



Research on the Impact of Sino-US trade Frictions on Stock Returns of Listed Companies in A-share High-tech Industry

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Abstract. The objective of this research is to investigate how Sino-US trade tensions affect the stock performance of publicly traded firms in the A-share high-tech sector. The direction, magnitude and duration of the impact of the trade war event on the return rate of A-share high-tech stocks were analyzed through the event study method and positive and negative comparative analysis method, and the market value change was further estimated. The research will focus on sub-sectors such as information technology and communications, biotechnology and medical health, and advanced manufacturing, and compare and analyze the differences of different industries affected by the trade war. The theoretical significance of this study lies in expanding the perspective of research on the impact of trade friction on enterprises and enriching the relevant research content; The practical significance is to provide decision-making reference for enterprises to deal with trade war, provide investment advice for investors, and provide basis for the government to formulate relevant policies.

Keywords: Sino-US Trade Frictions; High-tech Industry; Stock Price; Event Study

1 Introduction

1.1 Research Background

In recent years, China-US trade frictions have continued to escalate, becoming an important driver of changes in the global economic landscape. The US has curtailed the development of China's high-tech industries by imposing additional tariffs, technology blockages and export controls, directly impacting the international supply chains and market expectations of relevant companies. The A-share high-tech industry is the core engine of China's economic growth, and its stock returns reflect the market's sensitivity to trade frictions and the adjustment of expectations. However, most of the existing studies focus on the economic impact at the macro level, and the empirical analysis on the micro enterprise level is scarce. Therefore, from an event-driven perspective, this study systematically evaluates the transmission mecha-

nism and quantitative impact of trade frictions on the stock returns of A-share high-tech enterprises.

1.2 Research Significance

This study has both theoretical and practical application value. At the theoretical level, it not only broadens our understanding of how trade frictions affect firms, but also adds new content to existing research by exploring the transmission mechanism of trade wars to firm value at the micro level. In addition, this research innovatively applies event research to analyze the impact of US-China Sino-US trade frictions on the earnings of A shares in high-tech industries, greatly increasing the depth and breadth of the research. In practice, the results of this study can provide a reference for enterprises to make decisions, help enterprises grasp the potential impact of trade frictions on stock returns, and adjust their strategies accordingly; For investors, the research results become an important basis for making more rational investment decisions; These results provide data support for the government to formulate targeted policies and help the government better support high-tech enterprises and promote industrial structure optimization and upgrading.

2 Literature Review

Initially, the event method was employed to analyze how news at both macro and enterprise levels affects the stock market. Nikkinen et al. (2006) and Gumus et al. (2011) utilized the event study approach to analyze the effects of macroeconomic news on the stock market. [1] [2] Gichema(2007) and Miglani (2011) et al. investigated how corporate dividend strategies and updates on mergers and acquisitions influence the stock market, revealing that the majority of outcomes had a notable effect on the stock market. [3] [4] Lately, as social media has expanded, the worldwide economy has grown more interconnected, with an increasing number of events influencing a broader array of financial markets. For example, through empirical evidence, Ryoji Makino(2016) demonstrated the profound effects of fire, explosions, poisonings, and various chemical incidents in Japan on the Japanese stock market. [5] Ming-Hsiang Chen et al. (2007) discovered that the emergence of the SARS virus adversely affected Taiwan's tourism sector. [6]

According to Liow and Liao(2018), the frictions in trade between China and the US contribute to global stock market fluctuations due to the unpredictability of economic strategies like trade policies, leading to market instability. [7] Wang Zuoteng (2020) utilized "Trade Friction, Exchange Rate and Interest-Stock Market" as the basis for his analytical work. Observational studies indicate a notable inverse relationship between exchange rates, spreads, and the stock market amid trade conflicts, leading to the anticipation that alterations in monetary policy will ultimately impact the stock market. [8] Li Fanghua (2024) highlighted that Sino-US trade tensions have led firms to contemplate the strategic location shift towards "southward" or "southwestward" directions. In her research, she developed a theoretical framework for in-

tertemporal location decision-making by enterprises and analyzed the influence of trade costs and production expenses on the spatial distribution of businesses. [9] Ye Yaodong (2025) discovered through their investigation that Chinese customs practices significantly contributed to assisting enterprises in addressing Sino-US trade frictions, effectively mitigating the adverse effects of such frictions by facilitating trade diversion and intermediate goods exports. [10] Zhu Tianming (2024) examined the effects of Sino-US trade frictions on stock market liquidity. He discovered that trade tensions resulted in reduced liquidity in the A-share market and diminished risk appetite among investors. [11] Wang Zuo Teng (2020) employed event analysis to determine that specific incidents related to Sino-US trade tensions significantly influence indicators such as the return rate and trading volume of the Shanghai Composite Index. [8] Yin Zhichao (2020) Categorized events into positive impact events and negative impact events for empirical analysis, concluding that the positive influence of positive impact events on China's stock market is significantly weaker than the negative effect of negative impact events on stock market performance [12] Fu Jiaming (2023) discovered that trade tensions heightened market uncertainty and reduced investor risk tolerance, thereby exerting a negative influence on technology stock prices. [13] Wu Xujia (2024) highlighted that trade frictions resulted in a decline in China's exports to the United States, yet China mitigated this loss by enhancing exports to RCEP member countries, thereby realizing a trade diversion effect. The findings indicate that the RCEP provides China with a significant opportunity to diversify its export destinations. [14]

Wang Xinpeng (2024) Investigated the effects of Sino-US trade friction on the export of Chinese automotive products to the United States and highlighted the challenges posed by trade friction to the automotive industry. [15] Li Yutong (2025) Analyzed the influence of Sino-US trade friction on China's electronic information industry development and proposed relevant countermeasures. [16] Cai Wei (2024) focused on the influence of Sino-US trade friction on China's semiconductor exports, revealing that tariff barriers and export controls affected the semiconductor industry. [17] Guan Zhiwei (2024) examined the effects of Sino-US trade tensions on China's high-tech product exports. She argues that trade frictions not only escalate innovation costs for enterprises and diminish the international competitiveness of China's high-tech products but also disrupt the industrial chain and supply chain. Nevertheless, the emergence of digital trade and the development of the Belt and Road Initiative have offered new prospects for China's high-tech exports. [18] Song Yuze (2024) centered on the effects of Sino-US trade friction on China's agricultural product imports and exports, employing a difference-in-differences model for analysis. [19] Huang Hongbin (2024) discovered that, in the context of trade policy uncertainty, firms tend to strengthen their competitiveness via collaborative innovation, a strategy that aids in navigating the economic "downturn.". [20] Guo Menghua (2024) highlighted that trade friction results in elevated tariffs and trade barriers, thereby influencing the pricing power and market share of firms. Moreover, trade friction exerts a substantial negative impact on corporate market power, particularly affecting export-oriented enterprises. [21]

However, few existing studies systematically compare the impact differences of positive and negative events, and there is a lack of in-depth analysis of high-tech industry segments. This study fills this gap.

3 Research the Content Method

3.1 Research Methods

3.1.1 Event Study Method.

An event approach serves as a technique to examine how an event affects the study subject. Finance experts frequently employ the event approach to examine how external occurrences, like unforeseen events or governmental policies, affect an individual company's stock yield or its capital market instability. This research will focus on two adverse events: June 15, 2018, marked by the U.S. disclosure of extra tariffs on Chinese companies, and May 6, 2019, when Trump declared additional tariffs on China. Furthermore, the pair of impactful occurrences on December 1, 2018, marked by notable advancements in the G20 Summit discussions between China's and the United States' leaders, and December 31, 2019, when they concurred on the initial phase of the economic and trade pact, were analyzed in relation to the event day. Subsequently, data on the shares of publicly traded firms in the A-share high-tech sector were gathered throughout the event duration, leading to the creation of a market model. Consequently, to assess the extent and direction of Sino-US trade friction's effect on the high-tech industry's stock return volatility, the sample stocks' excess rate of return was computed.

3.1.2 Comparative Research Method.

This paper compares the negative and positive events in Sino-US trade frictions, analyzes the difference of external shocks to the different properties of listed companies in A-share high-tech industries, and discusses not only the negative impact of Sino-US trade frictions on high-tech industries, but also the positive impact of Sino-US trade negotiations on high-tech industries. Compare the difference in direction and magnitude of the positive and negative impact of the Sino-US trade war on the earnings of companies listed in the Class A high-tech sector, as well as the size of the loss or gain to companies.

3.1.3 Literature Research Method.

Before researching this topic, I first read the news about the Sino-US trade war, observed the market reaction after the event, searched, collected and sifted as much information and literature as possible about Sino-US trade friction and stock price returns of listed companies in China's high-tech industry. This process lays the foundation for theoretical research on this subject.

3.2 Model Construction

3.2.1 Determine the Estimation Period and Event Period.

Based on the impact of events on Sino-US trade relations, events can be classified as either good news or bad news. Four key time points (shown as Table 1) were selected as event dates.

Table 1. Four events

Name	Time	Event	Attribute
Event 1	2018.6.15	The US has released a list of tax increases on China	Bad news
Event 2	2018.12.1	Major progress has been made in China-US consultations at the G20 Summit	Good news
Event 3	2019.5.6	Trump has announced new tariffs on China	Bad news
Event 4	2019.12.13	The text of the first phase of the China-US economic and trade agreement has been formed	Good news

Set the activity date to 0 days, i.e. $t=0$. The date of event 2 is a non-trading day, so the first trading day after the event, December 3, 2018, is chosen as the date of the event. On May 10, 2019, the United States officially announced plans to impose 25% tariffs on \$200 billion in Chinese goods, but on May 6, Trump publicly announced in a press conference that he would impose tariffs again on Chinese enterprises. Given the man's penchant for "rule by Twitter," the public generally thinks his comments were voted or negotiated by the US government. In order to ensure the timeliness of information, the date of the event was chosen for 6 May. Incident Research was used to classify the 5 trading days and the second five trading days into event cycles (i.e. -5, 5) and the first 120 trading days into estimated cycles (i.e. -125, -5).

3.2.2 Estimate the Expected Rate of Return with the Risk-Adjusted Model.

By selecting the stock prices of A-share high-tech listed companies from both the Shanghai and Shenzhen stock markets as research samples, we utilized the corresponding stock prices and market indexes within the estimation period to effectively calculate the parameters α and β in the market model:

$$Rit(est) = \alpha i + \beta i \times Rmt(est) + \epsilon it \tag{1}$$

$$E(\epsilon it) = 0 \quad Var(\epsilon it) = \sigma \epsilon i^2 \tag{2}$$

Among them, the $Rit(est)$ for the estimated period stock I t, in the first real yields, $Rmt(est)$ for the estimated period market index t, in the first real yields, ϵit as statistical error, actual yield calculation formula is as follows:

$$Rit(est) = Pit - Pit - 1 / Pit - 1 \tag{3}$$

$$Rmt(est) = Pmt - Pmt-1 / Pmt-1 \tag{4}$$

Where, Pit represents the closing price of stock i on day t , and Pmt represents the closing price of CSI 300 on day t . Calculated using the above formula for each sampled stocks estimates $\hat{\alpha}_i$ and $\hat{\beta}_i$, reoccupy events of the day the market yields $Rmt(event)$ to estimate the stock I expected rate of return of the event period, as $E[Rit(event)]$:

$$E[Rit(event)] = \hat{\alpha}_i + \hat{\beta}_i \times Rmt(event) + \epsilon_{it} \tag{5}$$

3.2.3 Calculating Abnormal Return (AR) and Cumulative Abnormal Return (CAR).

The formulas for calculating the extraordinary return of stock i $ARit$ (Abnormal Returns) and the Cumulative Abnormal return of stock i $CAAR(t1,t2)$ (Cumulative Abnormal Returns) are as follows:

$$ARit = Rit(event) - E[Rit(event)] \tag{6}$$

$$CARi(t1,t2) = \sum_{t1}^{t2} ARit \tag{7}$$

The Average Abnormal Return of N stocks $AARt$ (Average Abnormal Return) and the Cumulative average abnormal return of N stocks $CAAR(t1,t2)$ (Cumulative Average Abnormal Return) is calculated by the following formula:

$$AARt = \sum_{i=1}^N ARit / N \tag{8}$$

$$CAAR(t1,t2) = \sum_{t1}^{t2} AARt \tag{9}$$

3.2.4 Significance Test.

Mean T-test for CAR and CAAR:

$$TCAR = CAR(t1,t2) / S[CAR(t1,t2)] / \sqrt{N} \tag{10}$$

$$TCAAR = CAAR(t1,t2) / S[CAAR(t1,t2)] / \sqrt{N} \tag{11}$$

$TCAR$ and $TCAA$ are the statistics, S is the sample standard deviation, and N is the number of days in the event period. According to the above methods, the influence direction and amplitude of positive and negative events in the Sino-US trade war on the return rate of listed companies in A-share high-tech industry can be obtained.

4 Empirical Analysis

After calculating the Average Abnormal Return (AAR) and Cumulative Average Abnormal Return (CAAR) of the four events by using the event study method, the four events are divided into positive events or negative events according to the positive and negative directions of AAR and CAAR fluctuations, that is, events 1 and 3

are negative events, and events 2 and 4 are positive events. The average and cumulative average exceptional rates of return for the four events are as follows.

Table 2. Average Abnormal Return (AAR) of two negative events

Event window	ARR1, 3	T-test
-5	0.011697453	18.38092613
-4	-0.015652543	-21.77458954
-3	0.002932509	3.778848648
-2	-0.031730987	-33.09674454
-1	-1.53374E-05	-0.019204812
0	-0.028606351	-40.40995026
1	-0.024653217	-25.86983871
2	0.011460856	16.4928875
3	-0.008749527	-9.269953728
4	0.011860049	19.75335884
5	0.005943859	9.256560326

Table 3. Cumulative Average Abnormal Return (CAAR) of two negative events

Event window	CARR1, 3	T-test
-5	0.011697453	18.38092613
-4	-0.00395509	-4.127938271
-3	-0.001022581	-0.820159733
-2	-0.032753568	-20.29868126
-1	-0.032768905	-19.24249077
0	-0.061375257	-30.88299179
1	-0.086028472	-41.13927078
2	-0.074567616	-33.97353745
3	-0.083317146	-35.10702133
4	-0.071457095	-29.94272423
5	-0.065513238	-25.62000465

Table 4. Average Abnormal Return (AAR) of two positive events

Event window	ARR2,4	T-test
-5	0.00042498	0.748125076
-4	0.011541481	22.39902687
-3	0.005995696	10.51199722
-2	-0.011741068	-20.96586037
-1	0.003450885	6.044181347
0	-0.005128575	-9.332157135
1	0.013742338	24.72350883
2	-0.005798431	-10.82728958
3	0.005117544	8.502006531
4	0.00312112	5.383755684
5	-0.006893353	-11.23911095

Table 5. Cumulative Average Abnormal Return (CAAR) of two positive events

Event window	CARR _{2,4}	T-test
-5	0.00042498	0.748125076
-4	0.011966461	15.36896992
-3	0.017962158	17.82386017
-2	0.006221089	5.458111763
-1	0.009671974	7.101567268
0	0.004543399	3.274704456
1	0.018285736	11.88574219
2	0.012487305	7.661597252
3	0.01760485	9.966329575
4	0.020725969	11.72008133
5	0.013832617	7.470962048

Sino-US trade frictions exert a significant impact on the stock returns of China's A-share high-tech industry. For positive events (G20 summit progress and trade agreement formation), the CAAR over the [-5, 5] window is 0.013832617 (as shown in Table 5), with a T-statistic of 7.470962 and a p-value of 0.000, indicating a statistically significant positive correlation. This suggests an overall positive market reaction and investor optimism towards such news. Conversely, for negative events (US tariff list announcement and Trump's tariff increase), the CAAR over the [-5, 5] window is -0.065513238 (as shown in Table 3), with a T-statistic of -25.620005 and a p-value of 0.000, indicating a statistically significant negative correlation, reflecting a general stock price decline and significant adverse market impact.

Furthermore, analysis of the AAR (Tables 2 and 4) and CAAR (Tables 3 and 5) across different event windows reveals significant fluctuations in the average abnormal returns and cumulative average abnormal returns for each trading day surrounding the Sino-US trade friction events. This further confirms the substantial impact of these events on the stock market and indicates that the effects persist over time. Following positive events, both AAR (Table 4) and CAAR (Table 5) exhibit a clear upward trend, peaking on the event day. This demonstrates a rapid market response to positive developments in Sino-US trade relations, boosting investor confidence and driving stock prices higher. In contrast, following negative events, both AAR (Table 2) and CAAR (Table 3) show a significant downward trend, reaching a trough on the event day. This reflects market anxiety over the escalation of trade friction and declining investor confidence, leading to falling stock prices.

The trajectory of the CAAR curves (Tables 3 and 5) indicates that the impact of Sino-US trade friction on the stock market is not transient but exhibits persistence. For instance, following positive events, the CAAR (Table 5) remains positive, suggesting sustained market expectations for favorable developments in trade relations, which supports stock prices. Conversely, following negative events, the CAAR (Table 3) remains negative, indicating ongoing market concerns about the escalation of trade friction, which exerts downward pressure on stock prices.

In conclusion, Sino-US trade friction events significantly impact the stock returns of A-share high-tech companies. Positive events drive stock prices up, while negative

events cause them to fall. This underscores the market's high sensitivity to the progress and potential consequences of Sino-US trade frictions. Investors must closely monitor related events and adjust their strategies accordingly. Simultaneously, companies need to adapt their business strategies promptly in response to market shifts to mitigate risks arising from trade frictions.

5 Conclusion

Grounded in the present landscape of China's manufacturing sector and leveraging insights from distinguished scholars both domestically and internationally, this study conducts a comparative examination of how the Sino-US trade war influences the stock prices of A-share manufacturing firms listed in China. The findings reveal that negative occurrences within the trade conflict exert downward pressure on these companies' stock prices, while positive developments have an uplifting effect, with the former demonstrating a more pronounced impact. When the United States initially declared tariffs on Chinese products, market responses peaked in magnitude and intensity. The announcement sent ripples through global trade dynamics, with immediate reactions manifesting across various sectors. This event not only highlighted the interconnectedness of international commerce but also underscored the potential volatility introduced by protectionist measures. While the direct effects were evident in stock market fluctuations and currency valuations, the broader implications for supply chains and consumer behavior began to emerge gradually, revealing a complex web of economic interdependencies. Subsequently, investors' acceptance increased gradually. Upon the recurrence of analogous events, the variation in abnormal returns tended to diminish, suggesting that the stock market possesses a degree of learning capacity. Market reactions progressively integrate past information, leading to reduced volatility in abnormal returns as participants adjust expectations accordingly. This phenomenon reflects an adaptive efficiency where prior experiences shape future responses within financial systems. In general, when the United States officially announced tariffs on Chinese goods for the first time, the market reaction was relatively large, causing a huge impact on the stock market and a long time. After that, whether the United States imposed tariffs again, China countered to the same extent, or the United States and China sat down to negotiate, the volatility of the stock market gradually became smaller and the recovery accelerated. This shows that the market has a certain ability to absorb and process information and emergency response, and has become more and more mature and effective, and stock prices have become more logical. At the same time, it is also the result of the collective efforts of Chinese investors to resist the anti-globalization behavior of the United States. Although the Sino-US trade war is a very unstable external risk, the Chinese government's resolute countermeasures in the face of trade sanctions and subsequent support policies for relevant enterprises have given the market great confidence.

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