The Influence of The Belt and Road on the A-share market

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Abstract: Since President Xi Jinping put forward the strategy of the "Belt and Road" in 2013, the strategy has got the high attention of the international community. The stock market as a barometer of the national economy can timely reflect the change of national policies. The strategy made a series of relevant stock price has a significant volatility, and they formed the independent plate called "Belt and Road". The paper intends to use Event Study Method and Fama-French Three-Factor Model to evaluate the influence of "Belt and Road" on the A-share market, so as to understand the impact of macro policies on the stock market, and find out some mechanism and measures to make the share market better.

1. Introduction

Since the implementation of the strategy of "The Belt and Road", the A share market has launched the concept of "The Belt and Road" concept, which is the induction and sorting of the related stocks of "The Belt and Road". It is evident that the strategy has had an important impact on the A share structure. Therefore, it is of great significance to study how the "The Belt and Road" strategy acts on the A share market and give reasonable suggestions to improve the stock market.

2. Method selection and model building

Studying the influence of "The Belt and Road" on the A share market can be understood as measuring the impact of an economic event on enterprises and the stock market. Domestic researchers, 2009[1], think that the event study method has simple and clear logic clues, and the advantages of calculating the advantages of the program will greatly enhance the efficiency of research. Wang Zhanhao et al. (2015 [2]) mentioned that by observing the change of the sample stock's return before and after the event, we can test the effect of the event on the sample stock's price change and return. Zhong-qin Su (2014 [3]) and other scholars have studied the relationship between political ties and the stock market. Using the panel data of Chinese companies to analyze the dividend policy of enterprises, they find that the cash dividends paid by politically connected companies in China are higher than those paid by non-politically connected companies. Therefore, in the study of the "The Belt and Road" strategy, the event study method in the process of stock market performance of the A share market is in line with the actual situation.

Event research method mainly calculates and verifies whether there is abnormal return in the stock market in the event period. The most representative methods of calculating abnormal return are William Sharpe (1964 [4]), John Lintner (1965 [5]) and other capital asset pricing models developed in the 1960s based on Markowitz theory. Type (CAPM model). Fama and French selected the return data of American stock market from 1962 to 1989 for empirical analysis. Finally, they found that the size factor and book-to-market ratio can affect the average return level of a company individually or jointly, and also can include leverage effect factor and P/E ratio to a large extent. So Fama and French (1993 [6], 1996 [7]) formally put forward three-factor model to explain the cross-sectional change of expected stock returns, and added scale factor and market factor on the basis of CAPM. Subsequent

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empirical studies by scholars in various countries show that the three-factor model of Fama-French has a better effect on the interpretation of securities market. Chen Haiming (2003 [8]) put forward that in China, compared with CAPM and cash flow discount model, factor model is more in line with China's actual situation, and should be optimized and revised according to specific problems. Fan Longzhen and Yu Shidian (2002 [9]) selected the monthly returns of all A-share stocks from July 1995 to June 2000, and found that part of the effect of China's stock market can not be explained by the value of stocks. Therefore, this paper will use Fama-French's three-factor model as an empirical tool to calculate the excess rate of return and make an empirical demonstration.

In this paper, we use Fama-French three-factor model to optimize the market model, add market size factors and market value factors, and then calculate the abnormal return rate. The calculation formula of the optimization factor model is as follows:

$$R_{it}=\alpha_i+\beta_i R_{mt}+\beta_{SMB}SMB+\beta_{HML}HML+\varepsilon_{it}$$

Among them, the rate of return of the securities I and the market portfolio m in the T period, respectively, represents the yield of the one way stock portfolio and the market portfolio, which is the intercept term, the average return of the single stock or portfolio under the unconditional condition, and the book market value ratio of the market, that is, the market value factor. It is the scale factor of the market, the systemic risk factor of the market and the perturbation term. The formula for calculating the abnormal return rate is as follows:

$$AR_{it}=R_{it}-\alpha_i-\beta_i R_{mt}-\beta_{SMB}SMB-\beta_{HML}HML$$

3. An empirical study of the influence of “The Belt and Road” on the A share market.

3.1 Sample selection of event study method

The first idea of the "The Belt and Road" concept is the concept of macro strategy, which has a certain degree of randomness and contingency in the future. The formal establishment of the Asian infrastructure investment bank is a more specific implementation method, so its impact on the future is more long-term and intuitive. The story day, this paper takes the establishment date of the Asian Investment Bank, October 24, 2014, as the event day, i.e. 0 days; the estimation window, this paper takes 60 trading days (-60) before the issuance date and 240 trading days (-240) before the issuance date as the estimation period, that is, 181 trading days from October 31, 2013 to July 24, 2014, as the estimated period to calculate the target. The expected return rate of stocks and the event window take 59 trading days (-59) before the issuance date and 60 trading days (-60) after the issuance date as the event period, in order to observe the reaction of stock prices before and after the establishment of the Asian Investment Bank, a total of 120 trading days. In this paper, we selected all the plate conceptual stocks in the Shanghai and Shenzhen two cities in 2014 as the object of study. After excluding the incomplete data and other important events affecting the stock price in the event period, the total sample was 80 enterprises, including a variety of industries, so as to ensure the completeness of the data and the representativeness of the results.

3.2 Fama-French three factor model calculation

3.2.1 The calculation of market risk factor index (Rm)

The market risk factor (Rm) retains the original factors in the market model and represents the return rate of the market portfolio in different periods. This paper chooses the return rate of Shanghai Stock Index as the average return rate of the market portfolio. The formula is as follows:

R_m=(Shanghai Stock Index$_t$-Shanghai Stock Index$_{t-1}$)/Shanghai Stock Index$_{t-1}$

Represents the return rate of market portfolio in t period, i. e. the daily return rate of Shanghai Stock Index. According to this formula, the numerical series of 181 trading days in the estimated

window can be obtained.

3.2.2 The calculation of market scale factor (SMB).

Market scale factors and market value factors need to be calculated in a combinatorial way. They are divided into two categories according to the market value of the 80 stocks in the same area. They are divided into three categories according to the market value of the day. The two categories of companies are intersecting to get 6 stock portfolios:

Table 1 Stock combinations

	H(30%)	M(40%)	L(30%)
S(50%)	S/H	S/M	S/L
B(50%)	B/H	B/M	B/L

Among them, the calculation method of market size factor (SMB) is defined as the difference between the return of small-scale companies and that of large-scale companies. The total market value of 80 stock samples is sorted from high to low. They are divided into two groups (B, S). The first 50% of the companies are defined as large companies, and the last 50% are defined as small companies. The calculation method is as follows:

$$SMB_t=(\frac{S/Ht+S/Mt+S/Lt}{3})-(\frac{B/Ht+B/Mt+B/Lt}{3})$$

$$SMB_t= R_{\text{The Belt and Road small-cap stocks,t}}- R_{\text{The Belt and Road large-cap stocks,t}}$$

It indicates that the market scale factor (SMB) has a daily yield of T in the period of T, and T represents the daily yield of the one side small cap stock in phase t, and the total market share of the whole market. According to this formula, the numerical sequence of 181 trading days in the estimated window can be obtained.

3.2.3 The calculation of market value factors (HML)

The method of calculating market value factor (HML) is the difference between the return rate of stocks with high book-to-market value ratio and that of stocks with low book-to-market value ratio. In this paper, the book-to-market value ratio of the company is obtained by calculating the reciprocal of the company's market-to-net ratio. After calculating the book market capitalization ratio, we classify the 80 stocks in the same area and classify the book market value ratios from high to low on the same day. They are divided into three groups (H, M, L). Among them, the top 30% companies are defined as the higher book market capitalization ratio, and 40% of the middle companies are defined as the middle book market capitalization ratio, the last 30%. The company is defined as a low book market value ratio.

$$HML_t=(\frac{S/Ht+B/Ht}{2})-(\frac{S/Lt+B/Lt}{2})$$

$$HML_t= R_{\text{The Belt and Road low-PB stocks,t}}-R_{\text{The Belt and Road high-PB stocks,t}}$$

The market value factor (HML) represents the daily yield of phase t, and the low net rate share of the whole market. T indicates the ratio of the market value to the total market value of the area, the daily yield of the stock market in the period of T, and the market share of all the markets. The T indicates the low value of the market and the daily rate of return of the high market rate stocks in the T stage. According to this formula, the numerical sequence of 181 trading days in the estimated window can be obtained.

In this paper, SAS software is used to carry out multiple regression analysis of the factors in the model, and the regression equation is determined by least square estimation.

$$Rit=0.00035656+0.87176Rmt--0.29698SMB+0.11888HML+\varepsilon it$$

Through the analysis of fitting degree, variance and regression coefficient of the model, it is determined that the fitting degree of the model is good, and the regression coefficient is remarkably effective.

3.3 Empirical analysis of the influence of "The Belt and Road" strategy on the A share market

3.3.1 Calculation of abnormal return.

After determining the multivariate regression model, we can use this estimation model to calculate the abnormal return rate. The formula is as follows:

$$ARit=Rit-(0.00035656+0.87176Rmt-0.29698SMB+0.11888HML)$$

$$ARit=Rit-0.00035656-0.87176Rmt+0.29698SMB-0.11888HML$$

The transaction date data of event window [-59,60] is brought into the model, and the corresponding calculation data results can be obtained.

3.3.2 Calculation of cumulative abnormal return.

The cumulative abnormal return (CAR) is the sum of the abnormal return of the stock portfolio. The calculation method of the cumulative abnormal return is as follows:

$$CAR_i = \sum_{t=t_1}^{t_2} AR_{i,t}$$

You need to calculate the starting date from the event window -59 to 60, a total of 120 trading days. In order to observe the marked change of the underlying stocks due to the launch of the "The Belt and Road" strategy, we also need to conduct T test on the cumulative abnormal return (CAR) during the event period.

Through the corresponding data calculation and significance test, we can get that the cumulative abnormal return rate is significantly affected, and draw a scatter plot as follows:

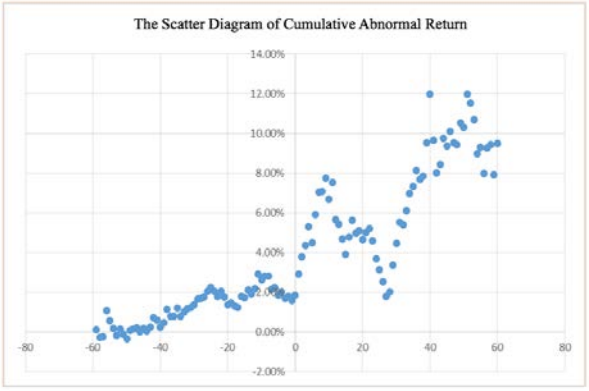

Figure 1 The Scatter Diagram of Cumulative Abnormal Return(CAR)

Through the empirical results, we can find that from the 40 trading days before the establishment of Asia Investment Bank, the stock portfolios of the two sides began to show more obvious fluctuations, and the cumulative abnormal return rate gradually increased. This shows that the market has responded to the "The Belt and Road" strategy and has a certain degree of advance reaction to the establishment of sub investment bank. The main reason may be that some investors in the market know in advance the information about the upcoming establishment of the Asian Investment Bank and build warehouses ahead of time, which leads to the rise of stock prices. On the day of establishment, the abnormal return on stock portfolios of one area and the other side was significantly enlarged, and the abnormal return on the day was significantly positive on the previous day's negative rate. This is because the establishment of Asia Investment Bank is regarded as good news, which makes domestic investors full of confidence in the stock market. In the future, the accumulated

abnormal return of all the stock portfolios is showing an upward trend, indicating that investors are still optimistic about the company's future performance and buying stocks continuously after the establishment of the Asian investment bank, making the excess yield follow. Continue to rise. Over the 21 trading days after the establishment date, the abnormal return rate showed a very significant downward trend. At that time, the United States, Britain, France and Germany were divided on the nuclear issue of Iran in the international community. Among them, Britain and Germany were all members of the Asian investment bank. Therefore, the announcement of the news had a serious impact on the regional equity portfolio, but it was short. After the market reaction, the excess yield also showed a significant upward trend, indicating that the market was stable after the official statement of the market regulators, and investors resumed confidence in the "The Belt and Road" strategic plan.

4. Related suggestions for improving the stock market.

4.1 From the perspective of regulators

In studying the influence of the "The Belt and Road" strategy on the A share market, we find that due to the significant impact of the loopholes in the market information disclosure regulatory mechanism, as a market regulator, we should further achieve:

4.1.1 Strengthen market management and maintain market order.

We should continue to strengthen the construction of information disclosure system to prevent key insider information from being leaked ahead of time, thus eliminating market manipulation, insider trading and other phenomena. We should also clarify information disclosure in time to avoid the deterioration of the impact. Strengthen the special assessment of senior personnel and the compliance consciousness of market related personnel. In this way, we will vigorously strengthen the management of the securities market and vigorously promote the transformation of the SFC from admission supervision to transparency supervision.

4.1.2 Optimize the investment structure and improve the investment environment

Diversification of the investor structure is an important means to regulate the internal operation of the securities market. As a newly emerging securities market dominated by small and medium-sized individual investors, the proportion of institutional investors in the securities market is relatively low. Institutional investors generally have long-term investment vision, rational investment strategies, and higher analytical ability to stabilize the stock market. Therefore, improving the structure of stock market investors and guiding more individual investors to invest rationally can further improve the investment environment.

4.1.3 Effective macro-control and stable operation of the stock market

Through empirical research in this paper, we can find that many important macro-policies or political events, including medical reform, Sino-US trade war and other events, have a very significant impact on economic operation. Especially in the current situation of close international relations, events in different countries will also affect the domestic economic environment. Therefore, it is necessary for the government to effectively carry out macro-control and formulate corresponding policies to further help the stable operation of the stock market.

4.2 From the perspective of investors

The preference and tendency of investors have a very important impact on the stability and development of the stock market. Therefore, as a market investor, we should further achieve:

To strengthen their own understanding, investors should analyze the market situation objectively and rationally. On the basis of independent judgment and good investment mentality, they should take appropriate actions to correctly deal with the gains and losses in the market. They should not follow the trend of buying and selling. Especially when the market rises and falls sharply, they should

maintain a calm attitude and overcome their psychological situation. Limited.

To strengthen theoretical learning, investors should constantly strengthen theoretical knowledge, not only including basic theoretical knowledge such as securities investment, but also some knowledge about financial knowledge, national and international macro-political and economic situation, so as to improve the decision-making ability of investors, so as to guide the healthy stock market. The development of Kang.

Improving trading strategies, investors should master scientific methods and effective investment strategies in the process of stock investment. Chinese investors can formulate and adopt corresponding strategies according to the characteristics of China's securities market. The application of these investment strategies can make them better adapt to the stock market and make rational judgments.

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