatically.

2. Cause

Since World War II, this Great Recession and economic downturn was the longest which lasted almost two years [4]. For the purpose of response to the financial crisis, the Fed's adopted several unconventional approaches. It stimulated the subprime mortgage crisis, which in turn led to the failure of credit default swaps. All of these causes led to the most recent financial crisis.

2.1 The Fed's Monetary Policy

The Federal Reserve's approach to the crisis changed and featured lots of avant-garde strategies over time. Initially, the Fed reduced the rate of federal funds through original policy operations, from September 2007 (5.25 percent) to December 2008 (0-0.25 percent). Meanwhile, the periods of greatest drop in 2008 were January through March and September through December [4]. There are several reasons why the decline was so significant, including downgraded economics, risk of output, inflation and deflation. The large-scale asset purchase (LSAP) initiatives were another set of unconventional strategies. While the rate of the federal funds was almost zero, the purchases of assets were made in an effort to cut longer-term public and private borrowing costs. However, the dysfunctional and illiquid credit market and wider risk spreads dampened the economic stimulus provided by the Fed's decreases in the funds rate. In addition, the price of houses started to rise due to government's policy. Depending on the particular index, the peak and following drop in housing values happened between mid-2006 and early-2007, which sharply increased the likelihood of subprime mortgage defaults [5]. The issues in the market for collateralized debt obligations impacted both the domestic and international credit markets.

2.2 Subprime Mortgage

A subprime mortgage is generally a type of loan intended for potential borrowers with low or impaired credit records, usually with Fair Isaac Corporation (FICO) credit scores below 640 [6]. In order to offset the additional risk, the lender is incurring by lending to such high-risk borrowers, the interest rate is greater. In most cases, Subprime mortgage loans are more likely to be adjustable-rate mortgages (ARMs). The interest rate can rise significantly based on the conditions of current market.

Since subprime mortgages were a major contributor to both the Great Recession and the financial crisis, the risk associated with them is enormous. The subprime mortgages are for those who are not qualified for prime rate mortgages, which means that the borrowers usually will have difficulty to pay the loan back. Therefore, in order to give the borrower an additional incentive to make on-time payments back, bank or any other institutes lending the money has the ability to levy high interest rates. The problem is that in contrast to those who have strong credit histories and can afford loans with lower interest rates, those who take out these subprime mortgages may already be struggling with debt and face a more challenging and expensive future. These group of people are tended to have a high credit risk and are more likely to default than those who are good in credit. In the 2000s, when the housing boom was at its height, many lenders issued subprime mortgages to borrowers who weren't eligible. In 2006, the year before the crisis, financial institutions disbursed $600 billion in subprime mortgages, or about one-fourth (23.4%) of all mortgages [7]. Due to easy access to credit and lax lending requirements, numerous high-risk borrowers were able to purchase costly houses. Many homeowners owing more on their mortgages than the value of their properties when the housing market contracted. Homeowners who had interest-only loans and adjustable-rate mortgages (ARMs) in particular struggled to make their monthly payments as the Federal Reserve Bank increased interest rates. Due to declining real estate values, they were unable to refinance or sell their homes. Since the onset of the crisis, close to 5 million properties have been foreclosed upon. Additionally, Arentsen et al. (2015) first showed that there is a connection between credit default swaps (CDSs) and subprime mortgage defaults, showing that the proliferation of CDSs covering mortgage-backed securities backed by subprime loans has a positive impact on the rise in subprime mortgage defaults [8].

2.3 Credit Default Swaps

Credit Default Swaps (CDSs) is one of financial derivatives which lets one investor swap their credit risk for another investor's. In order to exchange the default risk, the lenders who purchase a CDS from other investors who promises to reimburse if the borrowers' defaults. During the time period between the 1990s and the beginning of the 2000s, the majority of CDS were supported by a range of loans, which reduced the probability of default and helped it gain a reputation for stability. However, many banks ended up serving as collateral since the 2003 housing bubble allowed them to significantly rely on subprime mortgages. The CDS market grew dramatically between 2003 and 2008 in terms of size. According to data supplied by the International Swaps and Derivatives Association, the notional main amount for CDS increased by approximately 100 times, from $631.5 billion in the first half of 2001 to $62,173.20 billion in the second half of 2007, before starting to drop in 2008. According to Stulz (2010), From the mid-1990s to the end of 2008, the overall CDS market experienced drastically growth and fall [9]. It is evident from the popularity of CDS that the market for CDS included commercial banks, investment banks, and finance organizations with a focus on loan origination. However, the CDS market is lack of supervision and the policies implemented was poor, so credit offered by lenders were extended to riskier borrowers in order to profit more. Additionally, investors of CDS might be unable to identify the actual risk that financial institutions were taking and incurring because the transactions of CDS were not recorded on any balance sheet of financial institutions [10]. The entire system was affected by the lack of transparency and became more vulnerable as a result of the decline of the trust and confidence in the counterparts.

3. Consequences

Banks were involved most in CDS, so the first distinct consequence would be the breakdown of banks. Prior to the 2008 financial crisis, CDS had a higher level of investment than other pools. The financial sector had been significantly devastated by the summer of 2008. The sign was the failure of several symbolic financial institutions. The two biggest mortgage lenders in the country, Fannie Mae and Freddie Mac, were taken over by the government when IndyMac Bank collapsed, making it one of the greatest banks to fail in American history. Additionally, to aforementioned financial organizations, additional investment banks were also involved. With a debt of $600 billion, of which $400 billion was covered by CDS, Lehman Brothers, one of the most well-known financial businesses, was the greatest loss [11]. In order to save it, bringing into the intervention of Federal Reserve of the United States was necessary because the American Insurance Group, the insurer of banks, was unable to pay off the debt due to the lack of resources. Lehman Brothers, one of the biggest investment banks in the US, had 25,000 employees globally, $639 billion in assets, and $613 billion in liabilities at the time of its demise [11]. The bank came to be a representative of the 2008 Financial Crisis as the result of the catastrophe of subprime mortgage which influenced the whole financial markets and caused around $10 trillion in loss of economic output.

As the financial crisis turned into an economic catastrophe, one of another obvious effects were an increase in unemployment in many countries, especially the youth unemployment that maintained as a dramatically high level in many cases; and for the balances of employee sponsored retirement and savings accounts decreased by at least 25% in 2008 [12]. In addition, the conditions brought on by the crisis had an even greater negative impact on long-term unemployment. It depends on the nature of different labour markets of various countries, having rigid markets are much less affected by the crisis than those countries who have flexible markets [13]. Most of the countries around the world had doubling of the unemployment rates as a result of the crisis, and there was a noticeable decline in the number of jobs available in the market. In the U.S., Between 2007 and 2009, there were almost 8.8 million job losses, representing the doubled amount of unemployment rate, which reached almost 10% in 2010 [13]. Even strong economies like the United Kingdom and the United States had only recently begun to recover from unemployment, while other nations like Spain or Greece see no sign of an end in sight.

As the influence of financial crisis in 2008 is globally, it is one of the most important contributing causes of the rise in household risk. The reevaluation of risk by businesses as a result of the crisis has an impact on households as well. Households discount their future incomes as a result of their increased perception of risk, which has an impact on their savings and spending habits. Most countries around the world are affected but in different degrees. For instance, there are a number of factors that make Japan's durable manufacturing more susceptible to risk reevaluation, such as the collapse of durable exports, which were primarily made up of cars, as a result of the global recession, the appreciation of the Yen, which was prompted by the drop in commodity prices, and the improvement in their terms of trade [13]. Additionally, the housing bubble of Japan ten years before the US did, thus during the past few years they have not seen a property bubble like the US has. As a result, their economy would not experience as much of a shock as the US did when the housing bubble burst.

4. Regulatory Responses

4.1 Dodd-Frank Act

The government adopted several laws that had an impact on the housing market, notably the Dodd-Frank Act. The Wall Street Reform and Consumer Protection Act, generally known as the Dodd-Frank Act, was passed by the US Congress in reaction to the financial industry's actions that contributed to the financial crisis of 2008. It intended to improve the country's financial stability, put a stop to "too big to fail," raise security of the American financial system for consumers and taxpayers, and encourage financial industry transparency and responsibility. Following the Great Recession, the Dobb-Frank Act had a significant impact on almost all federal financial regulatory organizations as well as the nation's financial services sector. The Act improves the existing regulatory structure by creating new agencies (while combining and deleting others), enhancing monitoring of certain institutions deemed to pose systemic risks, changing the Federal Reserve Act, promoting transparency, and making other adjustments.

Its provisions are related to various titles, including Financial Stability, Bureau of Consumer Financial Protection, the Volcker Rule and so on. For instance, in line with the Dodd-Frank Act, the Financial Stability Oversight Council and the Orderly Liquidation Authority are in responsibility of the financial stability of significant financial institutions. Those corporations, were seen as being too large to fail, severely did harm to the U.S. economy. The fund called The Orderly Liquidation Fund, one of the mechanisms provided by the law, allowed liquidations or restructurings. The aim of setting up this fund was the assistant of the liquidation of those financial institutions who had been placed under receivership in order to avoid using tax fund to support such financial corporations. The council has the ability to dissolve banks that were regarded to be overly large and those who determine pose a systemic risk. It might also compel banks to increase the reserve requirements of financial institutions. By the same token, large insurance companies, considered to be too big to fail, were identified and oversaw by the new Federal Insurance Office that was newly tasked [14].

Although the Dodd-Frank Act is effective, there are some shortcomings of it. A class-based jurisdiction for inconclusiveness potential is the first issue of the Act in regulating the financial industry. The issue is a matter of group dynamics. It is a concern when people can band together in the financial environment to escape obligations they might otherwise have as individuals. Secondly, the fact that the new financial laws respond to past market breakthroughs while being insensitive to impending innovations is another significant flaw. Last shortcoming is that its inadequate use of deterrence tactics [15].

4.2 Basel III

Basel III, which markedly departs from the tenets and substance of Basel I and II, was formally accepted by the Group of Twenty (G20) members in November 2010. Basel I, Basel II, and its shortcomings in addressing the capital requirements of internationally active banks are all elements that indirectly contributed to Basel III's development. Undoubtedly, the global financial crisis of 2008, which poses the largest threat to the world's banking system since the Great Depression, is directly responsible for Basel III [16]. Basel III aims to improve both the quality and amount of capital that banks maintain. The macroprudential level is the foundation for the Basel reforms, which introduce a set of instruments and rules there. In contrast to Basel, I and II reforms, which mostly concentrated on a micro-prudential level or bank-specific level, it is different.

There are several issues that were brought out by Basel III, such as the increase of quality and quantity of capital, establishment of additional buffers, introduction of a leverage ratio and so on. The Basel Committee on Banking Supervision (BCBS or the Basel Committee) decided that among all the issues, the regulatory capital base needs to be improved in terms of quality, consistency, and openness. Every internationally operating bank's capital basis must, under Basel III regulations, be supported by an excellent buffer that can absorb losses during challenging economic periods. Basel III also aims to enhance the idea of capital as a whole, placing particular focus on its general quality, openness, and consistency.

There is little doubt that the Basel Committee's updated framework represents a significant advancement. However, some individuals believe that Basel III's aforementioned restrictions would delay the nation's economic recovery. The BCBS recognizes that Basel III will not significantly affect short-term growth in this area and has developed an implementation timeline to minimize any adverse effects on recovery [17]. Others have proposed even more drastic changes, including completely abandoning the risk-weighted method. However, it is unclear if national regulators will feel confident carrying out reforms given the current economic climate. Last, Basel III's long-term success or failure will be determined by the speed at which it is implemented as well as its overall content.

5. Conclusion

This paper set out to gain a better understanding of the Financial Crisis in 2008, which is the longest economic recession from the World War II. It caused catastrophic recession for individuals, companies, and economies worldwide. The significant results found from previous research emerging from this paper is that three major causes are needed to be captured. The federal funds rate was close to zero and the lending standards were loosened, which fueled the bubble of housing price in the U.S. first then the world. The bursting of housing price increases the possibility of subprime mortgage defaults, which is ignored by people in financial sector and policy makers. Then the CDS is proposed to hedge the risk of subprime mortgages, and lots of financial companies especially commercial banks got involved in the profitable situations. As the subprime crisis could not be solved by financial market, the financial market started to collapse.

Many measures have been implemented in an effort to recover from the financial calamity, such as Basel III and the Dodd-Frank Act. The Dodd-Frank Act aims to increase the financial stability of the country, increase financial sector openness and accountability, and make the American financial system much safer for consumers and taxpayers. Basel III aims to enhance Basel I and II by including a macroeconomics-focused viewpoint. Both changes have been proved strengthening the financial system. These findings raised important theoretical issues that in order to make correct economic and financial decision, it is useful and necessary to study the financial crisis in history, especially under the current economic status of COVID-19 and Ukraine Conflict.

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