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# *The Economic Consequence of Fed's Monetary Policies in 2022: An Internal Perspectives*

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***Abstract:*** US interest rate hikes due to COVID-19 and high inflation have affected the country's stock market and the international foreign exchange market. The authors analyze the willingness of U.S. interest rate hikes to cause inflation at the micro level through changes in the amount of money held by residents because of U.S. policies. This paper analyzes the impact of the U.S. interest rate hike by collecting various information on rental housing, GDP and spot exchange rates of countries affected by the U.S. According to the findings of this paper: 1. US interest rate hikes lead to a rise in the amount of currency held by citizens. 2. Interest rate hikes affect the GDP growth rate, and the stock market are positively correlated. 3. US monetary policy affects the world economy. The point of studying the Fed's rate hikes is to analyze the strengths and weaknesses of the policy and to find better ways to control inflation and make the economy stable. According to this paper, the authors propose that the United States should stop raising interest rates at the right time when the inflation rate falls to the right value and let interest rates return to their previous levels, otherwise it will stagnate the country's economic development and cause turmoil in the country's stock and foreign exchange markets.

***Keywords:*** inflation, COVID-19, hike rate, financial market, foreign exchange market

## 1. Introduction

The Federal Reserve has been raising interest rates since 2022, increasing the cost of loans for consumers and businesses as the benchmark interest rate increases. According to the demand and supply curve model, the rise in interest rates causes individuals and households to save more than they spend. Inflation decreases by increasing the cost of consumption and the profitability of saving money. According to "FOMC's target federal funds rate or range, change (basis points) and level," published by the Federal Reserve System, the Fed has raised interest rates by 500 basis points since 2022 [1].

This paper focuses on the impact of the Fed's rate hikes on the stock and foreign exchange markets. The authors study the impact of Fed rate hikes on financial markets by collecting various data such as unemployment rate, inflation rate and exchange rate changes compared to interest rate changes. Analyzing the impact of the Fed's rate hike on financial markets has research implications that can help readers understand and predict the behavior and volatility of financial markets. Decisions made by the Federal Reserve to raise interest rates has an impact on factors such as interest rate levels, money supply and investment behavior, which in turn have an impact on various financial markets such as the domestic stock market, global exchange market. By studying these effects, readers can better grasp market trends, develop investment strategies, reduce risk, and achieve better investment returns.

The remainder of this essay is structured as follows: By collecting data on the unemployment rate and collecting a survey of the public on whether they will pay rent in the next two months, Section 2 evaluates the impact of the Fed's rate hike and COVID-19 on the economy. By collecting information on interest rate hikes, GDP, and the renminbi relative to the U.S. dollar, Section 3 evaluates the impact of the Fed's rate hike on the national stock market and the global foreign exchange market.

## 2. The Reasons of the Fed’s Monetary Policy

### 2.1. Effect of COVID-19 on the Lives of Residents

#### 2.1.1. Impact of COVID-19 on Rental Housing

According to house pulse, tens of thousands of people will not be able to pay their rent in time after the COVID-19 virus outbreak in 2020. Before the government enacted the bailout, 16.02% and 14.57% of residents were very close to being unable to pay their rent at the end of 2020 and the beginning of 2021, respectively, and 62.63% and 62.79% of residents believed they were likely to be unable to pay their rent for the next two months [2].

In late 2021 and early 2020, the government enacted an emergency relief program. As of November 2021, the government reported receiving rental assistance needs from over 2.5 million households, and more than 3.2 million households were assisted, with a total of over $13.6 billion paid [3,4]. The purpose of the Emergency Rental Assistance Program is to protect people whose incomes have been affected by COVID-19 and who have been evicted because they cannot afford to pay their rent.

A diagram of figure 1 [2], based on rental data released by the U.S. Treasury Department, shows that fewer people are being evicted in the next month because they can't afford to pay rent after the government enacted an emergency housing bailout in 2021. After the enactment of the emergency relief plan, the percentage of residents who believe they will not be able to afford the next two months' rent decreases from 15.53% in April 2021 to 14.54% in December 2021, and the percentage of residents who believe they are likely to be unable to pay the next two months' rent decreases from 60.94% in April 2021 to 54.92% in December 2021 [2].

According to the housing data provided in section 2.1 of this paper and the government subsidy policy, people’s pressure to spend money on rental housing eases, and then the demand for rental housing rises, which in turn makes the rent also rise. When the market has not yet reacted to the policy, the remaining currency can be spent in the commodity market, and the price of commodities will rise. In short, although the increase in rents and commodity prices require market reaction time, it ultimately leads to inflation.

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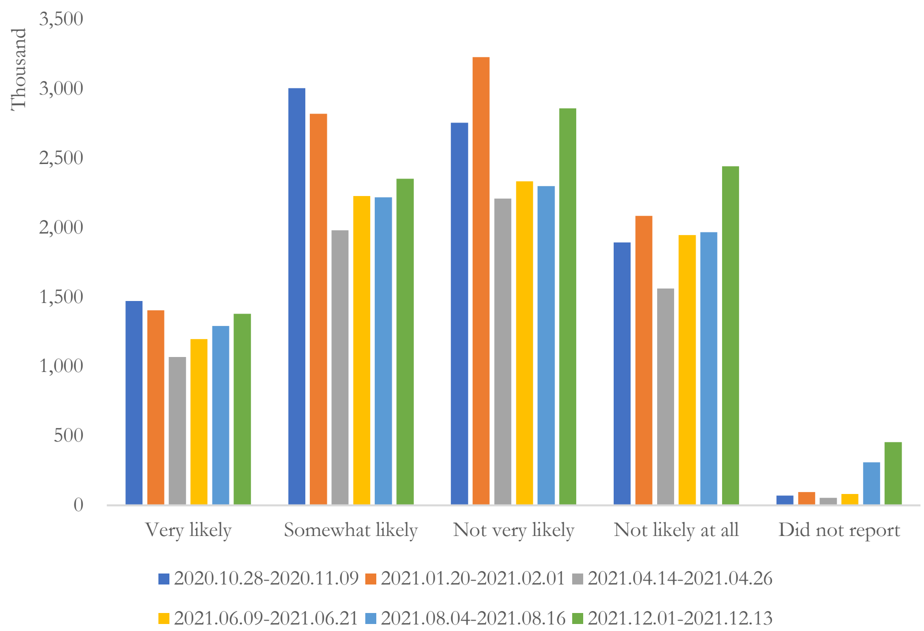


Figure 1: Likelihood of leaving this home due to eviction in next two months.
Data Source: Household Pulse Survey [2]
Photo credit: Original

### 2.1.2. Impact of COVID-19 on Unemployment

The COVID-19 epidemic caused the unemployment rate in the US to rise quickly. According to the diagram of Figure 2 [5], The United States implemented a national lockdown in 2020 in reaction to the occurrence of COVID-19 on a worldwide scale. As a result, the unemployment rate reaches a new record high of 14.7% in April 2020. Over the summer, as all businesses slowly began to return to business, the unemployment rate slowly declined, falling to 10.2% in July. Then-President Trump signed the "the Coronavirus Aid, Relief, and Economic Security Act". The payroll protection program established by this policy offers small businesses eight weeks of cash flow support by providing federally guaranteed loans to employers who maintain wages [6]. The Department of Labor provides unemployment assistance to workers who do not receive unemployment insurance from other departments, workers who meet the requirements associated with unemployment or are unable to work due to COVID-19, workers who cannot telework, and workers who do not receive paid leave. COVID-19 unemployment assistance benefits are expected to begin on January 27, 2020 and end on December 31, 2020 or earlier [6]. Since the government gives subsidies in cash, the money supply in the whole market increases, Inflation is exacerbated by the increase in consumer spending due to increased government subsidies, which makes people more willing to buy new homes, cars, appliances, furniture, or luxury items.

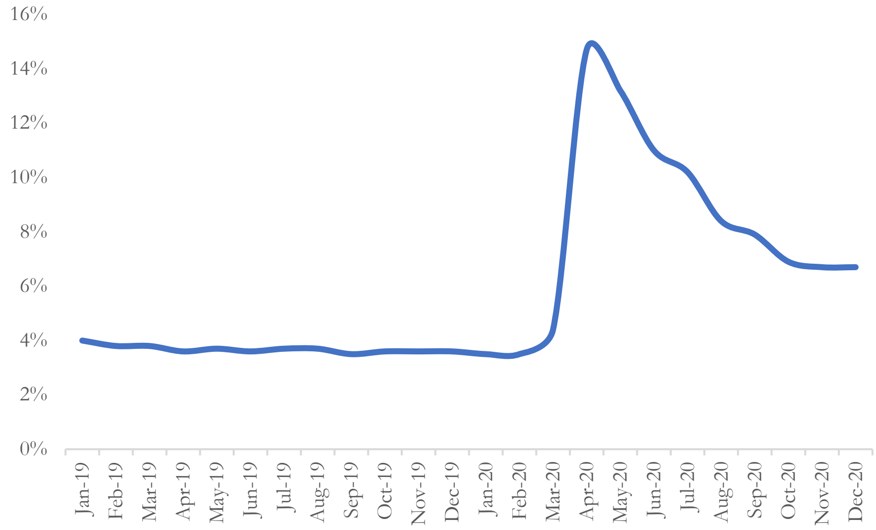


Figure 2: U.S. unemployment rate.
Data Resource: U.S. Bureau of Labor Statistics [5]
Photo credit: Original

## 2.2. Economic Impact of COVID-19

In March 2020, the Federal Reserve reduced the federal funds rate by a total of 1.5 percentage points, bringing the range to 0%-0.25% [1]. The purpose of lowering interest rates is that the Federal Reserve wants to go through the quantitative easing (QE) monetary policy launched in 2008 after the outbreak of the global financial crisis to stimulate the U.S. economy and stabilize financial markets to buy debt. This will allow a large amount of currency to flow into the market to stabilize the consumer market and stock market due to the impact of COVID-19.

A White House report shows that 36% of small businesses are affected by supply chain shortages, especially commodity manufacturing, trading companies, and construction companies [7]. On the one hand the government increased welfare efforts to the people at the time of COVID-19, such as the emergency rental subsidies and cash compensation for the unemployed mentioned in this paper, causing the amount of money in the market to rise significantly. On the other hand, the government lowered interest rates to purchase treasury bonds significantly and used quantitative easing monetary policy to further cause the amount of money in circulation in the market to rise. The short answer is that people are getting richer which leads to higher demand for goods, but the short supply of goods due to supply chain shortage leads to higher prices of goods. 2020, the prices of gas, food and car are skyrocketing. Compared to last year's growth rate, food prices are up 3.2 percent more, natural gas prices are up 7.6 percent more, used cars are up 10.7 percent more (a new record since 1983) and new cars are up 1.9 percent more, according to the Bureau of Labor Statistics [8]. The excessive price increases for necessities and manufactured goods represent shortages of supply and excess demand, high inflation, and a decline in the purchasing power of the dollar.

In 2020, the Federal Reserve made moves to lower interest rates and quantitative easing to stimulate the economy and stabilize financial markets. The COVID-19 outbreak negatively impacted the economy, leading to supply chain shortages and damage to small businesses. The government increased welfare support for the population through measures such as emergency rental subsidies and cash compensation, which increased the amount of money available in the market. At the same time, the government lowered interest rates and purchased treasury bonds,

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further increasing the supply of money on the market. This led to an increase in people's purchasing power, but supply chain shortages led to a lack of supply of goods, which in turn pushed up commodity prices. Higher prices of essential goods such as food, gas and automobiles indicate a shortage of supply and excess demand, leading to high inflation and a decrease in the purchasing power of the dollar.

## 3. The Impact of the Fed's Interest Rate Hike on Financial Markets

### 3.1. Effect on the U.S. Domestic Stock Market

The stock market will be negatively affected due to the combined effects of the Fed's rate hike and excessive inflation. The figure 3 is based on a graph of changes in the U.S. federal funds rate over the years provided by the Federal Reserve System [1]. Customers of these companies will face higher costs from the company, and the company may reduce expenses or increase prices. This could significantly reduce the company's growth rate and profitability. A reduction in a company's growth rate can affect the overall economy by reducing the rate of development and slowing down business activity, which can have an impact on the stock market and stock prices.

A rate hike usually implies a more optimistic view of the economic situation by the central bank and an attempt to curb inflation risks [9]. Rate hikes usually imply a more optimistic view of the economic situation by the central bank and an attempt to curb inflationary risks. The amount of money in the hands of the people increases due to various government subsidies during this period, resulting in an increase in the purchasing power of the people but a decrease in the purchasing power of the money. Further, the economy is growing too fast and there is a mismatch between demand and supply, with too much demand but shortages in the supply chain, causing prices level to rise too fast. In the current hyperinflationary scenario, a decline in consumer demand could reduce inflation or even to pre-hyperinflationary normal levels as the Fed raises interest rates with the aim of reducing economic activity [10].

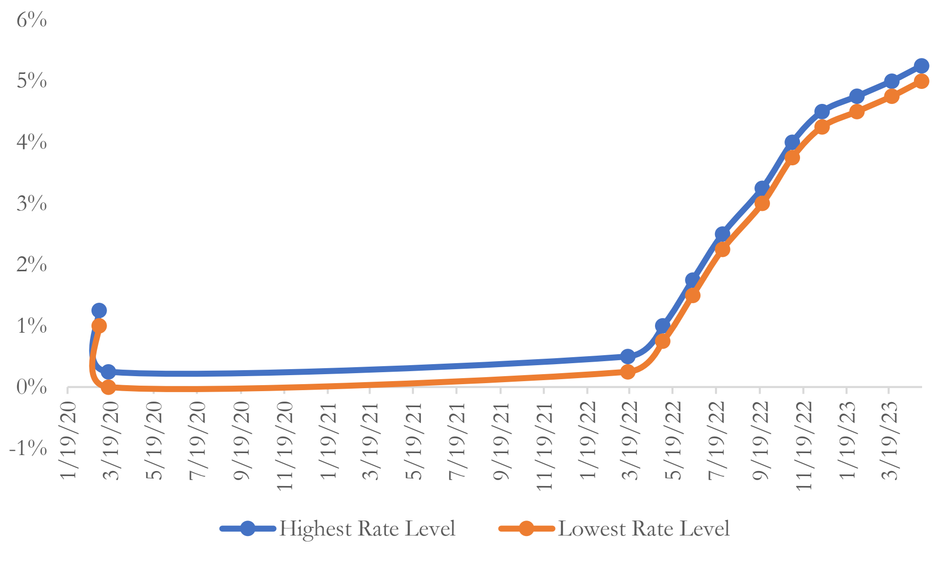


Figure 3: Fed floating rate change.
Data source: Federal Reserve System [1]
Photo credit: Original

According to the U.S. Bureau of Economic Analysis, the second estimate of real GDP growth for the first quarter of 2023 (January, February, March) is 1.3%, -1.4% in the first quarter of 2022, and

6.4% in the first quarter of 2021. As the Fed raises interest rates in 2022, the U.S. domestic GDP growth rate declines significantly.

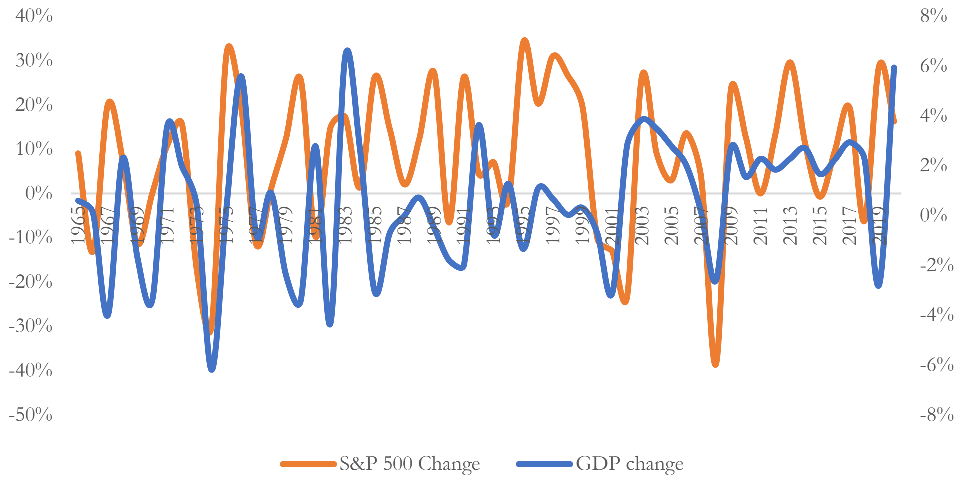


Figure 4: Line chart of the change between GDP and S&P500.
Data source: S&P500 and GDP historical data from Macrotrends [11,12]
Photo credit: Original

According to Figure 4, the rate of change in the stock market and the GDP growth rate are roughly positively correlated [11,12]. When the GDP growth rate rises, the stock market price also rises. Why does a rate increase lead to a downward movement in stocks? Because when the Fed raises interest rates, the cost of borrowing rises, and the profit of saving money rises.

### 3.1.1. Promote Savings and Reduce Consumption and Investment

When interest rates rise, the cost of borrowing increases, which may cause borrowers to be more cautious about spending and investing because loans become more expensive. Higher borrowing costs may discourage people from borrowing to buy big-ticket items, houses or make business investments, thus reducing the demand for consumption and investment. Conversely, the increased return on savings encourages people to save more rather than consume or invest.

In this case, an increase in interest rates can serve to dampen inflation to some extent. By reducing people's demand for consumption and investment, rising interest rates reduce the liquidity of money in the economy and limit the rate of growth of the money supply, thus helping to dampen upward price pressures.

However, higher interest rates may also have some negative effects on economic growth and employment. Consumption and investment are key drivers of economic growth, and higher interest rates may dampen these activities. Higher borrowing costs may reduce the willingness of businesses to invest, limiting the initiation and expansion of new projects, which in turn could negatively impact job growth. In addition, consumers may reduce large purchases and lending, thereby negatively impacting sectors such as retail and real estate.

### 3.1.2. Promote Capital Outflow from the Stock Market

Raising the cost of borrowing: Interest rate hikes increase the interest rates on loans, thus raising the cost of borrowing funds [13]. For investors in the stock market, they may choose to withdraw funds from the stock market and place them instead in safer investment instruments such as bonds or deposits with higher interest rates to obtain higher returns. Such capital outflows can lead to a

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reduction in the supply of funds in the equity markets, which may put downward pressure on equity prices.

Decreased risk appetite: When interest rates rise due to rising economic uncertainty, risk appetite declines because access to future cash flows is uncertain and investors want a larger risk premium, which has a net negative impact on stock prices [14]. Large changes in interest rates typically increase economic uncertainty, making it more difficult for consumers and companies to plan and reducing investors' risk appetite [14].

Their reduced appetite for risk in the equity markets has been accompanied by triggering investor concerns about the economic outlook. Investors may be more inclined to seek relatively lower-risk investment options and less inclined to invest in riskier equity markets [15]. When interest rates are raised, borrowing costs rise, which makes the equity market riskier relative to other safer investment vehicles. Investors may have less demand for risky assets in favor of more stable and predictable investment options, such as bonds, time deposits or other fixed-income instruments. This tendency to shift capital may lead to capital outflows from the equity markets, leaving less capital flowing to the equity markets.

Investors' sensitivity to risk may be exacerbated by interest rate increases. High borrowing costs and higher funding costs may increase the uncertainty and risk of investments. In addition, interest rate increases are often seen as a signal of tighter monetary policy, signaling a possible risk of a slowdown in the economy. This uncertainty may lead investors to be more cautious and more inclined to reduce their holdings of riskier assets. This could lead to a withdrawal of capital from equity markets, making less capital flow to equity markets.

## 3.2. Impact on the Foreign Exchange Market

After World War II, the Bretton Woods system was gradually established, and although it collapsed completely in March 1973, the world's most dominant currency for settlement of various transactions is still the U.S. dollar [16]. In 2010, China's rapid economic development gradually became the second largest economy in the world, competing with the United States for the position of the world's largest economy. In 2018, former President Donald Trump signed various economic bills to develop the U.S. economy and suppress the economies of other countries, and a world trade war began, an economic war involving the economic rival of the United States, China, and the economic partners of the United States in several conflicts. For example, the United States passed bills intended to immediately raise tariffs for the import and export of aluminum, washing machines, steel, and solar panels [17]. On January 22, 2018, the United States passed a bill to raise tariffs on $ 8.5 billion of imported solar panels and $ 180 million of imported washing machines., China launched a countervailing duty investigation into U.S. sorghum imports with Feb. 5, 2018 [17]. Trump has announced upcoming tariffs of 10% on aluminum and 25% on steel on all trading partners, citing national security [17]. The EU has publicly announced that it will retaliate if it is subject to U.S. steel and aluminum tariffs [17]. Each battle U.S. justified by U.S. law, such as the legislation Trump signed imposing taxes and/or quotas on imports after claiming that imports from other countries posed a threat to national security. Subsequent actions or further retaliation by trading partners could seriously hamper trade and investment, as well as, perhaps, the global economy.

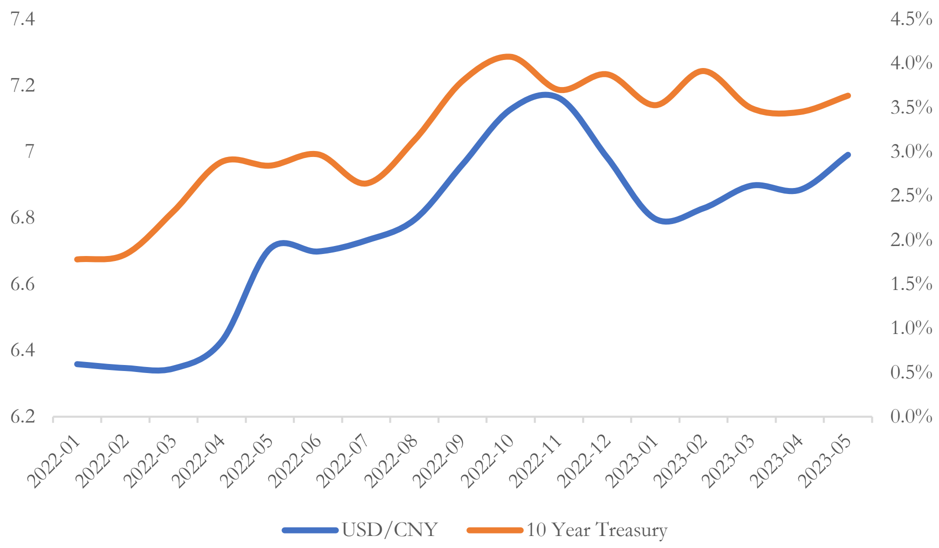


Figure 5: U.S. dollar to Chinese Yuan exchange rate vs. 10-Year U.S. Treasury Yield.
Data source: China Foreign Exchange Rate System [18] and Yahoo Finance [19]
Photo credit: Original

The horizontal coordinate in Figure 5 shows the date, the left vertical coordinate shows the spot rate of the U.S. dollar against the Chinese yuan, and the right vertical coordinate shows the yield of the U.S. 10-year Treasury bond [18,19]. It indicates that in January, February, and March of 2022, and hence April 2022, the Federal Reserve initiates interest rate hikes, resulting in an increase in the yield of the U.S. 10-year Treasury bond. Concurrently, the U.S. dollar continues to appreciate against the RMB, leading to the depreciation of the RMB against the U.S. dollar. Despite a decline in the yield on the U.S. 10-year Treasury bond in June and July 2022, the spot exchange rate of the U.S. dollar against the RMB still rises, indicating that the RMB is still depreciating.

Since 2022, In order to curb RMB depreciation, the People's Bank of China (PBOC) has also reduced the required reserves of foreign exchange deposits that banks must hold, resulting in an increase of approximately $19 billion in available foreign exchange reserves for China. The Chinese government has implemented various precautionary measures to manage currency and exchange rate risks. These measures include a reduce the tightening RMB exchange rate, increased foreign exchange hedging, and an loosen the structure of foreign loan [20].

Despite the pullback in U.S. Treasury yields after October 2022, which led to a rebound in the RMB, the depreciation of the RMB was inevitable, and the spot exchange rate of the RMB against the USD has been hovering in the range of 7:1-6.7:1, It can also be seen that the trend of the Fed's rate hike and the trend of the RMB spot exchange rate are almost positively correlated.

In view of the global economic situation and monetary policy, so far the Chinese Government and the People's Bank of China have not directly intervened in the foreign exchange market, although they have adopted corresponding monetary policies. This also indicates that Beijing has not taken significant action in the foreign exchange market due to changes in the international situation, which will undoubtedly cast a shadow over the development of the RMB and China's foreign exchange market [21].

As a strong currency, the relatively good performance of the RMB against a trade-weighted basket of currencies implies that the RMB performs well in international trade, probably due to its relatively stable exchange rate and low volatility. This could attract more international trading partners to settle trade in RMB and facilitate the internationalization of RMB. The People's Bank of

China (PBOC) still allows prices to move with the market, which suggests that the PBOC (the Chinese central bank) allows the RMB's exchange rate to float based on market supply and demand. This market-based exchange rate mechanism can better reflect changes in market demand and foreign exchange supply and help improve the RMB's flexibility and adaptability. It indicates that officials are taking more of a wait-and-see approach to this devaluation.

## 4. Conclusion

As the world's largest economy, the U.S. has a broad impact on the global economy and financial markets. Changes in its monetary policy have a significant impact on the global economy. A U.S. interest rate hike may lead to an appreciation of the U.S. dollar, which in turn has an impact on other countries and regions' exports, imports, external debt, and other economic indicators.

According to the research in this paper an important background for the U.S. interest rate hike is the amount of money in the hands of the people and the state of the job market. With more money in the hands of the people and a tight job market, the U.S. Federal Reserve System (Fed) will consider raising interest rates to curb inflation risks and maintain the economy's balance. Interest rate hikes can curb inflationary pressures by raising loan costs and borrowing rates to reduce consumer and investment spending. A Fed rate hike is one way that monetary policy can be adjusted to regulate economic activity and financial markets. If the Fed believes that current monetary policy is too accommodative or needs to be tightened, they may choose to raise interest rates to achieve their monetary policy adjustment goals. The U.S. interest rate hike is also a decision of last resort because of COVID-19 and government policy-induced inflation, where excessive inflation can greatly affect the standard of living of residents.

The stock market in this country, the world foreign exchange market and the foreign exchange market are also very much affected due to the US interest rate hike, to be precise, the US interest rate hike has an impact on the world economy. The U.S. should stop raising interest rates at the right time and let interest rates return to their previous levels, after the inflation rate is reduced, otherwise it will stagnate the development of its own economy and cause turmoil in the stock and foreign exchange markets. After the U.S. interest rate hike, policymakers can take appropriate macroeconomic policy adjustments to address possible economic challenges. This may include fiscal policy flexibility, such as adjusting tax policy and government spending, to promote economic growth and stability. Following the U.S. interest rate hike, monetary policymakers in other countries may need flexibility to adjust monetary policy to domestic economic conditions and market volatility. This may include considering lower interest rates to stimulate investment and consumer demand, stabilize financial markets, and promote economic growth.

For this paper, the impact of interest rates on the economy is complex and diverse, subject to the interaction of several factors, such as central bank monetary policy, economic outlook, inflation expectations and market sentiment, so the specific impact of rising interest rates depends on the specific economic environment and the interaction of various parties, and this paper cannot collect all the information to show all the impacts, but can only select the key points to elaborate. Since the Federal Reserve is still in the process of raising interest rates, high interest rates and the market has not fully responded, further research and data collection can be conducted in the future after the inflation rate has dropped or stabilized to facilitate the study of the article.

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