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The Global Effect of Fed Rate Hikes: Stocks, Bonds, and Foreign Exchange Markets

Haochen Ni[1,a,*]

[1]*Shanghai Concord Bilingual School, Shanghai, 200023, China*
a. 20171806080@concordschool.com.cn
**corresponding author*

Abstract: On 23rd March 2023, the Federal Reserve has once again increased its federal funds rate. The policy is published aim for reduce the high inflation rate in the US and prevent once again getting into a recession just like in 2008. This brings both advantages and disadvantages to both the domestic and foreign economies. In this paper, some basic impacts are explained including effects on consumption and investment decisions, stocks and bonds markets, and international relations. As the rise in interest rate increases cost of borrowing and discourages speculation, generally, economic activities are reduced. At the same time, this gives foreign countries heavy pressure by creating outflows of investment funds. Looking forward to the future, it is still possible for the Fed to keep raising its interest rate. To prevent further damages, foreign countries may use expansionary fiscal policy as it can stimulate consumption and investment, and most importantly, bring possibilities of improved economy potential.

Keywords: federal reserve, interest rate, stock market, bond market, exchange rate

1. Introduction

In the year 2022, the Federal Reserve has raised interest rates a total of seven times. The contractionary monetary policy is used to achieve both economic and political goals in the US. Economically, the policy is used to lower the high inflation rate to around 2%, which contributes to reach long-term stable economic growth [1]. Look at the political side, the supply chain problems caused by Covid-19 and the increasing sense of competition among developed countries, forced the government to worry about sticking into the same business cycle stagnation again as the subprime mortgage crisis in 2008.

The rise in interest rate can stabilize prices, encourage deposits, reduce speculative behaviour, and increase the US dollar exchange rate. More than that, this policy has made the US bonds market more competitive and attractive, which cause an inflow of funds from all over the world. Other countries whether allow the domestic investment to reduce or raise interest rate correspondingly. Both reactions will give them heavy pressure on the achieving macroeconomic objectives. One direct example can be that Sri Lanka's declaration of bankruptcy on July 5, 2022 [2].

In this paper, some of the impacts of interest rate hikes on the US is going to be analysed, including consumption and investment behaviours, changes in financial markets, and some international connections. On this basis, China, as well as any other countries, should be cautious in

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responding to the policy changes in the US. By doing so, we may avoid being affected too hard and even enjoy some benefits to support future economic development.

The following sections of this paper are organized as follows: Section 2 analyses the connection between interest rate, consumption decisions, and investment decisions; Section 3 introduces how interest rate will affect financial markets; Section 4 focuses on the international influences after the high interest rate being imposed; Section 5 concludes what have generally mentioned in the essay and points out how countries, specifically China, can react to the situation.

2. Goods and Services Market

2.1. Interest Rate and Consumption Decisions

There are many factors that can affect consumption decisions, including incomes, future expectations, government policies, etc. Interest rate is also one of the factors. We may categorise the effects of high interest rate into three ways: borrowing, saving, and mortgage.

When interest rate rises, it means that borrowing becomes more expensive. Whenever they borrow money from banks, they will face a higher interest payment. This discourages people from borrowing and consuming. At the same time, higher interest rate makes saving more attractive. As the interest gained for savers increase, people will be more likely to save instead of spending [3]. Thirdly, interest rate is also closely related to price of housing. A rising interest rate means that the cost of mortgages will rise significantly. This discourages people to buy new houses, while force some house owners to sell. As a result, there will be an excess supply of houses in the market and cause the house prices to fall. Due to the wealth effects, this will also discourage people from consuming as they have less confidence on their purchasing power.

All three effects will lead to a fall in consumption, and this is what a contractionary monetary policy will theatrically leads to. There are also some statistical proves of the effects on housing market. Although, when interest rate rises, there are some time lags until it is fully reflected in the housing market, still, one percentage point increase in interest rate will results in a 0.02% fall of housing price. Then, after 25 years, the drop will be about 3.53%. These data indicates that the price of housing does have an inverse relationship with interest rate. After that, take a look at consumption, an increase in interest rate directly leads to a 0.13% fall in expenditure. Then, the decreasing trend continues until it reaches 1.33% [4].

Figure 1: Interest rates in the US, 1980.8-2021.8.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/INTDSRUSM193N.

By contrast, a decrease in interest means that consumers will be likely to borrow more. Figure 1 and Figure 2 shows the change in interest rate and consumer credit in the US. In general, the interest rate fell from 10.0% to close to 0%, while the consumer credit rose gradually from $350 billion to

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$4,800 billion. Inevitably, the change in consumption cannot be only describe by interest rate, but interest rate must make huge contributions to this variation shown.

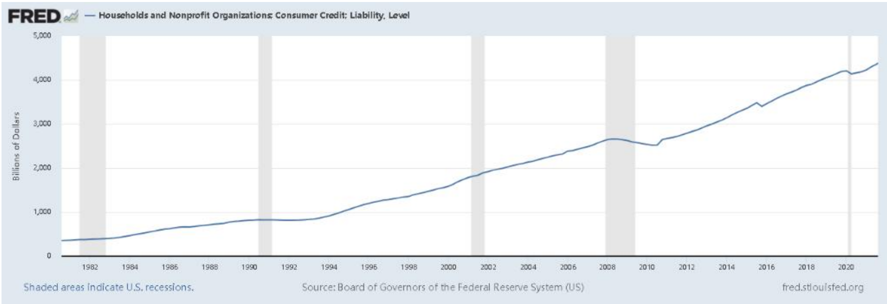

Figure 2: Consumer credit in the US, 1980.8-2021.8.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/HCCSDODNS.

2.2. Interest Rate and Investment Decisions

Similar things also happen to investment decisions. Increased interest rate means that the cost of borrowing will increase, which also increases the cost of production. In this way, firms will not be willing to borrow and therefore be likely to cut spending on investment and other purchases. At the same time, as consumers are spending less, the revenue generated will also decrease, which bring less incentives for firms to invest.

It is shown that directly two years after the rise in interest rate, there is no change in investment as at most times, investment decisions are planned for that time long. However, after the first two years, statistical data shows that net investment rate will be on average decrease for 4.5% [5]. This indicates that there is also an inverse relationship between interest rate and investment.

On the other hand, foreign investors will act oppositely to the situation described above. From their perspective, increasing interest rate actually means that the US dollar actually becomes more worthful, which attracts them to invest more in the US. As a result, more funds will flow into the US, and the US dollar will appreciate. This will be more detailly discussed in Section 4.

3. Financial Market

3.1. Interest Rate and Stock Market

The formation of stock market involves companies dividing themselves into several shares. Stock Market is where buying and selling those shares take places. The market can be segmented into two sub-markets, primary market, and secondary market. Primary market allows companies to issue their shares to the public by the first time under a process called Initial Public Offering (IPO). The payment of the shares is directly transferred to the companies and act as funds for their development. The exchange of stocks that has ownership already happens in the secondary market.

Through stock exchanges, companies can raise money by offering stock shares, and the buyers can whether sell the shares in the secondary market or earn profits through capital gains or dividends. In the US, the New York Stock Exchange (NYSE) and the Nasdaq are the leading stock exchanges (also leading secondary markets). The price of stocks generally depends on the demand side, while changes in interest rate also affects the market hugely in different ways. That will be discussed in the following.

Higher interest rate usually means that it is harder for firms to gain funds from banks. Therefore, they have to decrease their production to save costs, which means that potential revenue generated in the future is likely to shrink. Investors will than find firms less profitable to invest therefore the demand for shares will be lowered, which decreases the price of stocks. To conclude, a negative correlation can be summarized between interest rate and price of stocks. Figure 3 and Figure 4 prove this point of view. In 2022.03, the federal government first starts to raise interest rate. The National Association of Securities Dealers Automated Quotations Index (NASDAQ) reflected the change directly by a decreasing trend.

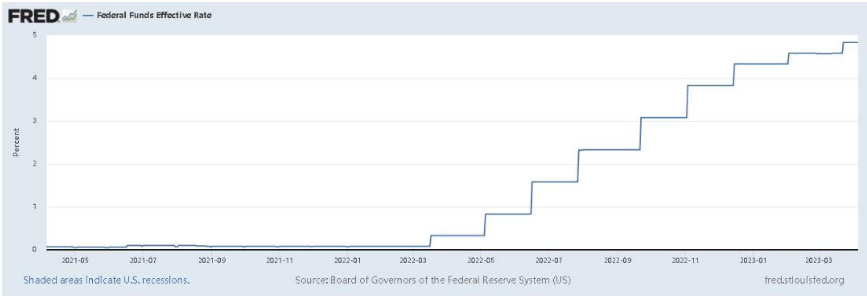

Figure 3: Federal funds rate in the US, 2021.05 - 2023.05.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/DFF.

Despite the fact that increasing interest rate makes investment in stock market riskier, foreign investors again act oppositely. As mentioned earlier, an increased interest rate attracts more funds flow into the US and cause the US dollar to appreciate. These foreign investments can be classified into two categories: direct and indirect foreign investments.

By definition, direct foreign investments are the physical investments and purchases of capitals by foreign investors. Indirect foreign investments, however, are generally investments happening in financial markets.

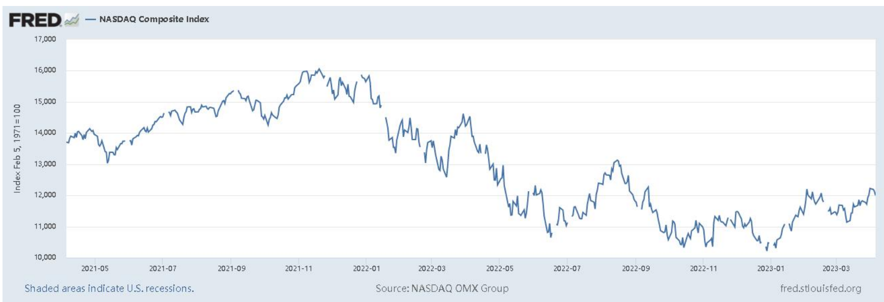

Figure 4: NASDAQ composite index, 2021.05 - 2023.05.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/NASDAQCOM .

Take that into consider, the funds that flow into the US will partially be injected into stock markets. As a result, the increasing demand for stocks may push up the prices. Nevertheless, there is still a decreasing trend in Figure 4 which means that the domestic market should be the dominant factor in stock market. Another reason might be that due to the contractionary policy, a large group of investors are bearish on the future of the US economy. As a result, they transferred their funds into reverse-repurchase agreement securities as they are very safe. Therefore, even investing in the US is profitable, the money may not flow into the stock market.

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3.2. Interest Rate and Bond Market

The bond market, or debt market, refers to the places where investors buy debt securities issued by whether governments or corporations. It can also be segmented into primary market, where new bonds are issued, and secondary market, where existing bonds are traded.

However, unlike stocks, investors in bond market receives fixed-rate interest income. In that case, when interest rate rises, bondholders cannot raise their rate to the same level. The newly issued bonds, on the other hand, contains the higher interest rate with higher return. Therefore, investors will automatically transfer their demand to the new bonds. In order for those bondholders to attract demand again, they have to decrease the price to match the same yield rate level[6]. In conclusion, typically, when interest rate rises, bond price is likely to fall.

The time period bonds to reach maturity is various and interest rate risk tends to be enlarged in the long-term bond market. Firstly, there is a larger probability for the central bank to raise interest rate in the long term. Take a simple example, assume there is a one-year maturity bond issued in the beginning of 2021. Through Figure 3, there is almost no interest rate change between 2021 and 2022. However, if the maturity is longer, the interest rate starts to change a lot. If the bond continues into 2024, its value will be significantly reduced in 2023. Therefore, long-term bonds tend to take more risk.

At the same time, issuers of bonds will be discouraged to issue bonds when interest rate is high as they are facing a higher interest payment. Figure 5 shows an increasing trend of long-term government bond yield. This means that the price of the bond decreases. Compare Figure 5 to Figure 3, it can be easily seen that the change in yield rate closely connected to the change in interest rate.

Figure 5: Long-term government bond yields, 2021.05 - 2023.02.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/BOPGSTB.

This decrease in price of bond and increase in yield of bond is likely to attract more demand for bond in the future. But still, it largely depends on investors' confidence and future expectations to the economy.

4. International Spill Over Effects

4.1. Balance of Payment in the US

Balance of Payment calculates all transactions made between a country and the rest of the world. This balance includes two different accounts, current account, and capital account. The current account is used for computing the inflow and outflow of goods, services, investment income and net transfer, while capital account consists of transactions of assets ownerships.

Theocratically, the total amount of all transactions recorded in the balance of payments should be zero. However, the balance may be influenced by the exchange rate variation, and this variation can be explained by interest rate changes.

As mentioned before, a rising interest rate means that the demand for US dollar will increase, which makes the currency appreciate. The exchange rate shall also increase, which makes the domestic produced product risen in relative price, cause loses in international competitiveness. This means exports will decrease, while imports become more preferable for citizens, and as a result worsen the current account balance.

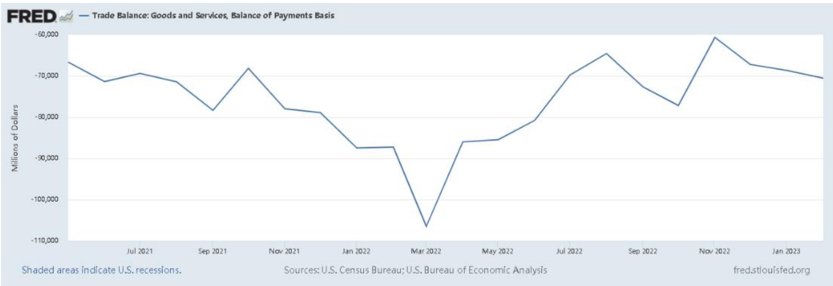

Figure 6: Trade balance in the US, 2021.05 - 2023.02.

Data source: FRED.
Photo credit: https://fred.stlouisfed.org/series/BOPGSTB.

However, look at Figure 6, there is an upward trend which means that the trade balance in the US is actually improving after the disasters in previous years. The relationship between interest rate and net trade balance actually act oppositely to the theory just mentioned. This might be because that in the short term, demand for export and import is inelastic. The Marshall Lerner condition indicates that only when demand is elastic, appreciation will result in a worsen current account[7]. Therefore as the raise in interest rate is a current event, it may end up with improved current account balance. But over time, demand may become more elastic as it is more possible for consumers to swich to substitutes. At that time, appreciation of US dollars should result in a worsen trade balance.

4.2. Spill Over Effects to China Economy

Due to the internationalization of world economies, the interactions between countries become closer and more frequent. Raw material import is an essential part for almost every industry and the customers of the final goods are all over the globe. As a result, the policies established in the US will also immediately affects other countries hugely. China will be used as an example to illustrate the spill over effects after a higher interest rate being imposed.

The first result is that when the US dollar appreciates, the relative value of other countries' currency will face depreciation. In the past two years, Chinese government try to keep the exchange rate between Chinese Yuan and US dollar constant. However, Chinese Yuan still depreciates relative to the US dollar while appreciates relative to most other currencies [8]. This as a result challenges the net trade balance for China.

Focusing on the capital flow, lots of Chinese investors will seek opportunities from the recovery of the US economy. This leads to an increase in supply of Chinese Yuan, which cause it to depreciate. Furthermore, those outflows of capital will reduce the domestic investment funds and hinder economic growth.

Despite that, net trade balance is likely to be improved after the newly revised policy. Previously, as the Chinese government also used contractionary monetary policy to keep the exchange rate

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constant, Chinese Yuan has risen in value relative to other currencies. Now, the policy has been abolished, and changed to carefully observe the fluctuations of all global currency exchange rates. In May 20th, the People's Bank of China (PBC) has announced that the interest rate for loans over five years decreases from 4.6% on January 20th to 4.45%. Then the rate has changed to 4.3% on August 22nd [9]. In simple words, China accepted the depreciation of Chinese Yuan relative to US dollar and at the same time lower the exchange rate between China and other countries. This helps to make the domestic produced products cheaper while increasing price of imports. As a result, exports increase and import decrease, which helps to improve the trade balance.

However, the raise in interest rate in the US has led many countries, especially European countries also increased in the rate. In 2022, the lending interest rate rose continuously from 0.75% on July 21st to 2.75% on December 15th [10]. This has caused a decrease in global aggregate demand, which means that China's exports will reduce in demand. But there is also positive side. Decreased demand might pull down the prices for commodities, more specifically, price of oil and natural gas. This helps to reduce the cost of production for firms, and gain more benefits from that.

Generally speaking, rising interest rate in the US has bring both benefits and costs to China and other countries over the world. Therefore, Chinese government should also consider carefully how to deal with the policies to ensure steady economic growth in the future.

5. Conclusion

The new interest rate policy imposed in the US has caused many effects including discouraging domestic consumption and investment; fluctuations in stock and bond markets; and current account imbalances. It is difficult to judge whether it is correct or wrong to impose contractionary monetary policy, specifically by raising interest rate at this point, as it brings both benefits and cost. Also, it is hard to say if there is a better option for the US government to choose in order to fix the economy because every decision come up with opportunity costs and trade-offs. Since this policy has already been issued, what individuals and organizations should do is carefully consider the next steps to be taken. Government officials and decision-makers should try to get as much as benefits possible, and avoid being damaged to hard.

In this paper, China will still be used as an example to see what countries can actually do. In Section 4.2, we can see there are some benefits, such as more preferable export and lower price of raw materials. Take that into consider, China should expand international trade markets to improve current account further, and purchase more commodities in in relatively lower prices, preparing for the economy in the long run. Besides, the negative affects should be avoided. The biggest problem that the US has brought to China and other countries are the investment funds flowing into the US economy.That will influence domestic economy badly by reducing domestic spending and investment.The two types of policies may be considered, monetary and fiscal policies. Clearly, contractionary fiscal policy cannot be used as a solution. If it is used, China might experience reduced benefits obtained now while imposing a burden on future economic development. On the fiscal side, expansionary policy is encouraged to be imposed. Government may reduce taxes and subsidies, which gives incentives for firms to invest domestically. By doing this, opportunities for future economic growth are given, at the same time make domestic products more competitive globally. However, the cost might be government budget deficit. Fortunately, the tax rate always occupies a great portion of GDP, which means that the government budget will not be challenged a lot. All in all, in our opinion, expansionary fiscal policy is recommended in the planning of China’s economy.

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