

# Analysis of the Impact of Sino-US Trade Friction on Stock Market and Wind First-Level Industry

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## Abstract

**This paper analyzes the impact of the relevant information on Sino-US trade friction on the market and the composite index of different wind-level industries after the release of the event research method, and finds that in the short term, Sino-US trade friction has caused a negative impact on the stock market. By sector, the energy, financial, information technology and telecommunications services sectors are most affected by trade frictions. However, the long-term trade friction on different industries tend to be consistent, reflected in the market's systemic risk.**

## Keywords

**Sino-US Trade Friction, Stock Market, Wind First Class Industry, Event Research Law.**

## 1. INTRODUCTION

In March 2018, the United States unilaterally provoked the Sino-US trade dispute, after which china's trade frictions escalated, during which China had held many consultations with the United States on trade issues and had made good progress, but the attitude of the United States was repeated, and the overall news surface showed positive news and negative news repeated, negative news as the main characteristics, It has had a huge impact on China's stock market. On March 23, 2018, the day the U.S. officially imposed steel and aluminum tariffs, the three major domestic stock markets: the Shanghai Composite Index, the Shenzhen Composite Index, and the GEM Index fell by 3.39%, 4.02%, 5.02%, respectively, while more than 400 stocks in the two cities fell and fell by more than 9% to nearly 700; After substantial positive progress in Sino-US trade negotiations, the Shanghai Composite Index, GEM Index and Wande All A rose by 5.6%, 5.5% and 5.62% respectively on the 25th, and it is not difficult to see that each key news exposure point in the sino-US trade friction process caused a large rout of the stock market. At present, the paper on sino-US trade friction mainly focuses on the qualitative analysis of the causes and effects of trade friction, and quantitative analysis is very rare, so this paper attempts to analyze the impact of Sino-US trade friction on China's stock market wind industry by means of event analysis. The possible innovations in this paper are: 1. Quantitative study of the impact of Sino-US trade friction, 2. From 1 trading day, 5 trading days, 10 trading days, 30 trading days, 60 trading days to study the impact of Sino-US trade friction on the industry.

## 2. LITERATURE REVIEW

The event study method has undergone a long period of development, first proposed by Fama, Fisher, Jensen and Roll (1969)[1]. By studying the changes in the yield of the sample stock before and after the event, it explains the effect of a particular event on the stock price change and yield of the sample, and is mainly used to examine the price change before and after the event or the degree of how the price reacts to the disclosure information. Polotte (1996)

analyzes the impact of the previous stock split on the yield by the event study method, and predicts the impact of the stock split on the yield[2]. El-Gazzar (1998) studied the information effect of the company's earnings announcement by means of event research[3]. Chen Hanwen and Chen Xiangling (2002) compared the application of the three basic models of event research in China through simulated sampling, and the analysis showed that the mean adjustment model was more suitable for China's securities market [5]. Lin Shixiong (2005) introduced in detail the application of the event research method in the evaluation of merger and reorganization performance, calculation steps and interpretation of the results, for other scholars to provide an important reference for research[7]. The calendar effect and event effect on China's soybean futures market were studied and analyzed by the market model of GJR-GARCH in the spring of 2010, and the effect of the company's equity incentive scheme on the stock price was studied by the event research method by Shen Haiping (2011)[9]. Chen Jiabin (2016) analyzed the impact of the introduction of Internet financial products balance on commercial banking business through event analysis, and from the research method, the event research method has formed a relatively complete theoretical and empirical system, which is called an important tool for scholars to carry out economic research[10].

### 3. METHOD

#### 3.1. Event Study

This paper will use the constant mean model to study the impact of Sino-US trade friction on the wind first-level industry, that is, assuming that the average yield of securities does not change over time, the normal industry yield market yield is the average yield of the industry and the market in the previous periods.

This paper takes as a characteristic event of the Shanghai Composite Index rising or falling by more than 0.8 on the first trading day after the trade event, and specifies that the estimated window will be the 150 trading days before the event, and the event window shall be 1 trading day, 5 trading days, 10 trading days, 30 trading days and 60 trading days after the event.

Judging the extent of the impact of events on the overall market by the abnormal earnings of the in-event in-window market index (wind full A)  $AR_{mt}$  and cumulative abnormal earnings index, through the industry's abnormal index  $\Delta AR_{it}$ , and its difference with the market anomaly index  $\Delta AR_{it}$ , to determine whether trade friction has a significant impact on the industry, if the difference between the industry's abnormal earnings and the abnormal market earnings,  $\Delta AR_{it}$  is significantly negative, indicating that the i industry's earnings are inferior to the broader market after the event of trade friction, i.e. the negative impact of trade friction events on the i industry is greater than the market average;  $\Delta AR_{it}$  is significantly positive, it shows that the i industry earnings are better than the broader market after the trade friction characteristic event, i.e. the negative impact of trade friction events on the i industry is less than the market average. In addition, the overall impact of multiple trade friction events can be considered by averaging the abnormal rate of return and the overall abnormal rate of return.

$$AR_{mt} = R_{mt} - \left(\frac{1}{150}\right) \sum_{t=-150}^0 R_{mt}$$

$$AR_{it} = R_{it} - \left(\frac{1}{150}\right) \sum_{t=-150}^0 R_{it}$$

$$\Delta AR_{it} = AR_{it} - AR_{it}$$

### 3.2. Time of Sino-US Trade Friction Characteristics

Based on the media information and index performance of the characteristics of the Sino-US trade friction process, this paper selected a total of 16 characteristic time points for the period from March 2018 to October 2019, the statistics are as follows (table 1)

**Table 1.** Time of Sino-US Trade Friction Characteristics

Date	Change%	Date	Change%
2018-03-23	-3.3927	2019-02-25	5.6007
2018-04-03	-0.8392	2019-03-04	1.1213
2018-04-16	-1.5322	2019-03-29	3.1992
2018-06-19	-3.7751	2019-05-06	-5.5834
2019-07-11	-1.7631	2019-07-01	2.2164
2018-07-12	2.156	2019-08-05	-1.6159
2018-08-01	-1.8032	2019-08-26	-1.1686
2018-11-15	1.3649	2019-09-05	0.9621

## 4. RESULTS AND DISCUSSION

### 4.1. Analysis of the Overall Impact of Sino-US Trade Friction on Stock Market

As shown in Table 2, the impact of trade friction on the stock market is divided into short-term and long-term effects, short-term trade friction has a significant impact on the market index, when there is negative news of friction, market earnings significantly reduced, when there is news of improvement of trade friction, market earnings increasesignificantly, and the deviation of earnings mainly concentrated in the first trading day after the event The effect of long-term trade friction on market indices is relatively weak.

**Table 2.** Statistics on overall market earnings deviation sits after 1/5/10/30/60

Date	1	5	10	30	60
2018-03-23	-4.02	-0.41	-0.23	-0.07	-0.23
2018-04-03	-0.77	0.09	-0.27	-0.01	-0.23
2018-04-16	-0.95	-0.54	-0.26	-0.04	-0.21
2018-06-19	-4.88	-1.10	-0.68	-0.09	-0.16
2018-07-11	-1.80	0.20	0.44	-0.03	-0.01
2018-07-12*	2.58	0.50	0.65	0.02	-0.06
2018-08-01	-1.68	-0.77	-0.26	-0.21	-0.14
2018-11-15*	1.54	0.30	0.02	-0.08	0.17
2019-02-25*	5.62	1.26	0.73	0.60	0.06
2019-03-04*	1.55	0.15	0.29	0.27	-0.05
2019-03-29*	3.33	1.67	0.60	-0.13	-0.07
2019-05-06	-6.71	-0.97	-0.76	-0.35	-0.17
2019-07-01*	2.77	0.28	-0.17	-0.30	-0.05
2019-08-05	-1.66	-0.86	-0.25	0.11	-0.04
2019-08-26	-1.21	-0.22	0.27	0.01	-0.12
2019-09-05*	0.81	0.25	0.03	-0.18	-0.17

## 4.2. Wind Level 1 Industry Analysis

As shown in Table 3, the impact of trade friction on the industry is clearly differentiated, industrial and optional consumer sector earnings deviation is basically flat with the broader market, materials, daily consumption, healthcare, utilities, real estate and other industries are limited by trade friction, while energy, finance, information technology and telecommunications services sectors have significant differences relative to the market., the collected information is uploaded to the PC; at the same time, processing software running on PC processes the acquired information and calls the target tracking algorithm to obtain the coordinate position of moving target. Moreover, the trajectory of moving target is real-time rendered to the display interface for monitoring the working state of each sensor node. The overall structure of the system is designed as shown in Figure 4.

**Table 3.** Industry earnings after 1 trading day

Date	Ene	Mat	Ind	CD	CS	HC	Fin	IT	TS	Ult	RE
2018-03-23	-0.4	1.1	0.1	-0.1	-2.3	-0.7	-0.7	2.0	2.3	-0.8	-0.8
2018-04-03	0.3	0.3	0.0	0.3	-1.1	-0.7	-0.2	0.6	0.8	0.1	0.1
2018-04-16	0.7	0.3	-0.3	0.3	-0.5	-1.0	1.6	-2.0	0.7	0.0	1.7
2018-06-19	-0.6	1.4	0.4	0.0	-0.5	-0.8	-2.0	2.0	1.5	-0.3	-0.2
2018-07-11	0.6	-0.4	0.1	0.0	-0.6	-1.0	-0.1	1.2	1.3	-0.2	0.4
2018-07-12	1.1	0.4	0.0	0.5	0.2	0.1	0.1	-1.8	-1.1	1.0	0.6
2018-08-01	0.6	-0.2	-0.5	-0.1	0.1	0.0	0.5	-0.4	-0.3	-0.4	1.3
2018-11-15	0.6	0.3	-0.2	0.3	0.7	0.4	-0.2	-0.8	-1.9	0.2	0.0
2019-02-25	1.2	0.1	0.4	0.6	2.9	1.3	-2.5	-0.5	1.3	1.8	0.2
2019-03-04	1.0	0.2	-0.3	-0.1	-0.3	-0.2	1.1	-0.8	0.9	0.1	-1.5
2019-03-29	1.0	0.8	0.6	0.6	-0.9	0.6	-1.4	0.3	0.7	1.7	-1.5
2019-05-06	-1.5	0.4	0.7	0.2	-0.4	-0.5	-1.3	1.9	2.6	-2.5	0.1
2019-07-01	1.1	0.7	0.3	-0.3	-0.8	0.0	0.8	-2.0	-0.9	1.6	0.6
2019-08-05	0.1	-0.6	-0.1	0.1	-0.2	0.2	0.4	-0.2	0.0	-0.1	0.8
2019-08-26	-0.5	-0.6	-0.1	-0.2	0.4	-1.6	0.9	0.1	0.5	-0.2	0.2
2019-09-05	0.4	0.1	0.2	0.6	0.3	0.7	-0.7	-0.7	0.5	0.4	0.8

Specifically, on the first trading day after the events of the different events, on March 23, 2018, after the United States announced tariffs on \$60 billion in Chinese goods and formally imposed tariffs of 25% and 19% on steel and aluminum, respectively, the daily consumption industry had significant positive returns relative to the market, information technology, The relative market for telecommunications services and materials showed significant negative returns on April 3, 2018, after the United States imposed a 25% tariff on \$50 billion of Chinese goods in the concentrated high-tech sector, the daily consumption sector showed significant positive returns compared to the market. On April 16, 2018, the U.S. announced a ban on the sale of software and components to ZTE, and after sanctions were imposed on ZTE, the information technology industry had positive returns relative to the market, while the financial sector performed weakly, with earnings significantly lower than the overall market level. On June 15, 2018, the financial sector rebounded after the U.S. announced a 25 percent tariff list on about \$50 billion in goods, with negative returns in the information technology and telecommunications services sectors. On July 10, 2018, the information technology and telecommunications services sector sprm. On July 12, 2018, the U.S. Senate voted to limit Trump's tariff rights after the information technology and telecommunications services sector swerved relatively warm and the energy sector was depressed. On August 1, 2018, the U.S. Trade Office raised tariffs on China's imports of \$200 billion from the original lyproposed 10 percent to 25 percent, with industries and markets performing in relative agreement. On November 15,

2018, after the resumption of high-level contacts between China and the United States in the economic and trade fields, the telecommunications services industry's earnings significantly exceeded the market as a whole. On February 24, 2019, after the U.S. announced that it had postponed the measures scheduled for March 1 to impose tariffs on Chinese products, the financial sector's earnings were significantly higher than the overall market earnings, while the earnings of energy, daily consumption, health care, telecommunications services, utilities and other industries were significantly lower than the overall market earnings. On March 2, 2019, the U.S. announced that it would continue to impose a 10 percent tax rate on imports from China from September 2018, and that the financial sector's earnings were significantly lower than the overall market earnings level; As progress was made toward a trade agreement, the financial and real estate sectors had significantly higher earnings than the market as a whole, while the energy and utilities sectors were significantly lower than the overall market gains. On May 1, 2019, after the 10th round of China-U.S. trade negotiations stalled, the financial and energy sectors posted significant gains, while those in the information technology and telecommunications services sectors underperformed the market. On June 29, 2019, after the resumption of economic and trade negotiations between China and the United States, the telecommunications services sector posted slightly higher earnings than the market as a whole, the information technology sector performed strongly, and the utilities and energy sectors underperformed relative to market earnings. August 2, 2019 The U.S. said it would impose a 10 percent tariff on about \$300 billion in imports from China on September 1 and August 24, 2019, after the U.S. announced it would increase tariffs on about \$550 billion in Chinese imports to the U.S., on September 5, 2019. After the 13th round of China-U.S. High-level Economic and Trade Consultations held in Washington in early October, the industry's earnings relative to the overall market were relatively stable.

**Table 4.** Industry earnings after 30 trading days

Date	Ene	Mat	Ind	CD	CS	HC	Fin	IT	TS	Ult	RE
2018-03-23	0.0	0.0	-0.1	0.1	-0.1	-0.2	0.1	0.0	-0.1	0.0	0.1
2018-04-03	-0.3	0.0	0.0	0.0	-0.2	-0.1	0.0	0.2	-0.3	-0.1	0.2
2018-04-16	-0.1	0.0	0.0	-0.1	-0.2	-0.2	0.0	0.2	-0.3	-0.1	0.3
2018-06-19	-0.1	-0.1	-0.1	0.1	0.2	0.2	-0.1	-0.1	-0.2	-0.2	0.2
2018-07-11	-0.2	-0.1	-0.1	0.2	0.3	0.4	-0.2	0.0	-0.6	-0.2	-0.1
2018-07-12	-0.2	-0.1	-0.1	0.2	0.3	0.5	-0.2	0.0	-0.6	-0.1	-0.1
2018-08-01	-0.3	0.1	0.0	0.2	0.2	0.1	-0.2	0.0	-0.5	0.0	-0.1
2018-11-15	0.2	0.0	-0.1	-0.1	-0.1	0.2	0.2	-0.1	0.0	-0.1	-0.1
2019-02-25	0.1	-0.3	0.0	0.0	-0.1	-0.2	0.2	0.1	0.2	0.2	-0.1
2019-03-04	0.1	-0.1	-0.1	-0.1	-0.2	-0.2	0.3	0.0	0.2	0.1	-0.1
2019-03-29	-0.1	0.0	0.1	-0.1	-0.3	-0.1	0.0	0.2	0.0	0.0	0.1
2019-05-06	-0.1	-0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	-0.2	0.0
2019-07-01	0.0	0.0	0.0	0.0	0.1	-0.1	0.0	0.0	0.2	-0.2	0.1
2019-08-05	0.0	0.0	0.0	0.0	0.3	-0.1	0.1	-0.3	-0.2	0.1	0.1
2019-08-26	-0.1	0.0	0.0	0.0	0.3	0.0	0.0	-0.1	0.0	0.1	0.0
2019-09-05	-0.1	0.1	0.0	0.0	0.2	0.0	-0.1	0.1	0.1	0.0	-0.2

As can be seen from Table 4, the impact on the average earnings of various industries after 30 trading days after the event decreased significantly, and the analysis is due to the overlapping effects of the stock market on the information digestion of trade friction and China's related policies, which indicates that the long-term impact of trade friction on stocks in different industries is more of a systemic risk to the market.

## 5. CONCLUSION

On the whole, Sino-US trade friction leads to large short-term fluctuations in China's stock market, the long-term impact is relatively weak, and by industry, trade friction has the most significant impact on energy, finance, information technology and telecommunications services industry, but over time, the performance of stocks in various industries tends to be consistent, more reflected in the systemic risk of the market.

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