

# Research on the Two-way Influence of US Monetary Policy Since the COVID-19 Pandemic

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**Abstract.** Based on the novel coronavirus outbreak, the global economy has been strongly impacted, resulting in a worldwide economic recession. This paper mainly studies the orientation and target changes of the US monetary policy, adopts the method of dialectical analysis and data empirical analysis to study the two-way influence of the Fed monetary stance, and shows that implementation of monetary policy has an obvious two-way influence on the economy, that is, monetary policy will inevitably cause the imbalance between inflation and unemployment rate. Expansionary monetary policy can reduce unemployment and stimulate the economy meanwhile, it will lead to the accumulation of inflation. The tightening of monetary policy will lead to unemployment and economic recession while easing inflation. Excessive accumulation of negative consequences of monetary policy will result in a deeper economic crisis, which will become the main factor affecting the change of monetary policy direction. This shows that the monetary stance orientation of the Federal Reserve is based on the balance of advantages and disadvantages of its two-way effects, and the timely change of monetary policy orientation is the key to mitigating the negative effects caused by monetary policy.

**Keywords:** Monetary policy, unlimited quantitative easing, monetary tightening, interest rate.

## 1. Introduction

The United States is a country that attaches great importance to its currency and its system of managing it. As early as 1775, the United States, which had not yet completed its Revolutionary War, began issuing a type of paper money called the Continental Coin. The First Bank of the United States was established in Philadelphia in 1791 by Congress, guided by the purpose of stabilizing and improving the credit of the nation and expanding the business of federal finance. In 1863, the Senate passed the National Banking Act to circulate a stable and unified national currency and stabilize national finance. It first introduced the concept of "reserves"; In 1913, the Federal Reserve Act was enacted, setting a minimum capital of \$4 million for each reserve bank. Member banks must subscribe to the equivalent of 6 percent of their capital and bank reserve surplus. From 1914 to 1919, to cope with the money supply's enhancement caused by the large influx of gold, the Federal Reserve made the US dollar become the main international currency by increasing financial resources and evolving into a central bank in the real sense. In 1920, the Federal Reserve began to use open market operations as a monetary policy tool and effectively avoided financial crises through the purchase of government securities. In 1933, Congress passed the Bank Act, which helped the Federal Reserve to implement monetary policy better. In 1978, the enactment of the Full Employment and Balanced Growth Act changed the goal of monetary policy into a dual orientation of "stabilizing the economy and promoting employment". In 2001, the events of September 11 triggered a crisis in the financial system. The Federal Reserve's measures of lowering interest rates and increasing the money supply stabilized the economy and reversed the crisis. In 2008, the outbreak of the substandard goods crisis made the Federal Reserve concentrate on the coordination of market liquidity and macroeconomic objectives.

Since 2020, the global outbreak and spread of the novel coronavirus have led to a sharp decline in the price of financial assets around the world, a regression in national GDP, a weakening of economic vitality, and a large number of bankruptcies and unemployment of workers [1]. In addition, along with structural unemployment, the monetary policy of the United States can be divided into two stages starting from March 2022. The first is the early zero interest rate and unlimited quantitative easing

(QE). (This means that the central bank uses a policy of interest rates around zero and makes moves to increase the base money supply by buying different types of bonds.) The essence is expansionary monetary policy; After March 2022, the Federal Reserve adopted a monetary interest rate hike and monetary contraction policy, which is essentially a contractionary monetary policy. People always believe that appropriate changes in interest rates in response to overall changes can achieve a rational allocation of resources [2]. Two distinct monetary policies have different effects on economic development. By discussing the two-way impact of the monetary stance after the epidemic on the economy, this paper is helpful to deepen understanding of the transmission mechanism and influence path in the economy, and further understand the economic importance of monetary policy.

## 2. Literature Review

Researchers such as Nigora pointed out that the monetary policies adopted by the central bank achieve specific control goals by influencing money and credit, while the ultimate goals are achieved by influencing inflation, unemployment, and exchange rate [3]. In the long run, the implementation of monetary policy should consider the inflation target comprehensively and use monetary tools flexibly to achieve the control target [4]. Generally, a surprise policy tightening raises interest rates and reduces stock prices, while the complementary positive central bank information shock raises both [5]. High-development countries had historically low-interest rates during the crisis, so they were more likely to use unconventional monetary policy tools [6]. Levy and Plosser stated that an excessively expansionary monetary policy would stimulate a strong rise in demand levels and weaken the upward trend in inflation and inflation expectations [7]. The expectation-oriented monetary policy strategy enables the Federal Reserve to respond to changes in various information and thus achieve the goals of stable employment and stable prices [8].

These studies on monetary policy demonstrate the implementation criteria of monetary policy and its regulatory significance to the economy, but they do not look at the impact of monetary policy dialectically and do not consider that the Fed monetary measure orientation is based on the trade-off of two-way effects. The paper aims to analyze the influence of monetary stance on unemployment, inflation, and social and economic level through the study of the two-way impact of the Fed monetary policy since the COVID-19 pandemic, and explore the impact of the balance of the advantages and disadvantages of multiple factors on the orientation of the Fed's monetary policy.

## 3. The Two-way Influence of US Monetary Policy

### 3.1. Definition of Monetary Policy

Monetary policy, also known as financial policy, refers to the general name of various guidelines, policies, and measures adopted by the central bank to control and regulate the money supply and credit quantity to achieve its specific economic goals. The essence of monetary policy is that the country adopts different policy trends of "tight", "loose" or "moderate" money supply according to the economic development in different periods. The main monetary policy tools are: first, to control the issuance of money; Second, to control and regulate lending to the government; Third, the implementation of open market business; Fourth, to change the reserve requirement ratio; Fifth, to adjust the rediscount rate and so on. The main objectives of monetary policy are price stability, full employment, economic growth, and balance of payments.

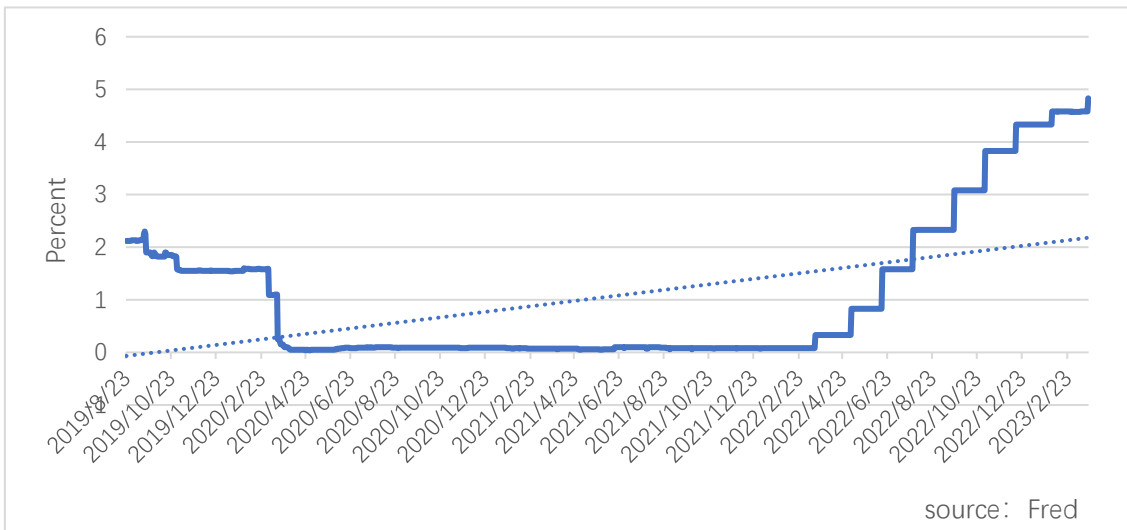
### 3.2. Overview of US Monetary Policy

Figure 1 reveals that the benchmark interest rate policy of the Federal Reserve can be divided into two periods. With March 2022 as the limit, it can be divided into two stages. The first is the zero-interest rate and unlimited quantitative easing (QE) policy in the early stage, which is an expansionary monetary policy in essence. After March 2022, the Federal Reserve adopted the policy of monetary interest rate hikes and monetary contraction, which is essentially a contractionary monetary policy.

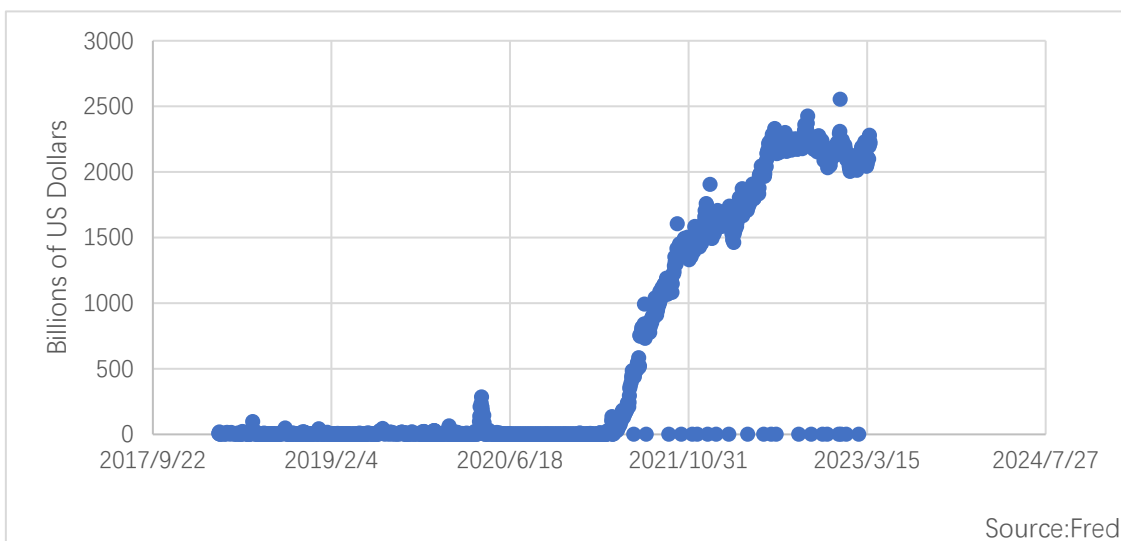
In Figure 2, the open market business policy of the Federal Reserve is divided into two stages with March 2022 as the limit. The first stage is the sale of nearly 0 Treasury bonds in the early stage, that is, there is no contraction policy on the money supply; After March 2022, the Federal Reserve adopted a monetary withdrawal policy of selling a large number of Treasury bonds, that is, a contraction policy of reducing the money supply.

The deposit reserve policy of the Federal Reserve is divided into two stages with March 2022 as the limit. According to Figure 3, In the early stage, the policy of low deposit reserve ratio is implemented, that is, there is a large money supply in the money market, which is an expansionary monetary policy in essence. The later period is to implement the policy of gradually raising the deposit reserve ratio, that is, the money supply in the money market gradually decreases, which is a contractionary monetary policy in essence.

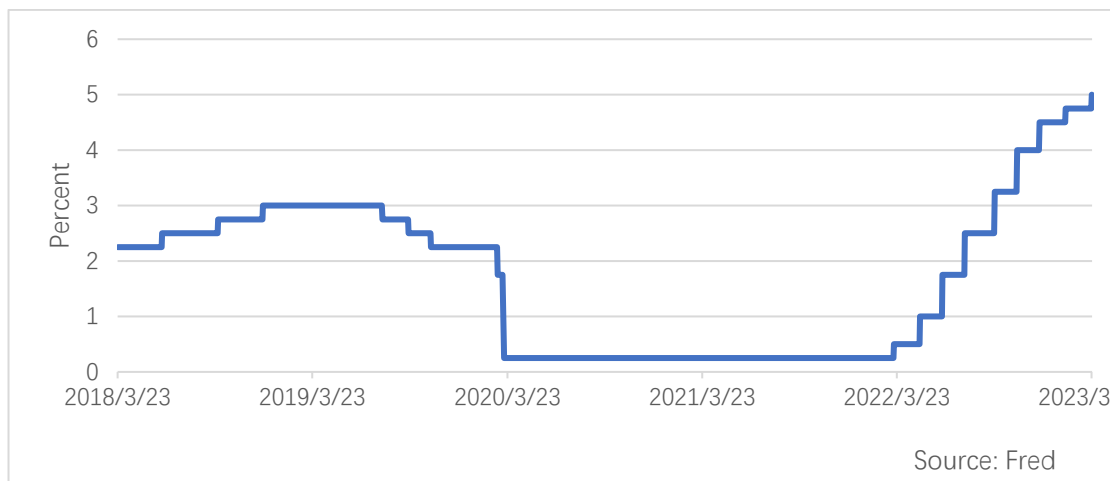
As shown in Figure 4, the Federal Reserve's rediscount rate policy is divided into two stages with March 2022 as the limit. In the early stage, a low discount rate is implemented, that is, the bank borrowing cost is reduced, and then the money in circulation is increased. The later stage was a gradual increase in the rediscount rate, in which bank borrowing costs gradually climbed and money in circulation decreased. It can be seen that the Fed changed its monetary policy from loose to tight In March 2022. In a nutshell, it can be concluded that the policy achieved a shift from expansion to austerity in March 2022.



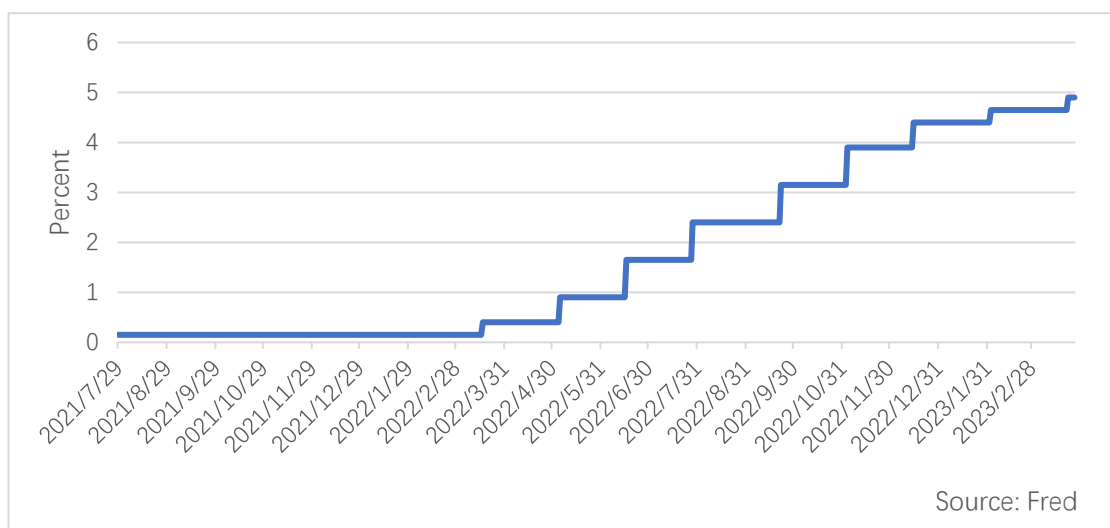
**Fig. 1** Federal funds effective rate



**Fig. 2** Overnight reverse repurchase agreements: Treasury securities sold by the Federal Reserve in the temporary open market operations



**Fig. 3** Discount window primary credit rate



**Fig. 4** Interest rate on reserve balances

### 3.3. The Two-way Effects of Monetary Policy During Two Different Periods

#### 3.3.1 Earlier period—The time before March 2022

After the outbreak of the coronavirus pandemic, America implemented an expansionary monetary measure in the early stage, that is, issuing a large amount of money. Based on the balance of supply and demand in the money market, the money increase will lead to a decline in the interest rate.

First, lower interest rates make borrowing cheaper and saving less effective. From the individual point of view, the reduction of interest rate will cause an addition in personal consumption, and the enhancement in consumption can speed up the circulation of funds, promote production, and stimulate the improvement of the economic level; However, the increase in consumption will also make the total demand greater than the total supply, which will lead to price rise and promote the rise of inflation, which will have a bad impact on economic development. Take the United States as an example, the Federal Reserve implemented low-interest rates and an unlimited quantitative easing policy, which led to the reduction of interest rates, and then stimulated the consumption of US residents to increase from US \$120,082.4 billion in April 2020 to US \$16,522.4 billion in 2022. In turn, the recovery of production level and economic development level was promoted by the stimulating effect of consumption. The specific performance is the recovery and further increase of the US GDP level (this can be seen in Figure 5). However, the increase in personal consumption also pushes up the price level and stimulates the development of inflation in the United States (as shown in Figure 6), and inflation will have a huge negative impact on the economy. Even when fully anticipated, inflation will have real effects on the economy, altering consumption, investment, and

employment. In the opinion of enterprises, a reduction in interest rate will cause a decrease in the borrowing cost of enterprises, an increase in borrowing behavior, the increase of available capital, and then promote the increase of production and investment behavior, and promote the improvement of production level. The capital market is active because of the low-interest rate of a country's monetary policy implementation and excessive bond buying [9]. Taking the US manufacturing industry as an example, the expansionary monetary policy led to the increase of social investment and production funds from US \$3,161,422 million in the second quarter of 2020 to US \$4,6710,2.7 million in the first quarter of 2022. Enterprises expanded production and the production level of the manufacturing industry gradually recovered. It rose to 100,4851 from 80,3952 in April 2020; However, the increase in investment behavior will overheat the economic development, and the strong demand will lead to inflation, which is reflected in the rapid increase of product price level. Taking Plastics Material and Resin Manufacturing as an example, the product price level has increased rapidly, from 249,000 in May 2020 to 379,449 in October 2021. The increase in the product price will cause an imbalance between supply and demand. It harms both producers and consumers in the Plastics Material and Resin Manufacturing industry, that is, the products produced cannot fully realize their value. It harms both producers and consumers in the Plastics Material and Resin Manufacturing industry, that is, the products produced cannot fully realize their value.

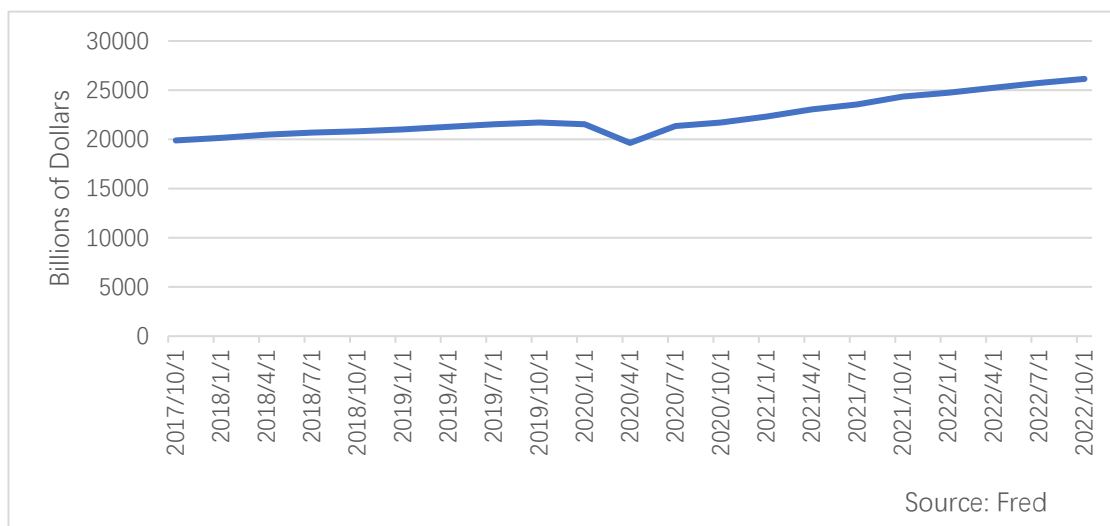


Fig. 5 Gross domestic product

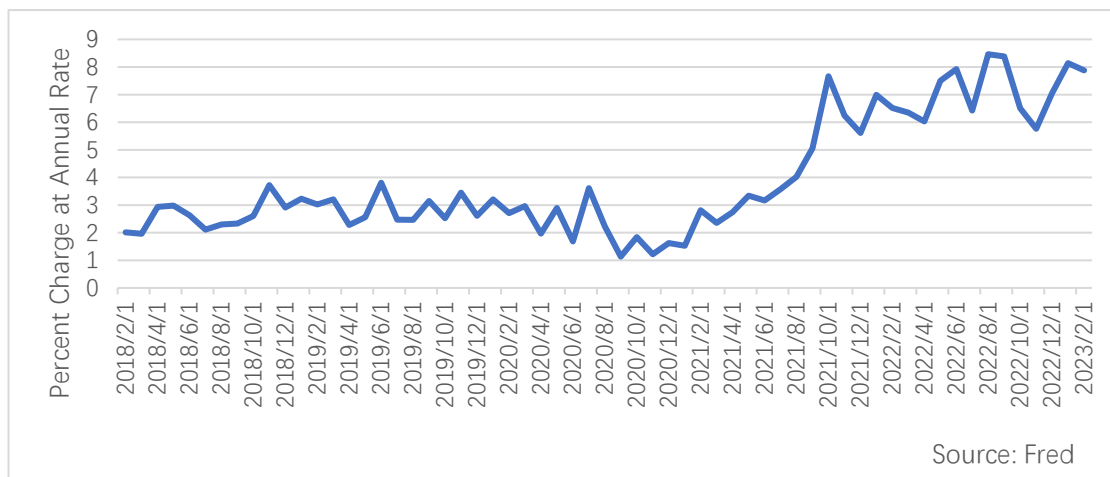


Fig. 6 Median consumer price index

Moreover, the reduction of interest rate will result in a decline in the return on investment in the country's currency, which will make the capital flow out of the country, and then lead to the depreciation of the currency, which will stimulate the country's foreign exports and expand the export demand. Take the United States as an example, the Federal Reserve cuts interest rates against the

dollar, which leads to the depreciation of the dollar and the reduction of the price of goods produced in the United States, which in turn promotes the increase of the United States' foreign exports (as shown in Figure 7), which is conducive to the improvement of the level of economic development. However, currency depreciation due to lower interest rates increases the cost of imports, which in turn drives up corporate cost inflation. Taking the United States as an example, the Federal Reserve's interest rate-cutting policy led to a continuous rise in the price of imported products, with the price index rising from 118.2 in April 2020 to 148.5 in June 2022, which in turn intensified the inflation trend in the United States.

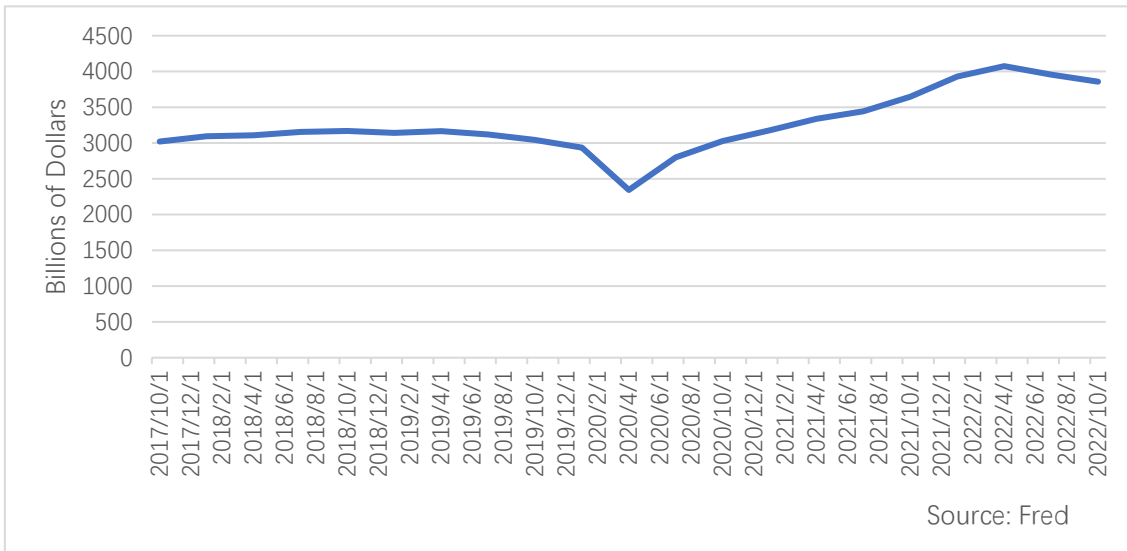


Fig. 7 Imports of goods and services

Second, the monetary policy of a low-interest rate will stimulate the increase of total social output, which is conducive to providing more jobs and thus reducing the unemployment rate. Take the United States as an example. Under the positive influence of expansionary monetary policy, the unemployment rate in the United States has recovered greatly after the epidemic (see Figure 8). However, according to the Phillips curve, the reduction of the unemployment rate is the result of the further development of the economic level, and the reduction of the unemployment rate will be accompanied by an increase in consumer demand, which will lead to an increase in inflation. After weighing the two-way influence of monetary stance on the economy, the Federal Reserve chose to adopt an expansionary monetary measure to cope with economic recession and unemployment after the epidemic and let inflation develop.

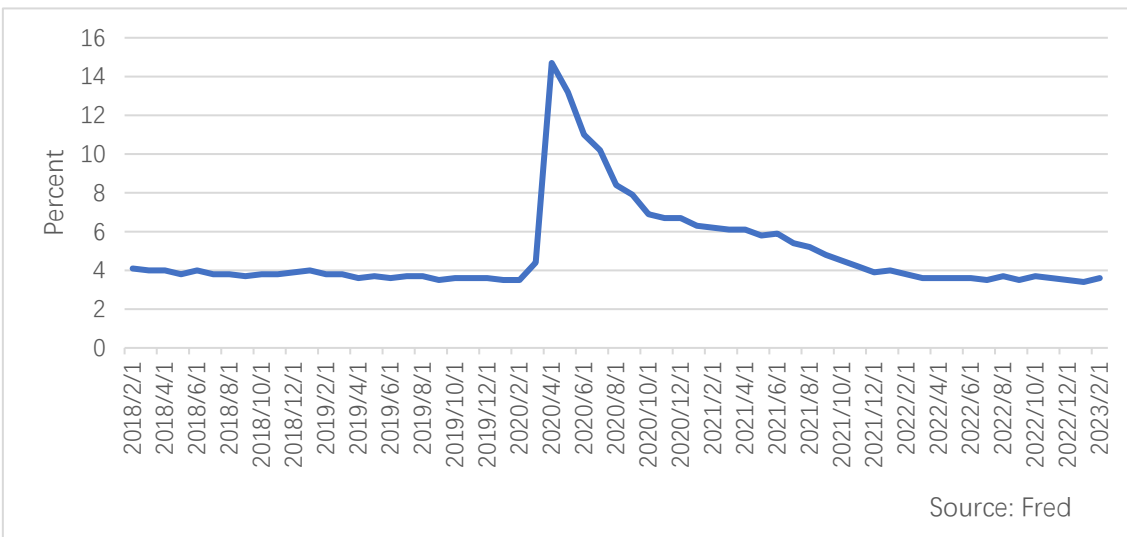


Fig. 8 Unemployment rate

Finally, due to the impact of the epidemic, there was a liquidity run in the market, and the market panicked. Financial assets were sold off in large quantities, asset prices decreased, and banks had a currency and credit crisis. The Federal Reserve decided to use a quantitative easing policy. Despite this disagreement, research shows that easing has a profound and significant impact on the economy, and can work even under normal market conditions [10]. The implementation of a quantitative easing policy is conducive to increasing the market money supply, stimulating investment demand, and increasing the bank money supply to alleviate the run problem. Take the United States as an example. At the beginning of the outbreak of the epidemic, the Dow Jones Index fell sharply, and the US stock market circuit breaker. Under the stimulus of quantitative easing, the Dow Jones Index showed a rising trend (as shown in Figure 9), and asset prices continued to rise, easing the asset crisis in the United States. However, quantitative easing is indirect money printing, which will increase the money supply, stimulate demand and devalue the currency, which will lead to more inflation. After weighing the two-way effect of the monetary stance on the economy, the Federal Reserve chose to adopt an expansionary monetary policy to alleviate the economic recession and unemployment after the epidemic and let inflation develop. A prolonged period of low inflation can become a dangerous self-sustaining black hole, in which the effectiveness of monetary policy is compromised, which in turn exacerbates low inflation [10].

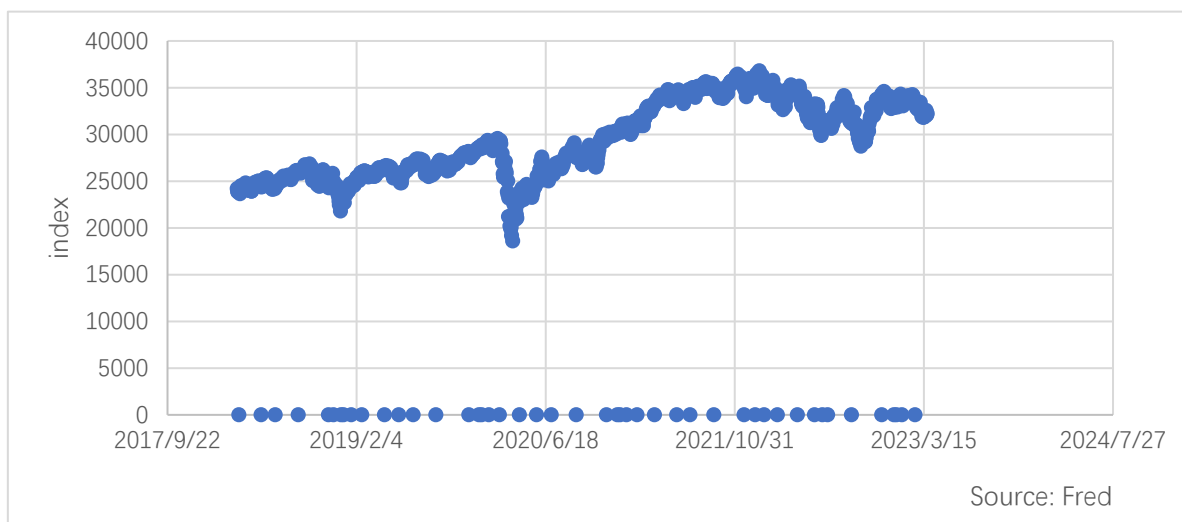
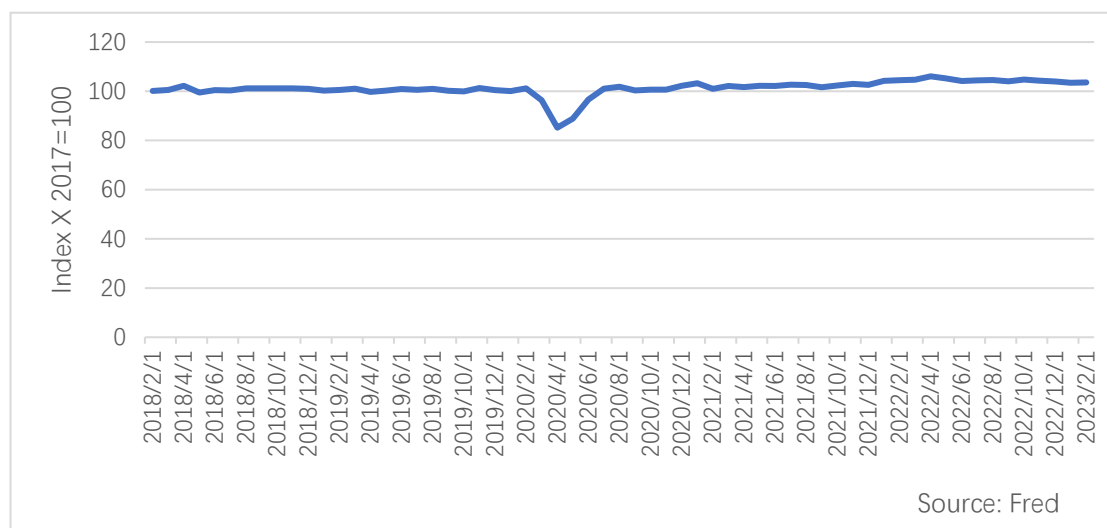


Fig. 9 Dow Jones Index (industrial average)

### 3.3.2 US monetary policy since March 2022

In the late stage of COVID-19, the Federal Reserve made a shift in monetary policy from an expansionary stance to a contractionary stance, that is, a monetary interest rate hike and monetary tightening policy. According to the supply in the money market, the money supply's decrease will cause an enhancement in the interest rate. A rise in interest rates leads to higher borrowing costs and higher returns on savings. From the perspective of individuals, the increase in interest rate will make residents reduce consumption, increase savings, and slow down the growth rate of consumption, which is conducive to easing consumer inflation. However, the reduction of consumption is not conducive to playing the role of consumption in promoting economic development, which will slow down the speed of economic development. Take the United States as an example, compared with before March 2022, the growth rate of personal consumption expenditures has slowed down significantly. Compared with 2021, the growth rate of personal consumption expenditures is 1,783.4 billion US dollars, and the growth rate for the whole year of 2022 is only 10, 12.6 billion US dollars. The growth rate of personal consumption expenditures has slowed down significantly, and the inflation level has shown a downward trend. The level of GDP slowed to some extent as consumption growth slowed. From the perspective of enterprises, the rise of interest rates will result in an addition in borrowing costs, the number of available funds will decrease, and the investment behavior will slow down, which is conducive to easing investment-driven inflation; The slowdown of corporate

investment behavior will lead to a decrease in corporate output, which in turn will lead to a decrease in total social output. Take US consumer goods as an example (shown in Figure 10). After the implementation of the tightening monetary policy, the output of consumer goods shows a downward trend due to the reduction of investment behavior, from the index of 106.0705 in April 2022 to 103.4726 in January 2023. Inflation, on the other hand, shows a downward trend due to the decrease in the velocity of money.



**Fig. 10** Industrial production: Consumer goods

An increase in interest rates in response to a contractionary monetary policy will lead to an appreciation of the domestic currency, that is, an increase in the level of investment returns in the domestic currency. This leads to an increase in the purchasing power of the country's currency and an increase in imports; However, this will affect the export of the country's products, reduce the export demand, and then affect the growth of the economic development level. Taking the United States as an example, the appreciation of the US dollar due to the rising interest rate leads to an increase in the import volume, which will lead to a decrease in the import price from 148.5 in June 2022 to 141.1 in February 2023, easing the inflation level (see Figure 5). A reduction in the volume of exports leads to an unrealized value of the product, which in turn slows down the level of economic growth.

Moreover, the monetary policy of a high-interest rate is beneficial to restrain the aggregate demand of society, prevent the economy from overheating, and ease the current inflation. However, the reduction of total social demand will lead to the slowdown of economic growth, which is not conducive to the increase of total social output, and then lead to an increase in the unemployment rate. Take the United States as an example, the Federal Reserve's tight monetary policy has brought down the high inflation rate (Figure 5), but the US unemployment rate has risen due to the reduction of total output (Figure 8). In the face of the high inflation rate, the Federal Reserve chose to adopt a tight monetary policy to curb economic overheating and inflation after weighing the advantages and disadvantages.

Finally, in the face of rising inflation caused by the early expansionary monetary policy, the Federal Reserve adopted interest rate hikes and monetary tightening policies, which effectively contained the momentum of inflation and eased the economic crisis. However, the continuous interest rate increase of currency will lead to the liquidity problem of banks, that is, the demand for bank loan business is blocked, and the investment behavior is reduced, which will lead to the decline of a series of financial asset prices and lead to the asset market crisis. Secondly, under the strong influence of rising interest rates, the yield of financial products such as national bonds, stocks, and securities continues to decline, and the liquidity ability is poor. Those banks holding a large number of these securities will go bankrupt because they cannot liquidate to complete the depositors' cash. In the United States, for example, affected by the monetary interest rate hike, the Doug Jones Index showed a continuous downward trend (Figure 9), and asset prices fell. Silicon Valley Bank was affected by

this round of interest rate hikes by the central bank, which led to a decline in the liquidity of its financial investment products, thus aggravating the problem of the bank run, and Silicon Valley Bank declared bankruptcy.

According to the above analysis, the implementation of the Federal Reserve's monetary policy is a dual individual of both opportunities and risks, mitigation and aggravation. Quantitative monetary policy will alleviate unemployment and economic recession, but will increase the risk factor of inflation; Tight monetary policy is inflationary but exacerbates the headwinds of unemployment and recession. Thus, the Fed's monetary policy was the result of a trade-off between inflation, unemployment, and recession, and a trade-off between the social and economic problems of the time. The negative impact of monetary policy cannot be avoided, but a sharp analysis of the economic turnaround and a timely change in policy orientation can greatly reduce the disadvantages of monetary policy.

#### 4. Conclusion

According to the research on the US economic development data and the monetary policy of the Federal Reserve, it is found that the implementation of monetary policy has a two-way effect on the economy. The Fed's early loose monetary policy would have eased the recession and unemployment, but it would also have led to a rise in inflation; The Fed's later tightening of monetary policy will ease the early surge in inflation, but it will also cause economic growth to slow and unemployment to rise. The Fed's monetary policy orientation is determined by weighing current economic issues. Through the research, several suggestions can be obtained for the implementation of monetary policy. First, the implementation of monetary policy should pay attention to the negative effects caused by it, to avoid the accumulation of negative effects caused by the neglect of adverse effects, and then cause the emergence of new economic problems. Second, the change of monetary policy should be based on the analysis of the market, and the negative impact of monetary policy should be solved by alternating expansionary and contractionary monetary policies on time.

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