Research on the Implementation of the Federal Reserve's Rescue Programs After the Financial Crisis

Lizhi Zhang(✉)

Financial Mathematics, University of Liverpool, Merseyside L69 3BX, UK
Sglzha27@Liverpool.ac.uk

Abstract. The Federal Reserve's bailout plan in response to the financial crisis successfully saved the US from the decaying state of the markets in the aftermath of the financial crisis. In order to deal with possible future financial crises, it is essential to study the concrete measures and the effects of their implementation. This paper from two aspects of monetary policy and liquidity policy describes the specific bailout measures enacted by the Federal Reserve after the financial crisis and analyses their effectiveness in relation to the data, summaries their strengths and weaknesses, and offers suggestions for the government to implement economic assistance and bring improvement and perfect direction for the existing polices. In conclusion, the Fed's rescue plan is timely and effective.

Keywords: Federal Reserve's · monetary policy · financial crisis

1 Introduction

Market collapse and economic standstill have been brought on by the development of the economic crisis. In order to avert the crisis at this point, the Fed initiated a quantitative easing monetary strategy. Additionally, the Fed has actively increased market liquidity through discount windows, open market operations, and other creative measures to assist it in surviving the crisis. There is no doubt that the Federal Reserve has not faced the problem alone. In order to cover various obligations of depository institutions, the FDIC (Federal Deposit Insurance Corporation) expanded deposit insurance limits and put in place special facilities. The Troubled Assets Relief Program, or TARP, of the Treasury Department, was established by the Emergency Economic Stabilization Act, which Congress passed. What matters is that this initiative has so far injected the banking sector with more than $200 billion in capital to bolster banks' ability to make loans [1]. So what is the effect of the TARP and how was it implemented by the Fed? To explore the implementation of the Fed's rescue plan following the financial crisis, this study will be broken into two sections. The Federal Reserve's monetary policy will be examined critically first. It will then go into further detail about how the Fed may aid in the restoration of liquidity. It will then discuss the outcomes of various rescue initiatives. Finally, it will review the financial management lessons learned from various

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rescue efforts. In conclusion, the goal of this article is to evaluate the Federal Reserve's rescue strategy in light of monetary policy and liquidity policy for purpose of address the economic crisis. This study can help the government's economic aid programme and serve as a useful resource for avoiding similar problems in the future.

2 Main Rescue Programs by Fedral Reserve

2.1 Monetary Policy

2.1.1 Quantitative Easing Policy

The quantitative easing monetary policy was widely implemented in the United States during the 2008 financial crisis, and it has since taken the lead in the majority of the Fed's monetary policy. Due to the fact that academia still lacks a precise description of the quantitative easing program. Buiter (2008) asserts that although the general quantitative easing monetary policy has increased bank liabilities, capital holders' assets have remained steady. Zhang and Hu (2010) noted that the monetary policy of quantitative easing involves the government issuing more money than is necessary to keep interest rates stable.

Quantitative easing policies may vary according to different regions, but generally, quantitative easing monetary policy needs to include policy background tools and objectives. By definition, quantitative easing monetary policy can be adopted when the general loose monetary policy tools are ineffective, and the central bank will have a large amount of base money. As a price, the central bank needs to significantly expand its balance sheet. The fundamental purpose of this move is to inject more funds into the market and restore the market's economic vitality and confidence to stimulate economic growth. Because this move will increase the bank's liability risk and even reduce the credit of the bank and the currency, this policy is generally used as an emergency strategy rather than the government's long-term monetary policy.

In response to such a situation, the Federal Reserve decides to issue money in order to reduce anticipated inflation and boost the amount of money in circulation. Due to inflation, the dollar's value in the market decreases, which causes an increase in the cost of products and services. Deflation can be partially prevented with enough cash infusion into the market. The Federal Reserve obtained the source of these monies using its own economic methods. The Fed kept increasing the volume of currency issues after the short-term interest rate dropped to zero. The Fed increased the size of its asset purchases to support this. Additionally, the US government requires a loose monetary policy to boost the economy and the growth of purchasing power.

2.1.2 Loose Monetary Policy

When we began to investigate the causes of this, the Fed used a number of monetary strategies, such as lowering interest rates and flooding the market with cash to boost liquidity. The federal funds target rate has decreased to 0–0.25% since December 2008, but neither the financial market nor the real economy have improved considerably [2]. As a result, it is becoming more and more clear that there is a risk of deflation. Compared to the previous quarter, the GDP increased by −2.3% and −1.71%, respectively, while the CPI only increased by 0.1% in December 2008. The CPI growth rate was 0.4% negative by March 2009 (beginning to fall into the quagmire of deflation for 8 months). A new monetary policy has to be implemented by the Fed to save the market as a result of this unfortunate circumstance. This condition is caused by a variety of factors, according to the research above. The credit crunch caused the economic crisis, which resulted in significant asset losses for the financial sector as a whole as well as the banking sector. This condition has severely weakened the market's economic vigour as a whole. To limit loan issuance, banks have started to tighten capital requirements and boost credit ceilings. The American economy as a whole is struggling, the average person and small business cannot access financing, and society as a whole has less liquidity. The onset of the financial crisis has hurt people's interests and the interests of businesses, but the general lack of social liquidity has caused society as a whole to lose faith in the state of the economy, and the growth in unemployment has also made life more difficult for regular people. The Fed needs to think about using an incredibly loose monetary policy to address the issue in the near future. The share also climbed from 1.2% in 2007 to 8.9 percent at the same time due to the astronomically enormous fiscal deficit of 1.29 trillion US dollars. The government had to implement a lax monetary policy in order to maintain economic stability.

2.1.3 Short-Term Monetary Policy

Meanwhile, according to the signaling mechanism [3], the central bank has all the market information, while other stakeholders in the market do not have such information, so stakeholders expect that the central bank will not change the existing market in a short time. Policy. For example, when the Fed started buying U.S. Treasuries, it signaled that the Fed would lower long-term interest rates and strengthen policy effects. At the same time, the promise of interest rates also indicates to the market the fiscal policy that the central bank will implement in the future. This is where the signaling mechanism comes into play, and the fiscal policy will be implemented from the bottom up through the actions of the Federal Reserve.

Most economists are subjective to short-term monetary policy [4], and academic circles have inconsistent attitudes towards these policies. When an economic crisis comes, monetary policy could influence the balance sheet structure of the central bank and expand the central bank. Bank balance sheets and the means to change benchmark interest rates to achieve fiscal goals. The Federal Reserve launched an unconventional monetary policy during the economic crisis. It restored market vitality and market liquidity by paying interest on the reserves of withdrawal institutions, asset management and other means, and played the role of monetary policy.

2.2 Liquidity Policy

According to Volcker (1984), maintaining the stability of the financial and payment systems was the main driver for the establishment of the Federal Reserve. As a result, FR should first take on the role of ensuring financial stability before acting as the champion of monetary stability. FR was working to provide liquidity for financial institutions and the financial market as a result of the significant damage the financial system had sustained during the global crisis. The primary programs include reliefs like the discount window, open market operation, and other cutting-edge measures.

2.2.1 Liquidity Policy on Financial Institutions

2.2.1.1 Discount Window

The discount window is a central bank lending service providing short-term loans to commercial banks [5]. During the financial crisis, the real estate crisis spread to the credit crisis and the supply of credit was gradually shrinking, leading to a liquidity shortage in the financial system. Faced with the situation, the rescue program taken by the Federal Reserve was to cut the discount rate [1]. From August 2007 to March 2008, the Fed began using cuts in the discount rate as its aid, continuously narrowing the gap between the federal funds target rate and the discount rate, from 100 basis points to 50 basis points to 25 basis points, reducing the discount rate by 75 basis points, and extending lending maturities to 90 days. The reduction in the discount rate and its spread over the federal fund's target rate effectively lowered down funding costs of financial institutions, resulting in a substantial increase in the discount line, from $187 million at the end of June 2007, before the reduction, to $93.8 billion at the end of 2008.

However, compared with the hundreds of billions of bailout funds in the crisis, the size of the discount was limited due to the existence of 'the Fear of Stigma' [5]. It indicated the possibility that financial institutions borrowing money from the discount window of the central bank might be transmitted to investors, regulators, and other financial institutions as negative information by the market [6]. Consequently, these market participants might take adverse actions against the borrowing financial institutions. Applying for loans through the discount window would be seen by the market as an indication of deteriorating liquidity, which would raise questions about their financial situation. Even when there was a temporary shortage of liquidity, financial institutions tended to be wary about borrowing through the discount window. Discount credit began to decline sharply in the final stages of the financial crisis, reaching as low as $20.1 billion by the end of 2009, as financial institutions sought new liquidity options offered by the Fed [6].

2.2.1.2 Other Innovative Reliefs

The healthy depository financial organizations are provided loans by the Federal Reserve through the TAF (Term Auction Facility). All depository financial institutions identified as financially healthy by local reserve banks could get financial support from the discount window. The Fed auctioned loans owned a longer-term and interest rates were determined by the auction and the auction amount should be determined in advance. All TAF shall be guaranteed. In December 2007, the Federal Reserve launched the 28-day TAF, which was auctioned twice a month [7]. With the deepening of the crisis, 84 days of TAF were added in July 2008 to further ease the liquidity pressure of financial institutions, and the auction amount kept increasing [7]. It went from $20 billion to $75 billion and then to $150 billion [8]. TAF was an extension of the traditional discount window to provide liquidity. Due to the introduction of a competitive auction, TAF largely overcame the 'Fear of Stigma' and improved the predictability of depository financial institutions' borrowing levels. The Fed had pumped more than $1.8 trillion into TAF auctions by the end of 2008 [8].

In March 2018, the Fed also promoted Term Securities Lending Facility (TSLF), which was held once a week for 28 days. The most obvious difference between TSLF and TAF was that instead of directly borrowing funds, the Fed replaced the low liquidity of mortgage securities from primary dealers with its own bonds with high quality and high liquidity to improve the asset liquidity of financial institutions. Another feature of TSLF was the wider and expanding range of acceptable collateral, which allowed dealers to pledge against illiquid securities. TSLF helped ease the liquidity squeeze in credit markets and enabled investment banks and hedge funds suffering the most from the subprime crisis to gain benefit.

Moreover, Primary Dealer Credit Facility (PDCF) was another liquidity support facility for primary dealers launched by the Federal Reserve in March 2008. PDF enabled primary dealers with a healthy financial position to obtain overnight loans from the discount window similar to depository institutions. The loan rate was the primary credit rate in the discount window and the loan limit was determined by market demand. The collateral was relaxed to various investment-grade securities and could be extended for up to 120 days. The launch of PDCF ensured the liquidity of primary dealers mainly investment banks, improved the confidence of counterparties, and prevented the large-scale spread of liquidity crisis after the Bear Stearns event.2.2.2 liquidity policy on financial market.

2.2.2 For Financial Market

2.2.2.1 Open Market Operation

Open market operation indicates that the FR buys and sells Treasury bonds and other securities on the open market to regulate the supply of reserve money in U.S. banks [9]. The practice aims to inject required liquidity into the financial market by the massive purchase of various financial assets. After the financial crisis, the Federal Reserve first conducted overnight operations to purchase a large number of financial assets. The maturity was extended after August 2007 to provide liquidity for one week on an unregular basis [10]. In November 2008, the Fed even conducted a 43-day repurchase operation with rival financial institutions [10]. As the crisis escalated, the open market operations, which typically targeted short-term government debt, were also the source of many of the Fed's operational innovations in pumping liquidity into the financial market.

2.2.2.2 Other Innovation Reliefs

The Money Market Mutual Fund Liquidity Facility (AMLF) was created by the Federal Reserve to increase the liquidity of asset-backed commercial paper, enabling funds holding ABCP to meet redemption demands by investors. AMLF lends to bank holding companies and depository institutions at primary credit rates to support their purchases of asset-backed commercial paper from money market mutual funds. Besides, the Fed also adopted the Commercial Paper Funding Facility (CPFF) that SPV directly purchased qualified 3-month high-grade US dollar commercial paper and asset-backed US dollar commercial paper from issuers such as a bank, and local governments, and large enterprises. It provided liquidity support for commercial paper issuers and revived the commercial paper market by encouraging more investors to enter the market. Moreover, the Fed developed the Term Asset-Backed Securities Loan Facility (TALF) to provide $200 billion in loans to individuals and legal entities with qualified collateral. All individuals and legal entities with qualified collateral could obtain loan support through TALF, thereby restoring the healthy development of asset-backed securities. Through TALF, the Federal Reserve effectively guaranteed consumer credit and small-sized business credit, thus stimulating the willingness of commercial banks to lend and playing an important role in alleviating the temporary liquidity shortage of borrowers.

3 Effects of the Rescue Programs

3.1 The Stability of Financial Institutions was Improved

The Federal Reserve provided a large amount of liquidity to the market through crisis assistance, preventing the further panic spread. The bankruptcy of financial institutions, particularly for large financial institutions, was controlled, and there was no further collapse of large financial institutions after Lehman Brothers. Federal Reserve, FDIC, and Office of the Comptroller of the Currency (OCC) conducted stress tests on 19 of the country's largest bank holding companies from February to April 2009, measuring the potential capital losses of banks in the event of worsening economic conditions [11]. Nine banks did not need to increase capital, and the other 10 needed to increase capital by $74.6 billion [11]. The results were better than market expectations and showed the underlying health of the US banking system. From January 2010 to March 2011, a second round of stress tests was conducted to evaluate the capital allocation plans adopted by banks. The tests showed that from the end of 2008 to 2010, the common equity of 19 banks increased by $300 billion [11], which significantly enhanced the ability to withstand risks. It also created favorable conditions for the economy to provide more financing.

3.2 The Investor Confidence was Recovered

The Volatility Index (VIX index) which is a measure of overall financial market mood gradually returned to normal from its peak at the end of 2008 [12]. Before the crisis worsened, the VIX index fluctuated below 30 points [12], indicating that the market was in panic but not out of control. However, after the collapse of Lehman Brothers, the VIX index rose rapidly and reached more than 80 points in October 2008 [12], indicating that the market was in serious panic. As the rescue programs increased, the VIX index began to fall, with a significantly smaller volatility. Thus, it indicated that confidence had gradually recovered, creating a positive environment for economic recovery.

3.3 The Credit Markets were also Slowly Recovering

The prolonged contraction in credit markets was the biggest concern of the financial crisis. The massive amount of money input failed to be transformed into growth of credit, which limited economic growth. After the financial crisis escalated, the credit market continued to be depressed. The most representative commercial and industrial loans fell for two consecutive years from November 2008 to early October 2010 [13]. As financial markets gradually recovered, bank lending also turned a corner. From the end of October 2010 to the end of 2011, commercial banks' industrial and commercial loans reached us $1,338.5 billion [13].

4 Lessons on Financial Regulation of Fed

After the financial crisis, the quantitative easing policy played an important role as the main body of the Fed's unconventional monetary policy. Based on the market environment at the time, deflation was getting worse and worse, and the emergence of quantitative easing policy at this time will play a positive role through the interest rate commitment effect. From the analysis of the above-mentioned signal mechanism module, it is found that the Fed has not opened up a new policy transmission channel, and it has enhanced the implementation effect by improving the original policy transmission channel. The Fed's quantitative easing monetary policy is structurally non-bank credit market is the focus of the Fed's quantitative easing monetary policy. It is conducive to the recovery of the financial market and the recovery is relatively large. In times of crisis, it is feasible to a certain extent for the Fed to use quantitative easing policy to achieve the purpose of rescue, and it can be used as a reference to save the crisis in the future. The central bank is supposed to play the role of maintaining financial stability effectively and actively. In times of crisis, central banks should focus on providing liquidity, even acting as an important intermediary in place of the financial system, as the Federal Reserve did in this crisis. The crisis has shown that under the situation of market failures, central banks can be effective in preventing bank failures, cleaning up the panic and contagion caused by collective irrational behavior. In the period of systemic financial crisis, central banks are expected to learn from Federal Reserve's crisis rescue to actively innovate rescue programs, open the discount window to non-bank financial institutions, widen the range of acceptable collateral, and access financial markets to buy and sell private sector securities to safeguard the financial system.

5 Conclusion

This study discusses the implementation of the Fed's rescue plan after the financial crisis, and it further analyzes its implementation effect from two aspects of monetary policy and liquidity policy. It has two main conclusions. Firstly, during the financial crisis, the United States carried out a large-scale quantitative easing policy to rescue the crisis. While the quantitative easing has increased bank liabilities, it has increased capital stability. The policy background tools and objectives of quantitative easing were further refined at this stage, and the loose monetary policy did alleviate the crisis to the Fed. However, this is an emergency strategy and cannot serve as the government's long-term monetary policy. The Federal Reserve's unconventional monetary policy during extraordinary times has restored market vitality and liquidity. Secondly, for financial institutions, the practice of providing short-term loans to commercial banks through the discount window, that is, the Fed's lowering of the discount rate, reduces the financing cost of financial institutions, which is effective in times of financial crisis. Otherwise, the central bank should take into account the importance of liquidity and act as an intermediary to replace the financial system in times of crisis to effectively save the financial paralysis caused by market failure. This study provides reference for the government to implement economic assistance and bring improvement and perfect direction for the existing polices. In conclusion, the Fed's rescue plan is timely and effective.

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