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The United States Stock Market Trend Based on Interest Rate Decisions Under Covid-19

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ABSTRACT

Interest rate policy is the core policy of the Federal Reserve for macroeconomic adjustment. The Federal Reserve's adjustment of interest rates often fully reflects the stock market as an economic barometer. Through the interest rate transmission mechanism, stock prices have risen rapidly during the epidemic. But it also led to high inflation and a stock market bubble that kept popping. Therefore, this paper will focus on the changes in the US stock market during the epidemic. Starting with the interest rate policy of the Federal Reserve, it will explore how the four interest rate transmission mechanisms of the Fed's interest rate cut progressively affect the stock market, thus promoting the continuous rise of stock prices. Besides, it will discuss inflation and the stock market bubble caused by low interest rates. The paper finds that the low-interest-rate policy adopted by the Federal Reserve to rescue the economy affected by the pandemic has contributed to a surge in stock prices over the past two years through four transmission mechanisms, which are supply and demand effects, cost effects, income effects, and expectation effects, as well as the harmful effects of high inflation and a giant stock market bubble.

Keywords: *Interest rate, Stock market, Covid-19, inflation rate*

1. INTRODUCTION

In the modern financial system, the factors that determine stock prices are complex. But generally speaking, it can be divided into micro-level and macro-level. Micro-level issues include company profitability, financial indicators, development status, investor expectations, etc.; macro-level issues include economic development, market regulation, national policies, etc. Since the first outbreak of COVID-19 in the United States in March 2020, the economic fundamentals of the United States have been severely hit, with the unemployment rate, GDP growth rate, and inflation rate all in crisis. At the same time, many enterprises suffered from the cold winter of development due to the isolation policy. They are facing many problems, like suspension of business, layoffs, and financial difficulties. From both macro and micro points of view, the past two years should have been bad for stock markets. However, except for the stock market circuit breaker at the start of the outbreak in March 2020, the stock market price has been soaring ever since. All three major U.S. stock indexes will hit record highs by the end of 2021. The reason is the monetary policy adjustment of the Federal Reserve. The implementation of a low-interest rate policy and the massive purchase of government bonds led to a large amount of hot money in the capital market. Eventually, the stock market rose along with the economy.

As not that many papers focus on this side in such detail, in this paper, the literature survey method is adopted to collect the relevant data of the US macroeconomy and stock market since the epidemic and discuss the relationship between interest rates and the stock market. It is helpful to analyze the American interest rate policy during the epidemic.

2. INTEREST RATES AND THE STOCK MARKET

The federal funds rate is also called the interbank lending rate. As the core means of the Federal Reserve's monetary policy, it plays a very important role in promoting "maximum employment" and maintaining "price stability" in the medium and long term. The stock market, as an economic barometer, is highly susceptible to the Fed's interest rate policy. The Federal Reserve can affect the interest rates of financial institutions and commercial banks by adjusting the Federal Funds rate, which in turn affects micro-enterprises and individuals,

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and affects the national economy. Since the development of the stock market is so closely related to the national economy, the adjustment of interest rate policy has a great impact on the stock market. Whenever the national economy hits a crisis, the adjustment of interest rates is often the core of the Fed's quantitative easing policy, which is called the QE policy. For example, in the subprime mortgage crisis of 2008, faced with the most serious economic crisis comparable to the Great Depression, the Federal Reserve adopted an unconventional stimulative quantitative easing monetary policy. From November 2008 to October 2014, the Federal Reserve carried out three large-scale quantitative easing operations successively, which finally made the size of the balance sheet of the Federal Reserve expand from 907.639 billion yuan on September 3, 2008, to about 4.5 trillion yuan in November 2014. The Dow Jones Industrial Average of the United States bottomed out from its nadir of 6440.08 on March 9, 2009, rebounded on an upward path, and hit record highs in the following years [1], fueled by strong monetary policy.

Whenever the Fed announces a change in interest rates, the capital markets react promptly. The chart below shows the relationship between the Fed's interest rate announcements and the S&P 500 over the three years before the outbreak. Interest rates are often negatively correlated with stock prices. Although the two trends are not strictly consistent, the stock market is often very sensitive to interest rate changes when they affect the capital market.

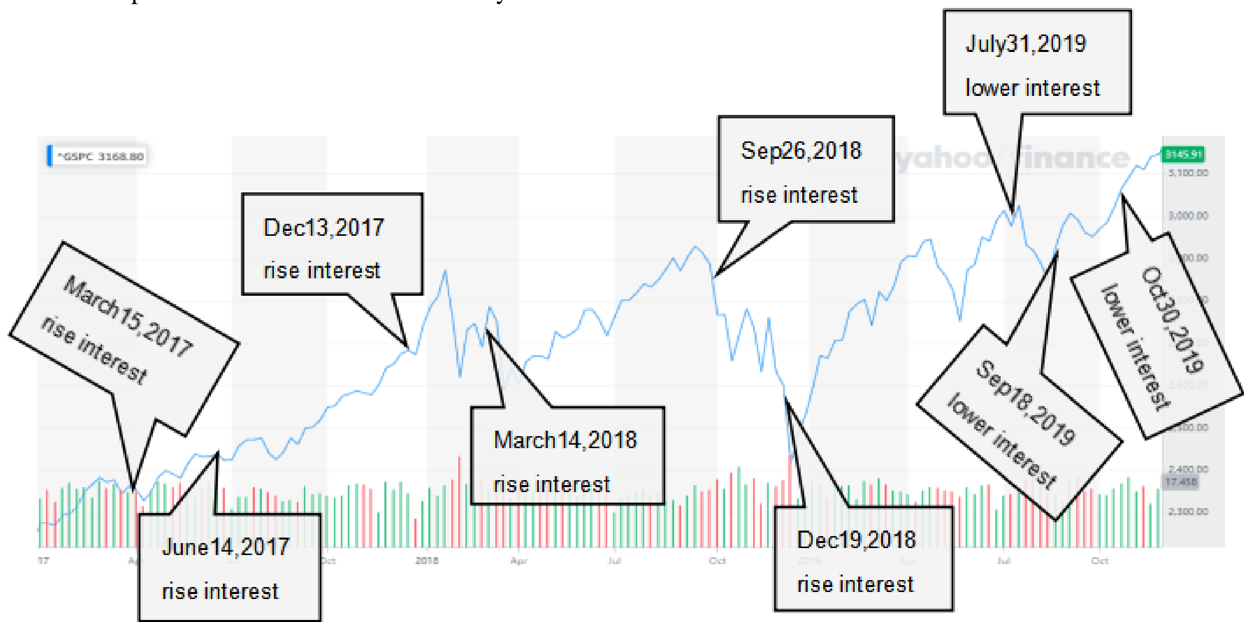

Figure 1 S&P 500 index in 2017-2019

3. THE STOCK MARKET UNDER THE EPIDEMIC

In 2020, the COVID-19 pandemic swept the world, and panic spread across the country. At the same time, numerous stores were forced to close down and lay off employees; the national supply chain suffered a huge blow; the unemployment rate soared; and the consumer market was also hit hard. The GDP growth rate of the United States in 2020 was only -3.64. As a result, the Dow Jones Index fell all the way. From the high of 29373 in January 2020 to the low of 18213 in March 2020, there were four circuit breakers, with a decline of more than 38%. In order to save the national economy, the Federal Reserve announced the launch of the quantitative easing policy of $700 billion and repeatedly announced the reduction of interest rates to stimulate the market, which led to a flood of money into the capital market and stock prices soaring. On December 26, 2021, the Nasdaq reached 16,560 points, and the S&P 500 index reached an intraday high of 1,552.87 points.

The fundamental reason for the rising stock prices is the quantitative easing policy adopted by the Federal Reserve, in which ultra-low interest rates near zero directly affect stock market development. Since the outbreak of the epidemic in early 2020, the Federal Reserve has acted quickly to cut interest rates to maintain macroeconomic stability, which is undoubtedly a shot in the arm for the stock market. However, the specific transmission mechanism of interest rate policy is very complicated. How does the Federal Reserve affect the national economy and the capital market through the change of interest rates? Why are low interest rates helping the stock market while high interest rates will put pressure on stock prices? We will discuss that through specific analysis below.

3.1 Transmission mechanism

According to the IS-LM model, which is M=L=L1+L2= Ky-hr, investment is negatively correlated with the interest rate, while savings are positively correlated with the interest rate. When r increases, investment costs increase, savings increase, and market circulation money decreases. On the contrary, when r decreases, investment costs decrease, savings decrease, and market circulating money increases.

It means that the change in interest rates will directly affect the investment and savings of money, thus affecting the capital market. This is why the adjustment of interest rates is often the core means by which the central bank exercises macro-control.

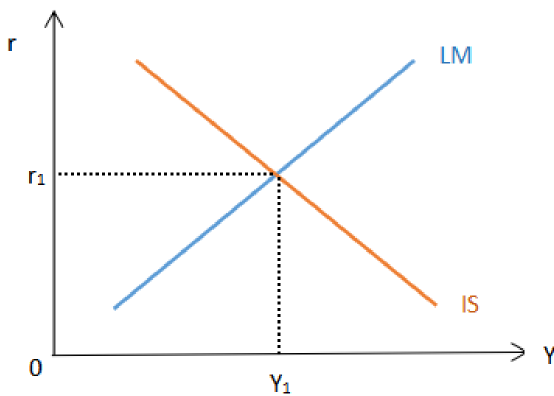

Figure 2 IS-LM Model

Generally speaking, an expansionary monetary policy adopted in a depressed economy increases the money supply to drive the growth of aggregate demand. A contractionary monetary policy is adopted during inflation in which growth in the money supply is reduced to reduce the level of aggregate demand [3]. The following four effects will continue to analyze how the currency circulating in the market further affects the capital market.

3.2 Four effects

(1) supply-demand effect：When the federal interest rate is cut, it means that the federal open market committee has through open market operations, and buys government securities bonds, thereby increasing the money stock on the market for the federal funds, which leads to the financial institutions' and individual holdings' money supply increasing and the investment risk appetite improving. Thus, they choose to buy high-risk, high-return investments in the stock. As a result, more hot money flows into the stock market and drives demand for shares, which in turn drives up prices. The procedure is as follows:

Interest rate decline→Money in the market increasing→More money is flowing into financial markets, causing demand for stocks to rise and stock prices to rise.

(2) Cost effect: The federal rate, also known as the interbank rate, is announced. When the Fed cuts interest rates, it means that the discount rate will drop, which will force the commercial banks to cut interest rates and, in turn, lead to a decrease in commercial borrowing costs. Due to lower borrowing costs, the company's production and operating costs will decline. We assume that the reduction in business income costs will eventually lead to an increase in corporate profits under the invariable condition.In turn, the share prices of companies rose. The procedure is as follows:

Interest rate decline→Business borrowing costs decreased→Corporate financing costs decreased→Production and operating costs of corporate decreased→Stock price rise

(3) income effect: when federal interest rates go down, the commercial bank's interest rates also fall; the borrowing costs for consumers to reduce their holdings of money increase, so consumers' willingness to do so becomes stronger; more reliant consumption and the ability to make good profits are enhanced. Therefore, under the constant cost in the corporate world, the increase in gains will eventually lead to an increase in corporate profits, so corporate stock prices will rise. The procedure is as follows:

Interest rate decline→Commercial bank interest rates fell→Consumer borrowing costs fell→Consumers disposable income increased→Household consumption increased→Business profitability improved→ Stock price rise

Interest rate decline→ Money circulating on the market increased→Consumers disposable income increased→Household consumption increased→Business profitability improved→ Stock price rise

Expected effect: When the federal interest rate declines, it is good for the stock market. Investors and banks are generally optimistic about the future rise of the stock market, and their investment confidence is increasing. They choose to increase their holdings of stocks, thus making the stock price rise. The procedure is as follows:

Interest decline→Bullish stock market→Investment confidence increases→Stock price rise

4. NEGATIVE EFFECTS

4.1 Inflation crisis

Over the past two years, the United States has resorted to extreme quantitative easing, whose ultra-low

interest rates and generous cash handouts have helped stimulate markets that have suffered from weak consumer spending since the outbreak. On the other hand, inflation has also hit record highs in the past two years, driven by a flood of money into the market. In fact, maintaining some inflation is not such a bad thing. Over the past few years, the Fed has struggled to keep that figure close to a 2% inflation rate. According to the Phillips curve and market gaming, maintaining a certain level of inflation is good for economic growth.

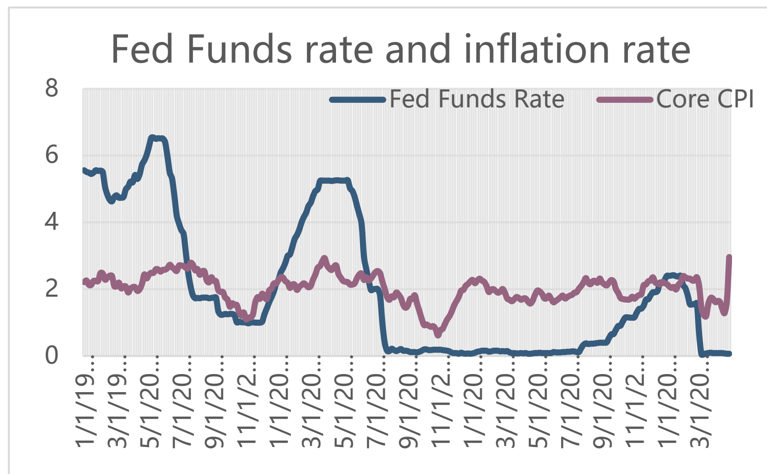

Figure 3 Federal interest rates and inflationsince 1998

In general, as interest rates are reduced, more people are able to borrow more money. The result is that consumers have more money to spend. This causes the economy to grow and inflation to increase [5]. So, economic growth is usually accompanied by a certain degree of inflation. Some inflation would also allow central banks to adjust real interest rates to avoid a liquidity trap. The practice has proved that the policy of taking 2% or so as the intermediate target of the inflation rate is suitable for anti-inflation and suitable for anti-deflation. This policy strategy has remarkably succeeded in stabilizing prices and providing a favorable environment for economic growth [6].

However, according to the US Department of Labor, the national inflation index rose to 7.5% in January 2022, the highest in 40 years. That is far higher than the 2% level it has held before. Elevated inflation has been driven by supply chain disruptions and pent-up consumer demand for goods following the reopening of the economy in 2021 [7]. The consequences of such a high inflation rate are also obvious. The national CPI has risen sharply year-on-year, the operating costs of enterprises have increased, the unemployment rate has grown, and the living costs of consumers have also risen. Long-term excessively high inflation will undoubtedly put downward pressure on the national economy and is not conducive to long-term societal and economic development.

4.2 Bubble crisis

The Fed's quantitative easing has brought high inflation and inflated the stock market bubble. The ultra-low interest rate of the capital market means many companies' valuations have been greatly increased without improving their profitability. This causes the stock price to soar. According to Global Financial Data, the total market capitalization of the U.S. stock market is now about 215% of the U.S. GDP [8]. However, according to the Buffett Indicator, when the ratio is between 75% and 90% of the total market value of the stock market and the current GDP, it is a reasonable index. When it is 90%–120%, the stock market is overvalued; when it is over 120%, it means that the current stock price is seriously overvalued, and there are a lot of bubbles in the stock market. Nowadays, the stock market is worth far more than the Buffett Indicator. That means investors are blindly chasing higher prices, with a large number of companies valued at more than they are worth. It has led to a stock market bubble inflated by the Fed's chronically low interest rates in recent years, exacerbated by quantitative easing during the pandemic. It will further increase the risk of future stock market bubbles bursting.

5. CONCLUSION

In conclusion, the paper finds that since the subprime crisis of 2008, the Fed has kept interest rates low for so long that stocks have soared in the years following the 2008 catastrophe. It was not until 2016 that interest rates began to rise to avoid excessive inflation. But just a few years later, the Fed had to start cutting rates again in an emergency to save the economy. The fundamental reason for the stock market's upsurge is the quantitative easing policy adopted by the Federal Reserve, among which the long-term ultra-low interest rates are the fundamental reason. Interest rate policy reflects the capital market through four transmission

mechanisms: supply and demand effects, cost effects, income effects, and expectation effects, and finally affects the stock price step by step, making the stock price soar.

The result of such loose monetary policy was high inflation and an inflated stock market bubble. A prolonged period of high inflation and a stock market bubble would no doubt seriously damage the national economy. So we can predict that with the continuous surge of prices and the gradual recovery of the economy, it is almost inevitable for the government to start the road of raising interest rates again in the future, and the stock market in 2022 will also be affected by the shock and show a downward trend.

As for the limitations, the paper lacks specific data and empirical research, and a wider research scope can be explored in future research.

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