Analysis of the Fed's Implementation Plan to Tackle the Financial Crisis in 2008

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Abstract. After the financial crisis, quantitative easing policy played an important role as the main body of the Federal Reserve's unconventional monetary policy. From the market environment at that time, the emergence of quantitative easing policy will play a positive role through the interest rate commitment effect. In times of crisis, it is feasible for the Fed to use some extent, and can be used as a reference to save the crisis in the future. The central bank should play an effective and active role in maintaining financial stability. In times of crisis, central banks should focus on providing liquidity, and even act as an important intermediary to the financial system, just as the Fed has done in this crisis. The crisis shows that, in the case of market failure, the central bank can effectively prevent the bank failure, and clean up the panic and spread caused by the collective irrational behavior. In the systemic financial crisis period, the central bank will actively innovate the rescue plan from the Fed's crisis rescue, open discount Windows to non-bank financial institutions, expand the scope of acceptable collateral, and access the financial markets to buy and sell private sector securities to maintain the financial system. Through a series of measures and corresponding results of the Federal Reserve to deal with the crisis, this paper provides a reference for the international countries facing similar problems and forms a complete evaluation system to establish the appropriate crisis management model for the international financial framework.

Keywords: The Federal Reserve, Financial Crisis, monetary policy, the discount window.

1. Introduction

1.1 Background

On February 13, 2007, according to the released fourth-quarter profit report of 2006, the United States faced a serious second-largest subprime mortgage risk. The alarm bell of profit margins sounded the beginning of the subprime mortgage crisis. Subsequently, the impact of the subprime mortgage crisis continued to expand. Judging from the specific data in the two months since May, Western hedge funds frequently went bankrupt. In addition, the subprime mortgage crisis has also caused the failure of private equity. As of August, the subprime mortgage crisis has spread to the entire stock market. According to the fluctuation data of the world's major stock markets, stock prices fell by more than 2% on trading days. With the fermentation of the crisis and the global credit crunch, central banks began to inject huge amounts of money into financial markets to prevent the situation from deteriorating, but the results were not ideal, and the subprime mortgage crisis still broke out. In September 2008, the subprime mortgage crisis in the United States intensified again. The financial crisis spread to insurance companies, savings institutions and commercial banks and caused continuous damage. On September 15, Lehman Brothers, the fourth largest investment bank in the United States, filed for bankruptcy protection. In the same month, the U.S. Federal Reserve announced an emergency loan of $85 billion to American International Group (AIG). As the crisis intensified, more and more large financial institutions failed or were taken over by the government. The subprime mortgage crisis has turned into a financial crisis, which is difficult to control. What's more, the crisis has completed a global financial negative impact, which has significantly slowed down world economic growth, financial markets in developed countries have fallen into recession, fiscal deficits have increased, global inflationary pressures have increased, the world trading environment has deteriorated, cross-border employment situation, and rising unemployment has been rising.

1.2 Related Research

The Federal Reserve uses the discount window as a lender of last resort. Looking back on past financial history, despite the serious liquidity shortage faced by banks, DW is rarely applied. The root cause is that banks believe that after borrowing from DW, media disclosure may cause the bank's financial situation to be inferred and become a shame. Therefore, in the 2007-08 financial crisis, stigma limited the effectiveness of bank DW and led the central bank to provide emergency liquidity. In short, this paper proposes that DW stigma is usually regarded as an obstacle to the Fed's mission as lender of last resort, especially during the financial crisis, when the consequences of DW stigma may be the most destructive. When banks are unable to find financing in the market for occasional and special reasons, DW can play a role as an emergency lending mechanism, but after systemic financing shocks, DW's ability as a channel to provide liquidity to a wide range of banks may be questioned. On the contrary, it may prefer to supplement DW by designing new "stigma" facilities, which are specifically designed to provide liquidity for the entire banking sector [1]. In response to the 2008 financial crisis, the Federal Reserve proposed a new liquidity support mechanism as the Primary Dealer Credit Facility (PDCF). TALF indicates that as long as an individual or legal entity mortgages the relevant qualified goods, they can obtain corresponding loan support to help enterprises resume the liquidity issuance of bonds. The Federal Reserve used TALF to improve the security of consumer credit and small business credit and effectively promoted the number of loans from commercial banks. It proposes that it is effective to use TALF to alleviate the liquidity shortage of borrowers during the financial crisis [2].

Based on the standard macroeconomic model, it analyzes the impact and limitations of balance sheet policies. The authors show that when interest rate policies reach the limit, central banks can stimulate actual activities by changing the size or composition of their balance sheets. Specifically, the increase in loans to qualified collateral can effectively allow the implementation of the best discretionary policy at the zero floor, while changing the balance sheet composition can offset the increase in corporate borrowing costs. Therefore, it is necessary for the central bank to deal with the financial crisis with unconventional monetary policies and the Federal Reserve set the policy interest rate at the zero lower limit and introduced various lending mechanisms and direct asset purchases). Therefore, quantitative easing (i.e. increasing the size of the balance sheet) and collateral policy (i.e. changing the composition of the balance sheet) are not the same as policy interest rate adjustment. It allows the best policy to be implemented when the policy interest rate is in ZLB [3]. Meier said that the global financial crisis triggered strong anti-inflation dynamics, which were related to tight private balance sheets, weak asset prices, weak banks and crumbling demand. Inflation has slowed down from the peak in all developed economies in mid-2008 and is now below the relevant targets in many cases. The outlook is extremely uncertain, depending on the extent of further deleveraging and the shape of the economic recovery. However, it is obvious that avoiding persistent inflation has become the core of the central bank's agenda. It summarizes that during the 2008 financial crisis, the Federal Reserve implemented quantitative easing to deal with the crisis. In the context of quantitative easing, this process may need to pay more attention to monetary development, asset prices and inflation expectations [4].

The implementation of quantitative easing monetary policy has increased bank liabilities, but the author suggests that this is beneficial to capital holders. Considering that monetary easing can keep assets stable, during the financial crisis, using the government to release additional funds will exceed the amount of funds needed to maintain interest rates. This can become an effective crisis mitigation plan for the Federal Reserve [5]. Rich shows that the Federal Reserve has implemented loose monetary policies such as cutting interest rates and investing funds to the market in response to the 2007-08 financial crisis. Help enterprises overcome the problem of low capital flow rate by lowering the loan threshold. In addition, the author shows that the Federal Reserve must actively help solve the financial crisis. Its long-term existence will lead to a decrease in social mobility and make life difficult [6].

With the outbreak of financial crisis, the Federal Reserve provided liquidity by purchasing a large amount of financial assets. The Federal Reserve made repurchases with competing financial institutions in an attempt to improve the market stiffness caused by the financial crisis. The authors show that as the financial crisis further fermentes, the Federal Reserve focuses on injecting liquidity into the market, such as opening up market operations for short-term government debt. These innovative crisis management methods effectively provide market empowerment [7]. Hayes effectively puts forward the relevant content of open market operation. The authors show that FR has successfully implemented the regulation of the reserve supply of Bank of America by buying and selling U.S. treasury bonds and other securities on the open market. In this way, large-scale financial assets are injected into financial markets, which effectively activates market vitality and financial liquidity [8].

It confirms that under the background of the 2018 financial crisis, the Federal Reserve has avoided the adverse impact of TAF direct loans through the Term Bond Loan Facility (TSLF). Fleming et al. (2009) show that TSLF uses its own high-quality and highly liquidity bonds to promote the liquidity recovery of financial institutions' assets [9]. By describing the Fed's move to lower the basis of the discount rate during the 2008 financial crisis, Cecchetti (2009) confirms that raising the spread between the discount rate and the federal funds rate can alleviate the problem of insufficient financial liquidity. In addition, the author said that extending the loan term as a tolerant policy slows down the loan pressure of enterprises and thus promotes the stable recovery of market liquidity [10].

1.3 Objective

Therefore, this paper will analyze monetary and liquidity policies in the Fed's main bailout plan and evaluate the effectiveness of these policies through data.

2. Main Rescue Programs by Federal Reserve

2.1 Monetary Policy

Based on the risk of financial crisis in 2008, the United States adopted a large-scale quantitative easing monetary policy to degrade the crisis [4]. Quantitative easing policy not only increases the bank's liabilities but also enhances the stable asset retention rate of capital holders. Considering that easing monetary policy mainly relies on the government to issue additional funds and therefore is based on developments in different regions, the funds required to maintain interest rates are also very different [5]. According to Batini (2012), policy tools and objectives are necessary factors to maintain quantitative easing monetary policy, so when the easing monetary policy tools are ineffective, the central bank can adopt quantitative easing monetary policy to allocate a large amount of basic funds [5]. Through the expansion of the central bank's balance sheet, the vitality of the market will be rejuvenated, and the economic vitality of the market will be reactivated due to the new injection of funds. However, from a bank's perspective, the move would increase liability risk, so the central bank should view it as an emergency strategy rather than a long-term development model. In the context of the financial crisis, the Fed's issuance of currency to control inflation has further promoted the circulation of currency. But as the amount of money increases, the value of the dollar decreases, so the price of commodities generally increases. When there is enough currency in the market, it can indeed reduce the crisis caused by austerity to a certain extent. In addition, when short-term interest rates are close to 0, the scale of currency issuance should continue to expand to ensure liquidity. Analyzing the background of the 2008 economic crisis, asset losses in financial markets due to the credit collapse were the core root cause of the crisis. Against this backdrop, banks have been raising credit thresholds and tightening funding to limit loan issuance. However, in such a financial environment, the financial support of ordinary individuals and businesses in the United States is rapidly shrinking, and social mobility is also rapidly reducing. Not only that, but surging unemployment has made life more difficult for ordinary people. To solve this problem in the short term, the Fed must consider using extremely loose monetary policy. In addition, according to Ou

(2014)'s signaling mechanism [11], the central bank has sufficient market information, so the central bank has information that other stakeholders in the market cannot grasp, so stakeholders expect the central bank will not Change the existing market in a short period of time. At the same time, the promise of interest rates also signals to the market the fiscal policy that the central bank will implement in the future.

2.2 Liquidity Policy

2.2.1 Financial Institutions

Discount window: During the 2008 financial crisis, housing crises were compounded by an intensification of the credit crunch, in which the supply of credit contracted and created frozen liquidity. To effectively deal with weak liquidity, the Fed lowered the discount rate to narrow the gap with the federal funds target rate. According to Cecchetti (2009), the Fed reduced the discount rate by 75 basis points in March 2008 to compress the spread between the discount rate and the federal funds rate to 25 basis points, and extended the loan term to 90 days [10]. The above plan reduces the cost of financing for financial institutions to enhance the vitality of the financial market. However, there are hundreds of billions of dollars in rescue funds in the financial crisis, and the scale of discounts is extremely limited [1]. Specifically, financial institutions borrowing from the central bank's discount window may be passed on by the market as negative information to investors, regulators, and other financial institutions [1]. In this case, participants in the market will perceive that the practice of lending to the discount window will largely lead to a deterioration in liquidity and thus adversely affect financial conditions. Taking into account the above reasons, financial institutions borrowing through the discount window can only alleviate short-term liquidity constraints but cannot perform long-term execution.

Other innovative reliefs: The Fed has used the term securities lending facility (TSLF) and the regular auction facility (TAF) to counter the crisis. The TAF is the way a central bank increases liquidity by providing loans to healthy savings financial institutions. Specifically, the discount window will be available to all savings financial institutions that can be assessed by the financial health of the local reserve bank [2]. In December 2007, the Fed launched a 28-day TAF, auctioned off twice a month [12]. In 2008, given the continued fermentation of the financial crisis, the TAF duration was increased to 84 days to increase the auction amount to ease the liquidity pressure (Federal release, 2010). In conclusion, the TAF is an effective way of extending the traditional discount window. Based on the introduction of a competitive competition. TSLF is different from TAF, with a wider range of acceptable collateral, so it allows traders to mortgage on illiquid securities [9]. In short, the TSLF can effectively ease the liquidity crunch in the credit markets and benefit the investment banks and hedge funds that have been hit hardest by the subprime crisis.

2.2.2 Financial Market

Open market operation: The FR's market disclosure approach to regulating the supply of American banks' reserves by buying and selling American Treasury bonds and other securities in the open markets has most significantly increased the purchases of various financial assets [8]. Specifically, in November 2008, the Fed conducted a 43-day buyback operation with rival financial institutions to stimulate a liquidity recovery [7].

Other innovation reliefs: The Federal Reserve used asset-backed Commercial Notes as the Money Market Mutual Fund Liquidity Facility (AMLF) to provide loans to bank holding companies and depository institutions at primary credit rates to support the possibility of purchasing asset-backed commercial notes from money market mutual funds [2]. The above approach enhances the liquidity of ABCP and also maximizes the money funds holding ABCP to meet investors' redemption requirements [2]. So the Fed is trying to revive the commercial paper market to boost liquidity by encouraging more investors to enter the market.

3. Results of These Rescue Programs

From the result, the outbreak of the subprime mortgage crisis and loose monetary policy came into being. Low interest rates under the easing policy have boosted the American desire to buy and created new market consumption. In addition, it can bring the savings down and increase the share price. As shown above, the stock market can generate a new round of stimulation to stimulate people's consumption. Specifically, taking the real estate market, for example, was supported by the loose monetary policy in the 2008 subprime mortgage crisis, and the real estate market began to rise, and the housing prices continued to rise. Rising house prices have increased the desire to lend and given investors confidence. On this basis, the effect of the bubble driven by stock prices and house prices, zhujiankuoda.yige, produces class organizations with real estate and stocks as assets. The emergence of this class was proven to affect a large number of Americans, such as causing overdraft spending. In other words, Americans try the investment measure by borrowing heavily from financial institutions, sending the country into a debt chain. Seriously though, the disconnect in the debt chain will cause more serious bubble bursts and financial crises.

Reviewing the Fed's improvement in its response to the crisis, the researchers believe it has gone through several important stages.

Phase 1: The Fed injected markets through timely crisis aid to improve weak liquidity problems, largely strengthening the stability of financial institutions and further preventing the spread of panic. The concrete results are reflected in preventing large financial institutions from failing and slowing down the collapse of the financial sector. Of the 19 largest US bank holding companies between February and April 2009, banks suffered controllable potential capital losses in a deteriorating 2022 economy, according to federal stress test results released in 2022. Specific data show that nine banks no longer need to increase their capital, and the other 10 banks need to increase their capital of $74.6 billion in capital [13]. The results are much more optimistic than the original, proving that the basic health of the US banking system has begun to grow positive. In 1 year later, from January 2010 and the second round of stress test, the results show that the bank adopted the capital allocation plan work significantly, 19 Banks' common stock has increased by $300 billion [13], improved health conditions will lead to its ability to resist risk greatly enhanced, the future financing environment will tend to be healthy.

Stage 2: After the financial ability of direct stakeholders is improved, the confidence of external stakeholders, namely investors, also increases rapidly. According to the FRED's volatility Index (VIX Index) survey results, the volatility of VIX has gradually stabilized to normal [13]. Looking back that before the crisis worsened, the VIX index fluctuated below 30 points, it was not by social panic [13]. However, after the collapse of Lehman Brothers, the VIX index rose rapidly and reached above 80 points in October 2008 [13], indicating that the market was in a serious panic. As the rescue plan increased, the VIX index began to decline, with significantly less volatility as shown in Figure 1. So, as the Fed's easing policy has greatly improved volatility and boosted investor confidence, the financial markets start to have a full recovery possibility.

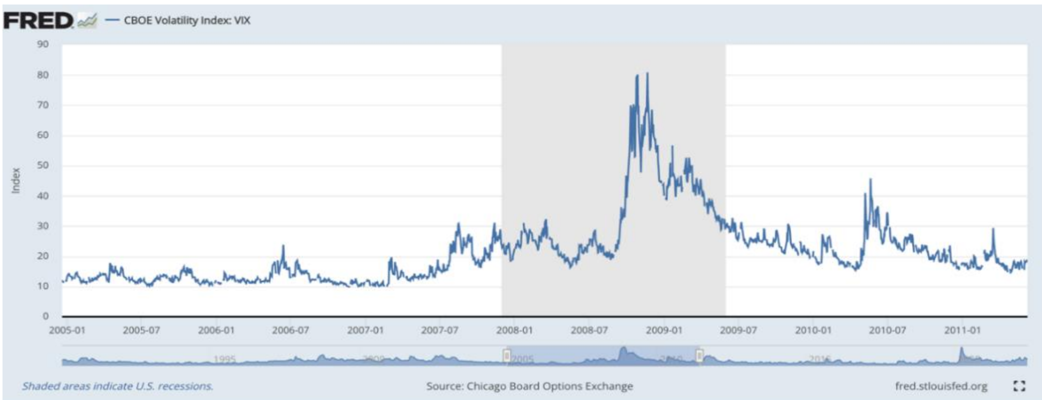

Fig. 1 FRED (2022). CBOE Volatility Index: VIX [VIXCLS].

Stage 3: In addition to financial institutions and investors, the credit markets are also recovering very well. The main concern of the financial crisis has long been about the long-term contraction of credit markets. The economy has been in prison because of the massive failure to translate into credit growth. The financial crisis along with the continuous downturn of the credit market makes the financial crisis gradually severe. As shown in Figure 2, the most representative commercial and industrial loans declined for two consecutive years from November 2008 to early October 2010 [13]. However, industrial and commercial loans from commercial banks climbed from their bottom in October 2010 to $1,338.5 billion at the end of 2011[13]. According to the discount trend, current credit levels return to pre-crisis levels and continue to rise.

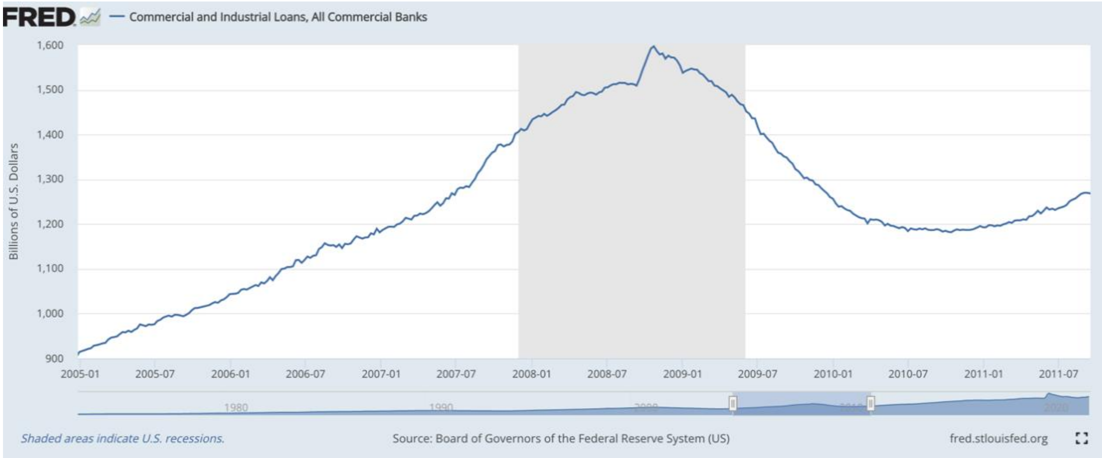

Fig. 2 FRED (2022). CBOE Volatility Index: VIX [VIXCLS].

4. Conclusion

This report discusses the implementation of the Fed's bailout plan after the financial crisis, and further analyzes its effectiveness from both monetary policy and liquidity policy. First, during the financial crisis, the United States implemented massive quantitative easing policies to save the crisis. While quantitative easing has increased bank debt, it has also increased capital stability. At this stage, the policy background tools and goals of quantitative easing have been further refined, and the loose monetary policy does ease the crisis facing the Fed. However, this is an urgent strategy that cannot serve as a long-term government monetary policy. The Fed's unconventional monetary policy during special periods has restored market vitality and liquidity. Second, for financial institutions, providing short-term loans to commercial banks through the discount window, that is, the Federal Reserve reduces the discount rate, reducing the financing cost of financial institutions, which is effective during the financial crisis.

References

[1] Armantier, O., Ghysels, E., Sarkar, A., & Shrader, J. (2015). Discount window stigma during the 2007–2008 financial crisis. Journal of Financial Economics, 118(2), 317-335.

[2] Fleming, M. J. (2012). Federal reserve liquidity provision during the financial crisis of 2007-2009. FRB of New York Staff Report, (563).

[3] Hörmann, M., & Schabert, A. (2015). A monetary analysis of balance sheet policies. The Economic Journal, 125(589), 1888-1917.

[4] Meier, A. (2009). Panacea, curse, or nonevent? Unconventional monetary policy in the United Kingdom.

[5] Batini, N., Callegari, G. and Melina, M.G. (2012). Successful austerity in the united states, europe and japan. International Monetary Fund.

[6] Rich, R. (2013). The Great Recession| Federal reserve history.

[7] Mishkin, F. S., & White, E. N. (2014). Unprecedented Actions: The Federal Reserve's Response to the Global Financial Crisis in Historical Perspective (No. w20737). National Bureau of Economic Research.

[8] Hayes, A. (2022). Open Market Operations. Investopedia. [Online]. Available from: https://www.investopedia.com/terms/o/openmarketoperations.asp (Accessed: 3rd Aug 2022)

[9] Fleming, M. J., Keane, F. M., & Hrung, W. B. (2009). The term securities lending facility: origin, design, and effects. Current Issues in Economics and Finance, 15(2).

[10] Cecchetti, S. G. (2009). Crisis and responses: the Federal Reserve in the early stages of the financial crisis. Journal of Economic Perspectives, 23(1), 51-75.

[11] Ou, C. X., & Chan, K. C. (2014). Developing a competitive edge in electronic markets via institutional and social based quality signaling mechanisms. Information & management, 51(5), 532-540.

[12] Federal Release (2010). Term Auction Facility (TAF). [Online]. Available from: https://www.federalreserve.gov/regreform/reform-taf.htm (Accessed: 3rd June 2022)

[13] FRED (2022). CBOE Volatility Index: VIX [VIXCLS]. [Online]. Available from: https://fred.stlouisfed.org/series/VIXCLS (Accessed: 3rd June 2022)