The Influence of Interest Rates to the Financial Market

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Abstract

After the 2008 financial crisis, many financial institutions were bankrupt. It is imperative for them and the country to consider new strategies to prevent the next destructive financial crisis. The changes in interest rates in banks or bonds would bring changes in consumer behavior as well. Therefore, this paper would look over different data on interest rates before and after the 2008 financial crisis, combine the economics status, and will investigate the Covid pandemic, making a graph to compare and predict how would the interest rate fluctuate and therefore how it would affect the financial market globally. The result is that the interest rate is non-linear with private investment. In addition, because the pandemic is constantly changing, this paper just simply combines the existed data to make a simple prediction about how banks and private sectors would change their behaviors to better cope with the virus under the circumstances where many businesses are facing serious loans and deficit.

Keywords: *liberalization; low interest rates; investment; financial crisis; bank competition*

1. Introduction

Interest rates refer to the amount of interest due per period, as a proportion of the amount lent, deposited, or borrowed. Nowadays, interest rates are mainly divided into two categories -bond interest rates and bank interest rates. Typically, most bonds pay a fixed interest rate. And from previous studies in microeconomic and macroeconomics, we could know that bond prices have a negatively correlated relationship with the interest rates they offer. Some private sectors would seek to purchase stocks or bonds as a path of investment. That is how interest rate comes to affect the behaviors of investors.

Interest rates play a vital role in the strategy and the policies of the banks. In some of the research work, they criticize previous research on a similar topic on that previous research neglect to notice what would happen to the relationship if the interest rates turn negative [1,2]. By their research, Barrs [2] updates the point that risk-taking solely increases dramatically under the circumstance where the interest rate is negative. However, further investigation is needed to confirm the role of interest rate when it is negative. Therefore, the result is that though interest rate changes normally do not affect the behaviors of risk-taking of private investment, investment has an inverse relationship with real bank interest rates at high rates.

Furthermore, there is research dealing with interest rate's role in impacting the stock market or stock return. They point out that "Stock market do not solely follow the Random Walk" [3][4]. Additionally, it should be noted that monetary policy is of crucial significance in affecting the interest rate and thus the whole financial market. However, only Guangtong [5] has pointed out the flaw of monetary policy if the government interrupts too much. Therefore, more research is needed to focus on the scope of how often the federal government should utilize the monetary policy to affect the market directly.

Few studies have pointed out how do negative interest rates relate to private investment. In some developing countries where the policy is imperfect, more emphasis should be placed on relationship between investment and bank rates under negative interest rates to tailor the policy that fits the country best.

1.1.Research purpose

This paper examinates previous research on how interest rate plays a different role in affecting the financial market in three aspects: how would interest rate influences the behaviors of private investors, what role does interest rate plays in stock returns, and what impacts does interest rate have on financial institutions such as banks under the policy of interest rate liberalization. And all these three

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elements could finally contribute to research in how would interest rates affect the business cycle and the growth rate in different countries under different policies, which is the main purpose of this paper. This paper would extend further to how do we predict the trends of interest under the Covid pandemic.

And the result is that interest rate has a non-linear relationship with private investment because under specific situations the role of the interest rate might differ; stock return generally has a negative relationship with interest rates, and interest liberalization would contribute to the innovation of the bank industries while enhancing the competition among banks.

1.2. The significance of this research paper

Based on previous research, which mentioned the point of the 2008 financial crisis many times, we realized that the crisis divides the time apart. After 2008, many things have changed, from which we would learn lessons and figure out the traits of interest rate to find methods to prevent the next financial crisis. The significance of this research paper lies in that, we would also compare the updated news recently in the world such as the Covid pandemic to demonstrate the trends of the interest rate, how the banks would react to that and what is the role of interest rate to the financial market. We would combine the news recently such as the prices of oil, gas to analyze the role of interest rates. Then, developed countries and developing countries would be researched separately on the grounds that they have completely different economic policies and interest rates.

2. RELATED WORK

There are some works discussing how interest rates affect the investment behavior of private sectors. Though the investigators indicated that "Interest rate changes generally do not affect risk taking," it could only be applied under certain circumstances such as positive and stable interest rates. Lugo [1] stated that "At high rates, investment and real bank rates are expected to be negatively related". Because when the interest rates go up to a higher stage, where people prefer to keep their savings that generate more profit than investment, the impact would be reversed.

However, combined with previous research and theories, Baars et al. [2] points out the flaw of the previous work "Yet, these studies do not explicitly look at negative interest rates and it remains unclear whether their findings can be extrapolated to such scenarios". In some developing countries where interest rates are low or negative, the increase of interest rates would have a positive impact on private investment as there are more available funds for risk-taking projects. The research by Baars et al. [2] demonstrates similar results that "Only if the interest rate turns negative, risk taking increases significantly".

These two articles imply that the relationship between private investments and interest rates is not simply as linear as it might seem. We also need to be aware that the economic conditions in different countries could be diversified, which indicates that consumer behaviors are constantly evolving under different policies and conditions.

There are also works dealing with how interest rates affect stock returns. Tran and Alam et al. [3,4] indicates that the Stock market does not solely follow the Random Walk. Through the investigation, it is considered that long-term interest rates have a vital impact on stock returns, especially after the 2008 financial crisis. In addition, the research by Guangtong et al. [5], it exhibits the controversy where some people believe that interest rate is inversely related to stock returns while others don't.

These three articles both point out that generally stock return has a negative relationship with interest rates and the change of interest rates. In addition, the relationship is not constant. Furthermore, all three of them have talked about the role and importance of monetary policy, and yet only Guangtong has made the appeal, which is based on the conditions in China, to lessen the interruption of monetary policy by the federal government and let the government play the role in inspecting instead of affecting the financial market direly.

On the other hand, there are several research looking into how interest rate affects financial institutions. Specifically, by examining the policy of interest rate liberalization by 1980s in the U.S., Xinrong and Yonggang [6] stated that in a short term, it had a crucial impact on the transition of the bank business and the net interest margin; while in a long term, it contributed to the decreasing of net interest margin and the increasing competition among banks. In addition, Tianyong and Yang [7] further presented the challenges and strategies faced by the bank under the Covid pandemic. Specifically, they talked about the fierce competition among famous banks and small banks, the curtailed profits, and the difficulties of financing driven by lower interest rates and LPR. For these issues, they put forward several solutions-reducing bad loans and increasing the provision rates to reduce losses, incenting the revolution among small-medium banks, promoting digitalization, and transforming more financial resources to small firms.

It is surprising that many researchers have placed emphasis on the 2008 financial crisis as a point to define and distribute the effects of interest rates. It builds the beginning for future research to examine the point of the 2008 financial crisis to distinguish the role of interest rate before and after that period and therefore to introduce the new policy to cope with the trouble in future crises. On the other hand, this paper would examine the time periods,

news, combined with different countries and policies, to shift the focus to the covid pandemic as well as how would the war affect the global interest rate and then the financial market. Additionally, this paper would base on previous research and appeal to future research to place emphasis on how to prevent and ease the disasters caused by the financial crisis.

3. METHOD

This paper would utilize two specific time periods "the 2008 financial crisis" and "Covid-19", mainly based on the US market, to compare the interest rates offered by the Bank to analyze how bank and investors would react to that and make fair prediction to the future.

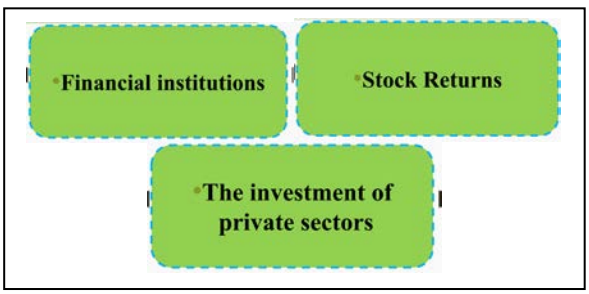

Figure 1. The target affected by Interest Rates.

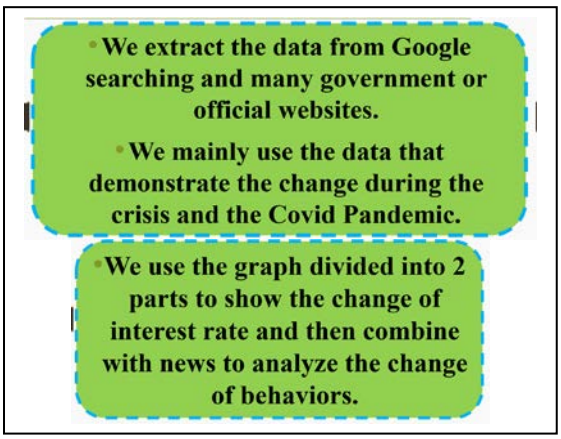

Figure 2. Here is the source of the data and how we sort out and analyze that. The target affected by Interest Rates.

TABLE Ihere mainly shows the change of interest rate during the 2008 financial crisis.

TABLE I. THE 2008 FINANCIAL CRISIS

Country	Target	Interest Rates	
		Before 2008	*After 2008*
US	Federal Open Market Committee(among the banks)	4.5%[8]	0.16%
US	U.S. Governme nt Securities	3.46%(6months) [8]	0.30 (6months)
UK	The Bank of England	5.5%[9]	0.5%
China	People's Bank of China	4.14% (1year deposit) 7.47%(1year loan) [10]	2.25%(1 year deposit) 5.31%(1 year loan)

TABLE II here demonstrates the trend of interest rates in different countries during the ongoing 2020 Covid Pandemic.

TABLE II. THE UP TO DATE COVID PANDEMIC

Country	Target	Interest Rates	
		Before 2020	*recent*
US	Federal Open Market Committee(among the banks)	1.6%[8]	0.08%
US	U.S. Government bond rate	0.88%[8]	1.94%
UK	The Bank of England	0.25%[9]	0.5%
China	People's Bank of China	1.5% (1 year deposit) 4.65%(1 year loan) [10]	1.5%(1year deposit) 3.7%(1year loan)

We would then follow the time period of the 2008 financial crisis and the 2020 Covid pandemic, use the data of interest rates in them based on different countries to analyze the strategy done by the bank or the federal government. Then we would go through comprehending how the changes of the interest rates would have an impact on the private sectors and the financial institutions. Particularly, we would place emphasis on the point of 2008, to see what had the country done to cope with the crisis, what was the impact at that time, how they plan to encounter the next crisis (just like the Covid pandemic we are facing right now), and how we could extend them to current situations and extend further to the future.

In TABLE I**,** as we examine the point of 2008, we found that all sorts of interest rates in different countries had diminished profoundly. That we could come to the cause of the financial crisis-the banks offered loans that were almost assessable to everyone, even those who were not trustworthy. Then many borrowers were not able to pay back, and many lenders could not get their money back. As a result, many lenders came to the bank to ask for their money, which resulted in the bankruptcy of the banks. Therefore, the countries' central banks or the federal government would lower interest rates to stimulate borrowing and economic growth in such a cycle. And then it came to affect the behaviors of the private sectors who borrowed money from the bank or brought bonds and stocks on the market.

How people react during 2008: the FOMC lowered the federal fund rates among banks, which could lead to frequent lending and borrowing among banks to help ease the crisis. Governments all over the world chose to increase spending and bought bonds and shares to let the money flow back to their citizens. In the meanwhile, the interest rates were diminishing, causing people to hold the cash by themselves; and yet the low interest rates would stimulate borrowing and investing. Kelly [11] stated that the UK chose to maintain the liquidity of the banks, which transformed the dodgy mortgages into credit guarantee plans and subsidized the banks to prevent bankruptcy. Furthermore, Quantitative Easing was mentioned in this paper to analyze the effects of different methods to encounter financial crisis when the interest rates are low enough. Quantitative Easing means banks utilize digital money to buy stocks and government bonds to increase the money supply in the market [12].

In TABLE II, we examine the point of 2020 Covid pandemic to see the influences of interest rates to the financial market. Specifically, it should be noted that based on different policies in different countries, we extract the value of the interest rates at the outbreaks of the countries and at current. The result is that, in some countries where the pandemic is not so serious, the interest rates don't change much. Whereas at some countries, the interest rates tend to go up as the government wants more people to deposit their money or lend their money to the government for the purpose of boosting the economies. How people reacted during 2020: in the first place, the banks and government executed similar policies as 2008, lowing the interest rates. However, in recent times it seems that the interest rates have gone up.

More research and data are required to further explore the roles of the interest rates in the economy. With the tailored strategy, it should be noted that many economies are connected. And therefore, to prevent or ease the next financial crisis, we need more research and experiments to form a larger system that could protect the market.

4. Discussion

The role of interest rates is profound to the economies and their functionality. The governments lower the interest rates and use Quantitative Easing to counteract the collapsing economies. And we utilize the point of 2008 and 2020 to analyze and offer potential solutions to lessen the effects of the next financial crisis. In the Method, we list and compare the changes in interest rates during 2008 and 2020 in Table Iand TableII. We could find that whenever encounter crisis, the government tends to lower the interest rate in the first place to provide incentives for borrowing and investing. However, the low interest rates also brought many problems. Kelly [13] pointed out that because private investors could not seek high profit returns from banks or bonds, they turned to products with higher yields such as gold and oil, which did not boost the economy as intuitively as buying retail goods does.

Moreover, as we could see from Table Iand TableII, the FOMC still choose to lower the federal funds rates in 2020. The federal funds rates are the fee charged in lending among different banks. In 2008 and 2020, when the crisis destroyed many small and medium financial institutions, this policy was able to protect them. Banks could lend and borrow money from each other at a low rate and provide funds to the citizens in a timely manner, which stimulated consumption as well as diminished the anxiety among residents.

Conversely, from Table Iand TableII, we observe that the interest rates go up recently. For instance, the U.S. Government Bond Rate for 6 months has gone up from 0.88% to 1.94%, which is contradictory with the results that we anticipate from 2008. It simply means that the countries have learnt lessons from the 2008 financial crisis and seek new approaches to counteract the negative effects.

Then Quantitative Easing is brought in our sights to help recover the economy apart from lowering interest rates. When the interest rates are decreasing to the point where governments could not further intersect, the policymakers would switch to another method-Quantitative Easing. There are also some problems brought by Quantitative Easing. It should be noted that utilizing Quantitative Easing would lead to the consequence of wage droppings, which restrains consumption and demand for goods and service as it increases the price level. Additionally, though it is not clear, Quantitative Easing would also lead to less savings [12].

The result is that interest rates play a vital role in affecting the economies. And there are many reasons and methods that could, directly and indirectly, affect the interest rates and thus further have an impact on the economies. The limitations are that we are still on the path of searching new methods to lessen the fluctuation to the interest rates and its impact on 3 different parties. More research is needed to confirm the advantages and flaw of Quantitative easing in current situations where the international relation is tense.

5. Conclusion

This paper mainly focuses on the impact of interest rates to private sectors, financial institutions, and simply on stock returns. We find that normally interest rates do not impact risk-taking, while when the interest rates are negative, risk-taking enhances profoundly. And there is a non-linear relationship between stock returns and interest rates. Later, we place emphasis on the point of 2008 and

2020 to further investigate how we survive the future financial crisis by analyzing the fluctuations of interest rates in these two periods. The result is that during 2008, the interest rates went down profoundly; and yet currently, the interest rates have recovered and gone up as people learn lessons from the past.

This paper appeals more strategies and research on interest rates and thus how to ease the destruction in the future, just as the increasing interest rates shown in Table II. However, we will leave research about negative interest rates as future work, as more research is needed to confirm the relationship between interest rates and risk-taking. In addition, regarding the change of interest rates, new strategies are indispensable. Otherwise, whenever we encounter the crisis, we could only anticipate the lower interest rates. If the interest rates turn and maintain negative in the future, there would be more problems triggered apart from the disaster itself.

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