Analysis of Influencing Factors of Stock Return Rate

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Abstract. The people who are investors in the Chinese stock market always seek sequences or patterns, like the periodicity of the stock market, to help them for making a better return. Now some of the patterns have been proven. The periodicity of stocks and investor sentiment will affect investors' decisions and have a huge impact on China's stock market. This article aims to find out the influencing factors on different aspects of the stock market's periocity. The article shows the impacts on China's stock market caused by the periodicity of factors like the rate of return, investor sentiment, macroeconomic indicators, and economic cycles. From the method of calculating the past five years' stock index data and comparing the fluctuation every single month can find out the proper time for investment. From other aspects, the firm report has been an example of an impact on investor sentiment. And all in all, these aspects correlate with the return to the stock market. Every factor has been unconsciously altering the stock market to a certain extent.

Keywords: investor sentiment, periodicity of the stock market, analysis of stock index.

1. Introduction

In China there's over nearly 80% value of the GDP in the stock market, Chinese stock market has over 4000 public companies and about 200 million investors. It's a very immense market with complexity. Investors need experience in trading stock to figure out a new path for a better earning received.

The periodic change of the stock market means that the stock price shows repeated ups and downs in a certain period, which often has a certain regularity and predictability. Cyclical phenomena have been widely studied in the field of economics, among which the cyclical changes in the stock market are a hot topic. Cyclical factors may come from macroeconomic cycles, seasonal changes, policy adjustments, industry cycles, and other aspects of the impact. Understanding and analyzing the impact of these cyclical factors on the stock market will not only help investors to formulate more reasonable investment strategies but also help the government and regulators to conduct market supervision and risk prevention.

The purpose of this paper is to explore the mechanism and manifestation of the influence of cyclical factors on the stock market. First of all, this study will review the existing literature, summarize the research results of various periodic phenomena, and provide a theoretical basis for the subsequent analysis. Second, this paper will analyze macroeconomic indicators, business cycles, investor sentiment, and other cyclical factors that may affect the stock market and explore their relationship to stock price movements.

Through the study of cyclical effects in the stock market, investors can better understand the root cause of stock market fluctuations and provide investors with more accurate investment advice.

2. The Influencing Factors of Stock Price

2.1. Fluctuation of Index

In the past five years, the A-share market had been through changes including company performance, interest rate policy, global market performance, market sentiment, investor confidence, natural disaster events, and data on the economy. These factors (there are more) are hard to complete an assessment because there is no standard to depict. But an index could help to figure out the problem, index is the combination or a standard of the factors which could affect the A-share market. The index

can give us a quick response to the overall rise and fall of the market, and then understand the heat of the market, and even understand the future trend. Charles Henry Dow, the inventor of the stock price index, was the earliest representative of the use of technical analysis. He is the founder of the Dow Theory and created the Dow Jones Industrial Average, which is the result of a comprehensive treatment of stock prices in the stock market, by taking several symbolic stocks in the stock market and weighting the average price, so that the average price can be used to analyze the general future trend of the stock market [1]. According to the use of the index, this paper can find out when the times A-share presents well, people could make more money through investment in the A-share market. This paper checks out the data from the Shanghai stock exchange platform, especially the index data. Using the fluctuation of the index. The fluctuation is the presence of an increase and decrease in the A-share index data. To be more specific, here is the calculation formula for fluctuation of the index per month (the index changes in one month compared to the last month):

The index selects some representative sample stocks from listed stocks and calculates the average price or index of these sample stocks. It is used to show the general trend of stock prices in the whole market. The formula for calculating the rise and fall of the Shanghai Composite Index is:

rise = (current price - closing price of the previous trading day)/closing price of the previous trading day *100%, and the fall is when the value is negative. (Rise means the increase of index, and fall means the decrease of index). The author uses Python to calculate the fluctuation of the index, as shown in figure 1.

This study finds the index changes in months during the five years. The data has been provided during 2017-2021, here is the graph presented:

%/month year	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2017	2.61	-0.59	-2.11	-1.19	2.41	2.52	2.68	-0.35	1.33	-2.24	-0.30
2018	-6.36	-2.78	-2.74	0.43	-8.01	1.02	-5.25	3.53	-7.75	-0.56	-3.64
2019	13.79	5.09	-0.40	-5.84	2.77	-1.56	-1.58	0.66	0.82	-1.95	6.20
2020	-3.23	-4.51	3.99	-0.27	4.64	10.90	2.59	-5.23	0.20	5.19	2.40
2021	0.75	-1.91	0.14	4.89	-0.67	-5.48	4.31	0.68	-0.58	0.47	2.10
sum	0.13	-5.28	-2.37	-1.03	4.51	1.98	3.69	0.99	0.44	-2.04	4.2

(Data from Shanghai stock exchange)

Figure 1. The fluctuation table of the index around the years 2017 to 2021

According to this figure 1, the data mentioned is the percentage of the index. data in red represents the index has decreased compared to the last month. Data in green and having '-' in front of it means the index has decreased compared to the last month. The sum is the data on the same column (without the maximum and the minimum data) added together. During June, July, August, September, and October, the sums are positive which are good months for investment.

2.2. Analysis of Influencing Factors of Investor Sentiment

In the securities market besides the basic economic factors, there are also non-market factors such as investor sentiment which also affect the asset prices. The fluctuation of the stock market is not only the regularity of the fluctuation of the stock price but also the rhythm of the time cycle (individual emotions have a great influence on it.) [2]. Studies in Keynes' paper, the term "animal spirits" is the initial description of investor sentiment. It is believed that the stock price fluctuation in the capital market is deeply affected by the behavior of investors [3]. When investor sentiment is rising, it will

get higher returns, and when sentiment is falling, it will get lower returns [4]. It is believed that when investors compare the actual rate of return on assets with the expected rate of return on assets, they will find the difference between the two investor sentiments is the gap between expectation and reality [5].

2.2.1. Firm earning report

In China, companies in the stock market have to provide a earning and performance report to the public. Usually, the report comes every quarter, half, end of the year. The report would show the performance of the company according to return on equity (ROE), profit received, increacing rate of company received profit, the growth rate of business revenue, and earnings per share [4]. During the time in January, February, March, there is one important annual festival which is the Spring festival. In the Spring festival, there is only small portion of profit than the usual generally for the company, because most workers do not need to work. So, during the first quater the firms' performance report to the public shows no good generally. For another evidence, during the end of the year, the earning received particularly increases. The reason is related to the final performance report to the firm. Usually, the final report has the vital position of the whole year reports to the public. During the last few months of the year, firms buy more stock than usual to raise revenue. This action would somehow influence the investor sentiment.

2.2.2. Profit rate

Generally speaking, when the interest rate goes down, the stock price goes up. Therefore, the level of the interest rate and the relationship between the interest rate and the stock price become an important basis for stock investors to buy and sell stocks [6]. The profit rate reacts with the government policy. When the time profit rate is added, investors would be more cautious or feel worried. It is because government aims for more people to save money, fewer people would spend their money. So, less profit firms can receive. Instead, when profit decreases, this situation would likely activate the motivation for investors.

2.2.3. Political effects

The changing policy would generally impact investor sentiment. For example, the alteration of the government and faculty and the election of the new leader of the government would disturb the investors for their judgment to the market. Investors would act more cautious about doing investments because they are not sure what is going to happen next.

2.2.4. Natural disasters

Some natural disasters like hurricane, typhoon, earthquakes, flood would also influence investor sentiment. It is because some natural disasters would destroy the factories, so many firms cannot produce their product. Some firms cannot even operate. This leads to the hesitation of investors about their investment.

2.2.5. News

News can affect the investor's expection to a firm. The news media has the function of transmitting information and guiding emotions [7]. While there is bad news for example a firm's product is harmful to people, the firm would lose their investors by the news speading out.

2.3. The Influence of the Macroeconomic Indicators

Macroeconomic indicators are the key data that reflect the overall state of the national economy. These indicators not only have an impact on government decision-making and monetary policy but can also have an important impact on the stock market. Flannery and Protopapadakis used the GARCH model to analyze American macroeconomic indicators. The influence of standard variables on conditional returns and conditional fluctuations of the financial market is found that some economic indicators can affect finance Conditional returns and fluctuations in the market.[8] The impact of three stock markets in Japan and macroeconomic indicators in Australia and the United

States on Australian financial markets. It is found that these three stock markets significantly affect the Australian futures and stock markets. At the same time, they used the GJR-GARCH model examines the dynamic correlation between the Australian futures market and the stock market It shows that the futures market guides the trend of the stock market [8]. Norbert Funke and Akimi Matsuda (2002) Daily data from January 1997 to June 2002 are selected and analyzed by the GARCH model in Germany and the United States. The impact of the release of macroeconomic indicators on the stock market prices of the two countries. The conclusion shows that based on different types of stocks. The effects of the release of market and macroeconomic indicators vary and also depend on the economic situation of a country [8].

2.3.1. GDP growth rate

The gross domestic product growth rate is a key measure of the level of economic activity and is closely linked to the stock market. Economic growth is usually accompanied by an increase in firm earnings, then investors may be more optimistic, driving the performance of the stock market. When the growth rate increases, people are more willing to use their money for investment, because the revenue and profit received increase. On the other hand, quick economic growth may lead to inflation, So the growth rate would somehow depress the stock market. A high GDP number indicates rapid economic growth, but it is likely to also signal investment.

On the other hand, a lower GDP number is probably also indicative of the economic environment the deterioration, the decline in fixed asset investment, the fall in exports, deflation, the reality of looser monetary policy implementation and high unemployment [8].

2.3.2. Unemployment rate

The unemployment rate is an important indicator to measure the state of the labor market, there is a specific correlation with the stock market. During a recession, unemployment can rise, leading to lower consumer spending and lower corporate earnings, which negatively affects the stock market. In addition, high unemployment may also affect consumer confidence and restrain consumer spending, which will weigh on the market.

2.3.3. Inflation

For a long time, the relationship between stock market returns and inflation is to study and evaluate the relationship between the stock market and macroeconomic environment. One of the important ways of stock market efficiency. Objectively speaking, the fluctuation of the stock market price is directly or indirectly affected by inflation, but the academic circle has not reached a consensus on the degree of impact [9]. The inflation rate is a measure of the price increase index, and there is a certain correlation between the stock market. Moderate inflation could help boost corporate earnings, which would have a positive impact on the stock market. However, too rapid inflation may cause investors to worry about the future decline in purchasing power, which may lead to increased market instability.

2.3.4. Balance of trade

Balance of trade can affect the investment. International trade conditions have an impact on national economies and stock markets. A positive trade balance could have a positive impact on the stock market by increasing export opportunities for firms and improving profitability. However, an unfavorable trade balance could lead to a decline in corporate earnings, which could hurt the market.

2.4. The Influence of Economic Cycle

The economic cycle is the fluctuating process of economic activities. There are stages like prosperity, recession, contraction, and recovery. In this section, this paper will explore in detail the impact of the economic cycle on stock returns and analyze the characteristics of market behavior in different cycle stages. The modern macroeconomic definition of the business cycle is based on changes in the rate of economic growth and refers to the alternating process of rising and falling economic growth. The understanding of the business cycle in modern economic theory goes beyond the comparison of the surface aggregate value of the economy to the comparison of the speed of

economic growth of the internal economic entity [8]. The main indicators to measure the economic cycle are the growth rate of industrial production, growth rate, sales volume, capital borrowing, price level, interest rate, profit rate, and employment rate [10]. When economic expansion stage aggregate demand higher levels close to or achieve full employment of the economy as a whole increased price level rise capital lending rise in interest rates. When the economic contraction stage at the low level of aggregate demand industry, loss rate of the economy as whole higher levels of prices drop capital lending less interest rates are low [10].

2.4.1. The influence on investors caused by different stages of economic cycle

Different period of the economic cycle gives out different feelings and decision-making to investors. During periods of economic growth, a country's gross product and corporate earnings usually rise, which has a positive impact on the stock market. An increase in corporate earnings could spark investor optimism, which in turn could push stock prices higher. A recession is a period when economic activity slows, corporate earnings can come under pressure and market sentiment can be subdued. During this period, investors may be more cautious, and there may be large-scale selling behavior, causing stock prices to fall. A contraction is a severe phase of declining economic activity, where corporate earnings can come under severe pressure and market sentiment can deteriorate further. During this period, investors may become more concerned about the economic outlook and may sell stocks further, causing stock prices to fall sharply. Periods of economic contraction are often accompanied by high unemployment and an increase in business failures, which can put continued pressure on the stock market. The recovery period is a period when economic activity starts to grow again, corporate earnings may gradually recover, and market sentiment may gradually improve. During this period, investors may begin to see an improving economic outlook and may gradually increase their investment in stocks, fueling a rally in the stock market.

3. Conclusion

This paper discusses the mechanism and manifestation of the influence of cyclical factors on the stock market to deepen the understanding of the critical factors behind the volatility of the stock market. Mainly by analyzing the index, investor sentiment, macro-control, economic cycle, and other cyclical factors affecting the stock market, this paper reaches the following conclusions:

First of all, there are obvious cyclical changes in the stock market, which are often the result of the interaction of multiple factors. The influence of the macroeconomic cycle on the stock market is significant. The boom period and recession period often lead to different degrees of market fluctuations.

Second, by researching the index, this paper can see the best months of investment during recent one to two years according to the last five years data, which are months from June to October. Investors are more able to receive monthly during these months.

At last, investor sentiment does influence the stock market and also has periocity according to the firms' earning report. And investor sentiment has a significant impact on market volatility and investor decisions. Enthusiasm and panic often lead to overreaction in the market and increase the volatility of the market. The change in investor sentiment will also affect the decision-making behavior of investors and guide them to adopt different investment strategies in different market environments.

However, it is essential to emphasize that the complexity and uncertainty of investor sentiment make it difficult to accurately predict and control. Future research could delve into the mechanism of emotional factors in cyclical fluctuations and how to better use emotional information to guide investment decisions and market management.

To sum up, cyclical factors have interwoven effects on the volatility and decision-making of the stock market. Through an in-depth study of these factors, investors can better understand the operation law of the stock market, provide more comprehensive perspectives and suggestions for investors and regulators, and promote the steady development of the stock market.

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