Analysis of the Impact of Sino-US Trade War and COVID-19 Epidemic on Lianhua Technology: Based on Event Study

Yue Shao
School of Management, Hebei GEO University

Abstract: Sino-US trade war and COVID-19 epidemic are historic events in the process of China’s rise. The former is to suppress China’s rise in an all-round way, while the latter is to break out in China and put China at a very unfavorable position. And under this big background, the outbreak of a trade war and for individual companies and what are the practical impact, this paper chooses an overseas accounted for larger instrumentation science and technology research, through the financial analysis and event study analysis whether the two events couplet the extent of impact of science and technology, and provides the suggestion for the enterprise, The hope is to make businesses better able to deal with such incidents.

Keywords: Sino-US trade war; COVID-19 outbreak; Event study method; Financial analysis

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1. Introduction

The trade frictions between China and the United States have long existed. Since 1995, the United States has been one of the countries that have adopted the “dual and countermeasure” policy against China most frequently. Trump after he came into power, in 2018 on March 22, announced that the future may increase tariffs of about $60 billion worth of products in China, sparking a trade war between America and China, although our country has repeatedly expressed hope to peaceful means to ease trade tensions between China and the United States, but the us is determined to continue to trade, has brought the serious influence to our country economy. At the end of 2019, when the trade war had not yet ended, the sudden outbreak of COVID-19 caused direct economic losses to China. On the one hand, the whole country responded to the call for epidemic prevention by stopping...
work and shutting down the domestic economy. On the other hand, the rapid spread of the global epidemic and severe contraction of external demand have further affected China’s economy.\[1\] In the previous studies, most scholars only chose one of the two events for analysis, and the research focused on a certain industry or the entire stock market. However, no scholars have analyzed a certain enterprise by combining the two events. So this article chooses an overseas accounted for more than 60% of instrumentation science and technology are studied, through financial analysis and study of these two events to the enterprise financial position and the impact of stock price analysis, is not only an addition to the previous studies, at the same time also can provide enterprises with the corresponding response, provide effective basis for investors to investment decisions.

2. Event and Company Profile

(1) The trade war between China and the US
The Sino-US trade friction broke out on March 8, 2018, when the US officially approved additional tariffs on steel and aluminum imports from China. On March 23, the US President signed a memorandum of understanding on trade with China, announcing additional tariffs on $60 billion worth of Chinese goods, which was regarded as an important symbol of the US government’s official provocation of a trade war between China and the US. On June 15 and July 6 of the same year, the US government issued additional tariffs on $50 billion and $34 billion worth of Chinese goods respectively. The trade war cooled down in late 2018 and early 2019 as consultations such as the China-U.S. leaders’ meetings took place. However, with the notice of the US Customs on May 10, 2019 to impose tariffs on 200 billion yuan of Chinese products, the war flared up again. It was not until October 2019 that the two sides reached an agreement to stabilize tariffs in many fields, and thus the Sino-US trade dispute gradually eased.

(2) COVID-19 epidemic
Coronavirus caused the outbreak of pneumonia in late 2019. As of June 26, 2020, COVID-19 has been transmitted in 182 countries and regions, with a total of 9.71 million confirmed cases and over 490,000 deaths. According to the relevant data of WHO, the epidemic in the Americas and other regions is still very severe, and the number of infected people has not yet reached the peak value.

(3) Lianhe Chemical Technology Co., Ltd.
Lianhua Technology Co., Ltd. was registered in Zhejiang Province Administration for Industry and Commerce on August 29, 2001, and was listed in Shenzhen Stock Exchange on June 19, 2008. The company’s main business includes three categories: pesticides, pharmaceuticals and functional chemicals. In addition, according to the annual report, from 2017 to 2020, the company’s operating revenue from overseas markets accounted for 77.32%, 69.21%, 63.03% and 63.62% of the
total operating revenue, respectively. The company was greatly impacted by the Sino-US trade friction.

3. **Empirical analysis of the Impact of the Event on LianhuaTechnology**

   (1) **Event definition**
   
   Event window consists of two parts: event period and estimate period.

   The event period shall include the occurrence date of the event. For Sino-US trade frictions, this paper selects two events. Event 1: March 22, 2018-The “tariff war” between China and the United States began today; Event 2: July 10, 2018-The start of the “public opinion war” between China and the US.

   For COVID-19 outbreak events, one event was selected in this paper. Event 3: Event 3-Wuhan Municipal Health Commission issued information on the epidemic in accordance with the law.

   Five trading days before and after the event, namely (-5, 5), a total of 10 trading days are selected as the event period to calculate the excess rate of return within the event period. Since the event period selected in this paper is (-5, 5), the 151 days before the event period is selected as the estimated period.

   (2) **Analysis procedure**

   Firstly, Calculate the relationship between individual stocks in the estimated period and the market index. The data in the estimation window are used to estimate the beta of Linkage Technology with the adjusted CAPM model (R = α + βr), that is, the regression equation of daily stock return rate (R) and daily market return rate (R) of Linkage Technology is established, and then used to estimate the “normal return rate” of the company in the event window.

   The results are shown below:

   The regression relationship was R = 0.6957r - 0.1778. R squared is 0.1765 > 0.1, which can well reflect the relationship between the two.

   Secondly, According to the α and β values obtained from the above regression equation, the expected normal rate of return R ‘in the event window period is calculated, and the formula is R’ = 0.6957R - 0.1778

   Thirdly, Calculate the excess return AR: The calculation formula is as follows: exceptional rate of return Ar = actual rate of return of event window R - expected normal rate of return R ‘iti

   In the end, Calculate of cumulative excess return CAR: The calculation formula is as follows:

   \[ CAR_t = \sum_{t=j}^{t=j} AR_t \]
4. Empirical Research Conclusion

(1) Event 1 Empirical results and analysis

The empirical result of Event 1 can be clearly seen from Figure 4.1. On the occurrence date \((t=0)\) of the Event, a very significant negative excess return rate was generated, indicating that the Event had a very significant negative impact on the stock price of lianhua. But investors generally produced panic, a large number of investors to sell stocks, but less number of buyers, so that supply exceeds demand in the short term. As a result, the stock price fell. On March 22, 8,609,856 shares were traded, which was the largest volume during the entire event period from March 15, 2018 to March 30, 2018. On the day after the event, the excess yield of United Technologies rose again, mainly due to optimistic speculators who believed that the company could withstand the impact of the event and invest in the market, which led to a rise in the share price.

(2) Empirical results and analysis of event 3

Fig. 4.1 Trend of AR and CAR curves of event 1

Fig. 4.2 Trend of AR and CAR curves of event 2
As can be seen from the empirical results in Fig. 6, in the trading days (-4, -2) before the date of occurrence of the event, the stock price of Lianchem fell, but it did not affect Lianchem on the day of occurrence of the event. The reason is that after the trade war of the past few months, investors’ expected sensitivity to the event has increased, and their anticipation is reflected in the stock price in advance. Meanwhile, investors have become accustomed to this kind of trade friction, and this incident did not directly affect the interests of enterprises, so it did not cause strong reaction from investors. At the same time, in this incident, the US side smeared China, which on the contrary aroused the patriotic feelings of stock investors, which was also one of the driving forces of stock prices rising on the day of the incident. In addition, in July 2018, lianhua replied to shareholders that the company had negotiated with customers to sell products to their factories in China, and tried its best to reduce the company’s exposure to the trade war between China and the United States, which was also one of the reasons for stabilizing shareholder sentiment.

(3) Event 3 Empirical results and analysis

As can be seen from Figure 8, the excess return rate of Lianghui Technology was significantly negative on the day t=0 of the event, and remained negative 2 days after the event. This is because the public first realized the seriousness of the epidemic on the day of the event, and the real-time confirmed cases reported every day exacerbated the panic. This information caused investors to take a pessimistic view of the domestic situation and further worry that the domestic economy would also be affected by this effect, resulting in negative excess returns during the event period (0,2).
5. Research Recommendations

(1) Advice on the trade war between China and the United States

It is suggested that lianhua actively explore other markets. In 2017, lianhua acquired a customized chemical service provider located in the UK. In order to avoid trade risks to the greatest extent, it can consider directly investing and establishing a factory in the US, which can relieve the cost pressure and open up more markets. At the same time, the US side has carried out the process of soliciting opinions and granted relevant enterprises the right to apply for exemption from tariffs. It is also suggested that the company apply actively. Although the success rate is not high, it is still a possible opportunity.

(2) Recommendations for COVID-19

On the one hand, it is suggested that Alliance increase the voluntary disclosure of information and directly deliver incremental information about enterprise value to the market through objective reports; on the other hand, the enterprise should innovate the operation mode, can use the front-end technology to develop the “isolation economy” new business form, and speed up the construction of digital platform, through the online and offline interaction and integration of the new operation mode, the comprehensive use of e-commerce platform to open up the market, do our best to catch orders, protect customers;

References