The Impact of COVID-19 on China's Tourism Industry

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ABSTRACT

The novel coronavirus pneumonia in early 2020 broke out globally and was recognized by WHO as a public health emergency. It has caused great impacts on China's economy. Investors are also facing higher uncertainty risks, and many industries are facing a severe test. This paper selects tourism industry as the research object and uses event analysis to analyse the impact of COVID-19 on tourism industry. According to the empirical results, COVID-19 has a serious and lasting impact on the tourism industry, which has suffered a setback in a short time. The results show that novel coronavirus pneumonia has a profound negative impact on the share price of tourism industry, and as the epidemic worsens, stock prices continue to fall, and the impact effect lasts longer. By studying the impact of COVID-19 on the tourism industry, we can provide scientific experience and suggestions for investors and the government to respond to the normalization of epidemic prevention and control and even unexpected events.

Keywords: Event Study Method, COVID-19, Tourism Industry, Abnormal Income

1. INTRODUCTION

In 2020, New Coronavirus pneumonia virus spread throughout the world and was highly valued by the world for its highly contagious disease. As of December 6, 2021, more than 200 million people have been infected. Countries around the world have implemented measures to restrict the flow of people to prevent the spread of the epidemic, which has greatly affected the industrial chain and supply chain. COVID-19 has a great impact on the world economy and financial markets. For example, it has caused a great blow to China's economy, especially to the tourism industry. This paper uses event study method to explore the impact of COVID-19 on the tourism industry. event study method is a method to determine whether an event has an impact on something itself. It can help us analyse how much impact COVID-19 has on the tourism industry and what far-reaching consequences it will bring. The exploration of COVID-19's influence on the tourism industry not only enables the public to give an objective recognition of the impact of the epidemic on the tourism industry, but also helps the tourism industry to make reasonable decisions even when facing unexpected situations like COVID-19. Therefore, the impact of COVID-19 on China's tourism industry is worthy of further exploration and discussion.

2. EMPIRICAL ANALYSIS

2.1. Research Method

The event study method is based on the purpose to explore the impact of an emergency on the purpose, which was initiated by Ball & Brown and Fama et al. After continuous modification and improvement, it is widely used in the field of financial economy. By analysing the changes of stock return before and after special events, the author explores whether COVID-19 will have a practical impact on the stock price, and analyse the changes of today's stock market. Therefore, the author will use event analysis to study the impact of COVID-19 on the tourism industry. Finally, the author tests the significance of abnormal returns by using the parameter test method. The null hypothesis of significance test is that the average of abnormal returns is zero. It ensures that the conclusions drawn based on the data are practical and effective, draw results conducive to empirical analysis.

2.2. Determining the Date of the Event

The author firstly determines the event day, that is, the node at which the market receives the event information, and then determines the event window and estimation window. Generally, there are no fixed

requirements for the selection of these two windows [1]. In this paper, the lockdown date of Wuhan, January 23, 2020, was selected as the date of the event and marked as T=0 [2].

2.3. Selecting appropriate samples for research and data processing

The author selects 100 trading days before the event as the estimation window. A total of 30 trading days before and after the event (January 2, 2020 to February 13, 2020) will be used as the event window. For the application of event study method, many sub counties take individual stocks or market indexes in multiple regions as samples and pay little attention to the fluctuation of industry yield behind the event. Therefore, the research sample in this paper is all listed companies in the A-share market of tourism industry in China. The author obtains all the data of the daily rate of return （R_{mt}） of the research sample from guotaian's database (August 13, 2019 to January 8, 2020). The author excludes the data samples with obvious abnormalities, such as incomplete data, window suspension, etc. The daily rate of return above the exception is used as the benchmark of the market, the daily closing price(marked as $P_{i,t}$) is the behaviour of tourism industry(marked as i) on a certain day(marked as t) , and the actual rate of return is $R_{i,t}$.

Therefore, according to the above information, the selected measurement model is:$R_{i,t}=\alpha_i+\beta_i R_{mt}+\varepsilon_{i,t}$ [3].

2.4. Estimating Abnormal Returns

According to the measurement model formula in 3.3, the analysis of the actual rate of return and the combined rate of return of the sample is obtained, and then the results are obtained [4].Then the author uses the formula: a $E[R_{it(event)}] = \alpha_i + \beta_i R_{mt(event)t}$ ， and obtains the expected earnings of all sample companies.

Calculating the abnormal earning rate of return of all samples: $AR_{it}=R_{it} - E[R_{it}|X_t]$

Then the author calculates the average abnormal return of all samples: $AAR_i=\frac{1}{N}\sum_{i=1}^{N} AR_{it}$

The author uses the data of the event period to calculate the average cumulative abnormal earning rate of return: $CAAR=\sum_{t=t_1}^{t_2} AAR_t=\frac{1}{N}\sum_{t=t_1}^{t_2}\sum_{i=1}^{N} AR_{it}$

Finally, all samples were obtained in different time windows: $CAR=\sum_{-t}^{t} A R_{it}$

The actual earning rate of return is R_{it}, with i as the time window. The normal earning rate of return is $E[R_{it}|X_t]$, with i as the event window.

During the period of continuous deterioration of the epidemic , the logistics transportation, population flow, supply of raw materials and epidemic prevention materials in different provinces caused by the closure of the city have all caused great difficulties for the good operation of the tourism industry.
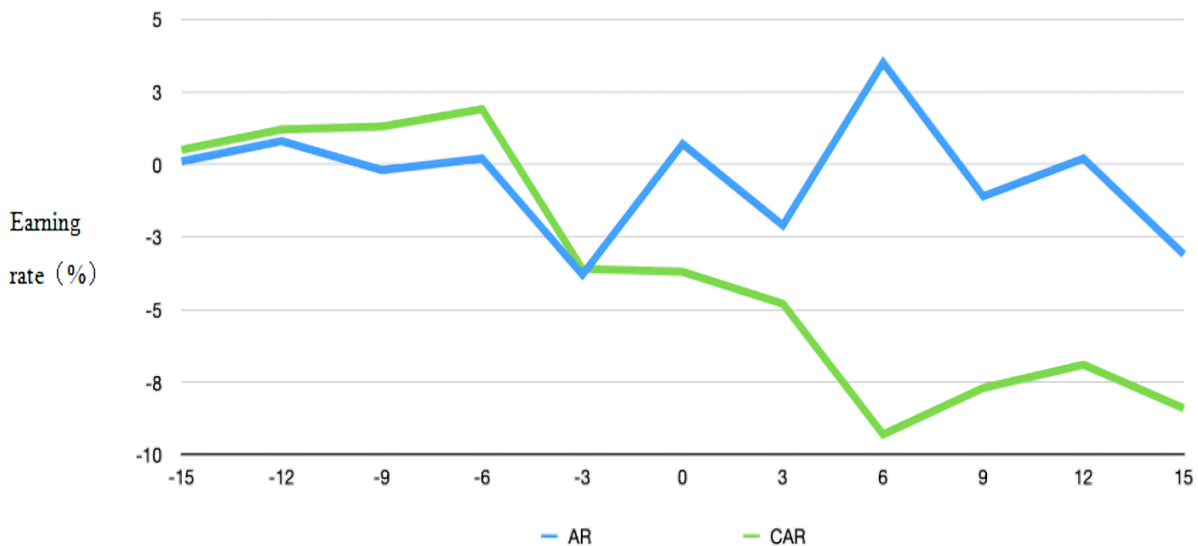

Figure 1. Change trend of AR and CAR during event window

2.5. The Test of the Significance of Abnormal Returns

Through the significance test of the average cumulative abnormal rate of return (CAAR) at different time points [5], it can be seen that the abnormal rate of return is negative, and all points on the 96% confidence interval of CAAR are all significant, and the stock price fluctuates sharply. It can be inferred that the epidemic has produced obvious abnormal returns on the stock price of the tourism industry and has a very significant negative impact. [6]. Therefore, it can be concluded that novel

coronavirus pneumonia has brought far-reaching impacts on the tourism industry, which has significantly increased the fluctuation of the share price of tourism industry and produced extremely unusual and remarkable abnormal returns [7].

3. RESULTS AND DISCUSSION

According to Figure 1 above, AR showed a slight fluctuation in the first 15 trading days of COVID-19, while in the first 3 trading days after the lockdown, AR fluctuated strongly and continued until the end of the window period. CAR kept a small fluctuation around 0 in the first 15 trading days. When entering the first three trading days after the lockdown, CAR showed a cliff decline and reached the lowest value on the sixth trading day after the lockdown. After that, the trend of CAR still fell gradually.

From the figure, the author concludes that the novel coronavirus pneumonia epidemic has a very significant impact on the tourism industry's share price, and its impact is negative. Therefore, the stock market of listed companies in tourism industry fluctuated sharply and continued to decline [8]. Due to the implementation of the epidemic prevention policy, the closure of many scenic spots and the restriction of personnel mobility, the development of the tourism industry continued to be depressed [9]. The listed companies of tourism industries has to face a painful reality, and they need to adjust their travel agencies, hotels, scenic spots and employees to adapt to this disastrous event.

With time going on, the negative impact of COVID-19 on the tourism industry is still aggravating, and there is no obvious recovery trend. A more reasonable possibility is that investors' anxiety and concern about the epidemic has made most investors fluctuate in mood, and their risk appetite for the stock market is gradually tending to conservative stability. According to the data obtained in this paper, the author find that the outbreak of the epidemic has caused huge negative fluctuations in the stock market of the tourism industry and continued to produce negative abnormal returns. And the impact of the epidemic on the tourism industry is sustained.

Besides, due to the gradual control of domestic epidemic, COVID-19's negative impact on tourism industry has slowed down, and the trend of stock price's decline has weakened. This may be related to national policies and decisions of tourism companies, which made investors tend to be calm and can look at the stock market of tourism industry from a more rational perspective. But because COVID-19 has different degrees of attack on all aspects [10], the prospect of the tourism industry is still not optimistic in the overall macro situation. And with the risk of COVID-19 changing again at any time, it will make a great impact on investor sentiment again, leading to a downturn in the share price of the tourism industry.

4. PROPOSALS

All investors in the stock market expect to maximize their own interests. According to this criterion, during the decision-making period, all investors should grasp the relevant information for analysis, see and be familiar with its fundamentals, control their emotions, always maintain a rational perspective on the stock market, and be an excellent investor with independent thinking ability. In this way, when another unexpected event such as COVID-19 occurs, investors will be able to face it calmly and quickly capture favourable information in the stock market.

Furthermore, the panic caused by COVID-19 is limited and its impact is short. And the main force that determines the stock market trend is the macroeconomic regulation and control and the operation of the listed companies themselves. The biggest impact of COVID-19 on the tourism industry is attractions business and travel agency business, while the impact on hotel business is relatively small [11]. Therefore, companies in the tourism industry should consider a more clear differentiation of different types of business, take the hotel business as the main development goal in the context of continuous impacts of the epidemic, reduce the business development in scenic spots and travel agencies, and adjust their work focus. The primary goal is to actively cooperate with the state to reduce the impact of the epidemic and reduce the corresponding losses in revenue as much as possible.

In China, the impact of governments' intervention on the stock market is huge. Therefore, in the face of emergencies, relevant government departments should formulate corresponding policies according to the development of the epidemic situation. The impact of COVID-19 on the stock market is mainly due to the fact that investors no longer see the market rationally and enter panic. This impact is short-lived and limited. What really determines the trend of the stock market is the listed companies and the macroeconomic environment. Therefore, when dealing with emergencies, relevant government departments should not only maintain the confidence of the market, but also formulate reasonable and effective policies according to the development of the epidemic situation so as to provide more substantive assistance for the resumption of work and production of enterprises.

5. CONCLUSION

The author analyzes the impact of COVID-19 on the listed companies in tourism industry through event study method, conducts empirical analysis, and draws the conclusion: the impact of COVID-19 on China's tourism industry is extremely obvious and far-reaching. With the gradual deterioration of the epidemic, the stock price of the tourism industry fell rapidly. At the same time, the

epidemic has exacerbated the fear and anxiety of investors, making them unable to make rational judgment. While as the epidemic is gradually controlled, investors' sentiment tends to be stable, and the negative impact of the epidemic on the tourism industry is reduced.

The event study method only uses excess return, which will produce deviation in the evaluation of market benefits, and it is difficult to completely analyse the performance of listed companies. China's capital market is not yet fully mature, so the analysis of stock price changes cannot fully reflect the impact of M & A on the company. Therefore, the focus of future work is to develop a research model that can analyse the average income, so as to completely analyse the performance of listed companies.

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