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US-China trade war and China's stock market: an event-driven analysis

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ABSTRACT

The US-China trade war, initiated in March 2018, substantially transformed the trading partnership between the two largest economic powers. It directly influenced the profitability of domestic enterprises related to the export chain and harmed the domestic economy in China and its stock market. This study empirically examines the effects of the trade war on China's stock market based on chronological events and tests whether it is the contagion effect or the present value effect. The empirical study supports the contagion effect because the impact of the US-China trade war differed significantly in different sectors only when the US announced its imposition of more tariffs on US$50 billion worth of Chinese products. However, there is no apparent difference between the industries for other events, nor is there any significant difference between the industries in terms of long-term impact.

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Introduction

Since China officially entered the World Trade Organization (WTO) in December 2001, it has become a major player in the global economy. The rapid proliferation of Chinese Outbound Direct Investment (ODI) has been attracting worldwide attention due to its overwhelming presence and distinct characteristics, in contrast to previous strategies (Yan et al., 2020). Globalisation reshaped the Chinese economy, leading to increased export revenue and improved technology adoption (Skare & Soriano, 2021), sustainability, and energy efficiency (Dabbous & Tarhini, 2021). However, trade friction is inevitable, as industrialisation in emerging countries has considerably changed pertaining to division of labour and distribution of benefits. On 22 March 2018, US President Donald Trump declared elevating tariffs on approximately US$50 billion in imports from China. The disputes escalated on 6 July 2018, when the US announced a 25% tariff on US$34 billion Chinese goods. Between November and December of

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the same year, the two countries agreed not to impose further tariffs at the G20 summit.

The trade war between the US and China has increased the economic uncertainty of the world. The tariffs imposed by the US on Chinese commodities have directly affected China's export chain and increased the downward pressure on its foreign trade. These tariffs have also increased stock market risks, constrained listed companies' performance, and made trading volume changes more susceptible (Cai et al., 2020). This is likely to result in a lose-lose situation (Cui et al., 2019). Specifically, every move in the US-China trade conflict could sway the capital market and affect the stock market. When the escalation of the US-China trade conflict worsened,[1] the A-shares market reacted strongly. On 19 June 2018, the Shanghai Composite Index and the GEM Index plunged by 3.78% and 5.76%, respectively, and 1019 stocks fell. Since January 2019, China and the US have launched multiple rounds of high-level negotiations and made substantial progress. On 25 February 2019, the US postponed tariffs on Chinese products, initially scheduled for 1 March 2019. Affected by the news, the three major A-share stock indexes rose more than 5%, and the market exceeded the 200 daily limits with turnover exceeding CN¥920 billion, a new high since December 2015. These descriptive results briefly reflect the impact of the US-China trade friction as an external shock on the Chinese stock market, but it does not exclude the effect of other factors on the stock market during the same period. More importantly, this analysis does not describe the impact of external shocks on the stock market industries. Accordingly, this study empirically analyses the impact of the US-China trade friction on listed Chinese companies. We aim to test whether the impact is a contagion effect or the present value effect. As this trade war is a competition between the two largest economic powers, its impact on the stock market is more like a system risk caused by the contagion effect than an idiosyncratic risk caused by the present value effect.

Compared with the existing literature, the contributions of this study are reflected in the following two aspects.

1. Based on the literature survey, we are among the first to use event-driven methods to test the impact of the US-China trade friction by comparing the changes in abnormal stock returns before and after the event occurred. The real challenges are the abnormal returns found in major events of the trade friction. When the front-to-back changes are not significant, it is often difficult to distinguish whether this is due to the inefficiency of the trade friction events or the early responses caused by trade friction events.
2. At the industry level, we found that the impact of the trade war on the stock market yield of different sectors is insensitive to the existence of industry branches. When the tariff of US$50 billion was imposed, the impact of the trade war on various industries was revealed in three stages. The later period revealed that the overall impact of the trade war on the stock market was a systemic risk, and industry differences were not significant. As we find more evidence that the impact of the trade war on different sectors was not significantly different from the market average, the hypothesis that the impact of the trade war on the stock market is mainly the contagion effect is supported.

The structure of this article is as follows. The second section is a literature review on the US-China trade friction. The third section discusses the research methods and models. The fourth section provides a descriptive statistical analysis of the impact of the trade friction on the capital markets of listed companies. The fifth section presents the empirical results of the effects of trade friction on the capital markets of listed companies and determines whether the trade friction affected the Chinese stock market. Finally, the sixth section provides the conclusions and recommendations.

Literature review

Existing research on the US-China trade friction can be summarised into the following four levels:

The rise of US trade protectionism and the appeal of certain political and economic interests in the US superstructure were key reasons for the increase in the trade friction between the two countries. Navarro and Autry (2011) believed that China's state capitalism created many national champions to effectively carry out mercantilism and protectionism through illegal export subsidies, infringement of US intellectual property rights, lax environmental protection, and general overuse of labour to destroy American industries and employment. Bhidé and Phelps (2005) believed that US policy pressure resulted from domestic industrial workers, but the 'mercantilism' of China was an inevitable result of trade between less developed and developed countries.

Regarding research on how China should address the series of problems caused by trade frictions, Bergsten et al. (2014) show that in the US-China trade, the potential income of the US is from the increase in service trade. Therefore, persuading China to open up the service market would greatly benefit the US and significantly improve the bilateral trade imbalance. Meltzer (2016) showed that from the US' perspective, through China's connection with the Asian value chain and the economic growth of some American states from the import of Chinese products, the only solution to the US-China friction was working side-by-side, which proved beneficial rather than provoking any dispute.

In trade wars, 'market size' matters in the sense that countries are more likely to initiate anti-dumping cases against countries with smaller home markets relative to their own, than against countries with larger markets (Miyagiwa et al., 2016). The macroeconomic costs of a trade war can be substantial, with permanently lower-income and trade volumes (Lindé & Pescatori, 2019). Two methods of calibration and empirical research are generally used to evaluate the economic impact of trade friction. In terms of calibration research, Guo et al. (2018) used a multi-sector, multi-country general equilibrium model with intersectional linkages to forecast the changes in exports, imports, output, and real wages by implementing the 45% tariffs indicated by Donald Trump. Zhou and Shi (2019) and Lou (2019) adopted the global trade analysis project (GTAP) model to simulate how the US-China trade friction would be affected in different scenarios. The US-China trade friction affects both countries. Particularly, the economy is negatively affected (Lou, 2019), whether short or long term. China's economic growth, exports, and imports have declined more than the

US' (Zhou & Shi, 2019). Itakura (2020) evaluated the impact of the US-China trade war using a dynamic computable general equilibrium (CGE) model of global trade. He conducted an ex-ante simulation analysis exploring three scenarios to understand how the trade war affects import tariffs, investment, and productivity.

In terms of empirical research, Du et al. (2017) used monthly data from 1990 through 2013 for China and estimated a model of political relations. They also concluded that political shocks were short-lived. Freund and Gagnon (2017) examined the effects of the border-adjusted consumption taxes (mainly value-added taxes or VATs) in a sample of 34 advanced economies from 1970 to 2015. They found that the real exchange rate tended to rise as the full amount of any consumption tax increased, with little effect on the current account balance and modest offsetting effects on trade and income balances. Muro et al. (2018) sorted out the list of 128 tax items issued by China to counter the '232 investigations' and the list of 106 tax items to counter the '301 investigations', matched to the US states and employment, respectively, and combined them with the results of the US President Trump's 2016 election vote. They found that the list issued by China was based on the geography of US manufacturing, affecting the representative industries in the states where the major Democratic parties were located. Cui et al. (2019) explored the boundary effects of the US-China trade war by considering a multi-region CGE model to set up six trade disruption scenarios based on the severity of the trade friction and empirically examined the gains and losses of the two countries and their potential impacts on other countries. Amiti et al.,(2020) developed a new method for quantifying the impact of policy announcements on investment rates using stock market data. By estimating the effect of the US-China tariff announcements on aggregate returns and the differential returns of firms exposed to China, they identified the effect on treated and untreated firms. They showed theoretically and empirically that the estimates of policy-induced stock market declines implied lower returns to capital, thereby lowering investment rates.

In terms of research on the impact of the US-China trade friction on financial markets, studies usually focus on the impact of trade conflicts on the trade itself, and some studies considered the impact of conflicts on financial markets, especially on the stock market. Heilmann (2016) found that boycotts could have strong negative effects on bilateral trade in goods and services, and an event study on Japanese stock market returns suggested that the Chinese boycott only temporarily depressed stock values of the explicitly boycotted Japanese firms. Concerning the impact of the US-China trade frictions on financial markets, Jia et al. (2019) quantified the horizontal and trend effects of the US-China trade friction on the systematic risk of China's banking, securities, and insurance industries from the perspectives of mean value level and tendency over time, using the improved event analysis method. Fang et al. (2019) also used the event analysis method to quantitatively analyse the spillover effects of the US-China trade friction on China's stock, bond, and foreign exchange markets and the spillover across these markets based on the event analysis. Goulard (2020) studied the consequences of the US-China trade war on the exchanges between Europe and China and analysed the possible diversion created by this trade war for the European market.

Though these literature explorations of the US-China trade friction provide a solid foundation for the study of this article, they have some deficiencies: (1) There are few deep-seated reasons for provoking trade disputes with the US. (2) Most of China's coping strategies were mainly qualitative analyses, lacking data support. (3) The study of the economic effects of the US-China trade friction is insufficiently integrated with the current global background, and most of the quantitative simulations are based on hypothetical scenarios and not on the product list officially announced by the two sides, leading to a specific deviation in the simulation results. (4) The multi-risk perspective evaluation and analysis of the financial impact of the US-China trade friction is more affected than the financial market itself. Generally speaking, much literature analyses the causes of the US-China trade friction, related countermeasures, and the economic and financial impacts from a macro perspective. However, there is a lack of evaluation of trade friction from the micro perspective of listed companies. Therefore, this study analyses the impact of the US-China trade friction on the financial market from the micro perspective of listed companies. Consequently, it quantitatively analyses the reflection of the stock prices of listed companies in different industries in response to the US-China trade friction and supplements the research in this field.

Research methods

Research scholars in the financial field often use the event study analysis framework to study the impact of a specific event on a company's stock price or yield and test the financial market's response to the new information (Brown & Warner, 1980). While many authors have identified the hazards of ignoring event-induced variance in event studies, Boehmer et al. (1991) have demonstrated that a simple adjustment to the cross-sectional techniques produce appropriate rejection rates when the null is true and equally powerful tests when it is false. Kolari and Pynnönen (2010) proposed a new test statistic that modified the t-statistic of Boehmer et al. (1991) to consider cross-correlation and showed that it performed well in competition with others and was readily useable to test multiple-day cumulative abnormal returns (CARs).

The empirical research in this study employs Kolari and Pynnönen (2010) method to evaluate the impact of the trade war on excess returns of different sectors in China's stock market. The excess return is calculated based on ten sectors categorised by the Wind[2] data and compared with the Chinese market indexes at critical times of the trade war. The hypothesis tests whether the excess returns are positive after one trading day and a cumulative 2–30 trading days. The specific regression formula is as follows:

$$R_{it} = \alpha + \beta_i R_{mt} + e_{it} \tag{1}$$

Here R_{it} is the return of industry i in time t, and R_{mt} is the market return in time t. The time window used here for estimation is from the 210th day before a particular event to the 11th day before the same particular event—200 trading days to calculate the parameters in the regression. The market returns used in this study are the performances of the CSI All Share Index and the return of the industries (the performances of all the 10 CSI All Share Sector Indices), including Energy, Materials,

Industrials, Consumer Discretionary, Consumer Staples, Health care, Financials, Information Technology, Telecommunication Services, and Utilities. The specific regression formula used to calculate the excess returns of industry *i* is as follows:

$$AR_{it} = R_{it} - \alpha + \beta_i R_{mt} \tag{2}$$

The hypothesis of this study is whether the excess return of industry i, AR_{it}, is significant. The null hypothesis is that the trade war has an equally negative impact on all industries. If the excess return of industry i was significantly positive, then the industry i index outperformed the market after an event of the trade war and the impact of the trade war on industry i was less than the market average. Conversely, if the excess return AR_{it} was significantly negative, then the industry i was lower than the market average after an event of the trade war, that is, the negative impact of the trade war on industry i was more significant.

US-China trade conflict: incidents and description

The trade between China and the US has been firmly connected over the last decade, and a large-scale trade conflict is likely to have adverse effects on both sides. The trade war disturbs China's macroeconomic trends, particularly when the market considers that the US regards the trade war as a means to prevent China's rise. If the trade friction progresses into a full-scale confrontation, the overall economy of both countries will inevitably suffer. The tariff will diminish the export competitiveness of Chinese goods and directly affect enterprises that deliver sizeable exports to the US. The earnings of export enterprises in China are anticipated to decline, directly weakening the investors' expectations and the stock price. This direct effect can be called the 'present value effect'.

The stock price reflects the market's expectations of the corporation's future profits and dividends. Specifically, the trade war is likely to have a prominent 'event information effect' on stock markets. Even listed firms that are not mainly exporting to the US are pessimistic due to the macroeconomic situation. This indirect effect is known as the contagious effect. This term was coined during the Great Depression of the 1930s due to the mutual increase of tariffs among countries. History enhanced market pessimism. However, China's countermeasures against the US also influence the US stock market, strengthening the contagion effect.

As trade friction consists of a series of chronological events, it can be divided into six stages, as shown in Table 1, based on the intensity of the trade war and the sequence of events.

From the CSI All Share Index perspective, the US-China trade conflict has fallen by 27.27% since March 2018. Among the six critical periods, the CSI All Share Index showed an increase only in the fourth phase (from 12 July 2018 to 1 August 2018), with a range of 1.55%. The third and fifth phases saw the largest declines. In the third phase, tariffs were levied on the US$50 billion worth of Chinese products and more tariffs were announced on the US$200 billion worth of products. The fifth phase corresponds to the raised tax rate on the US$200 billion worth of products from 10% to 25%.

Table 1. The impact of the critical period of trade conflict on the broader market.

Stage	Extent	The Return of CSI All Share Index
The 1st Stage (23 March 2018 to 8 April 2018)	Negative events dominate the outbreak phase	−2.48
The 2nd Stage (9 April 2018 to 29 May 2018)	After the outbreak of the trade conflict, the two sides gradually eased and began consultations until they reached a consensus to suspend the trade war.	−1.99
The 3rd Stage (30 May 2018 to 11 July 2018)	The US once again provokes a trade war with negative events	−11.98
The 4th Stage (12 July 2018 to 1 August 2018)	Trade war eased again	1.55
The 5th Stage (2 August 2018 to 28 October 2018)	This period is full of negative events	−12.62
The 6th Stage (29 October 2018 to 31 December 2018)	Trade war once again eases	−2.57

Source: Wind and authors' calculations.

Empirical analysis

The trade war affects the stock market in the short term. In 2018, the CSI All Share Index fell significantly, and the impact on various industries was different. This section verifies the impact of the trade war on all the 10 CSI All Share Sector Indices, including the trade war's announcement period and execution period, on the stock market.

1st period: increase tariffs on steel and aluminium

The first period was the Start period. On 8 March 2018, the US imposed 25% and 10% tariffs on Chinese steel and aluminium imports, respectively, and the trade war officially commenced. However, in the early days, market expectations of the trade war were unclear, and the CSI All Share Index had a positive return on that day. Tariffs were only imposed on steel and aluminium, with no significant negative impact on the entire market.

However, on 23 March 2018, when the US announced taxes on US$50 billion worth of products, the CSI All Share Index declined sharply, by nearly 4%. The difference between the sectors was not significant as only the Consumer Staples Index had a significant positive excess return, and the Telecommunication Services Index had a significant negative excess return (Table 2).

The 30 days cumulative abnormal return of various sectors from 8 March 2018 was not significant, except for the Health care Index, which had a positive significant rate. Some industries had significant cumulative abnormal returns when the excess return only cumulated to some specified days, but it was insignificant when excess returns were accumulated for the 30 days. The tariffs only cast a very short-term impact on some sectors, but in the long run, there was no significant impact on these sectors compared to the market average.

2nd period: increase tariffs on US$50 billion worth of Chinese products

In this period, when the US imposed tariffs on US$50 billion worth of Chinese products, the stock market responded significantly to the trade war, and the whole stock

Table 2. Cumulative abnormal return from 23 March 2018 in the 1st period.

Sectors	1	3	5	10	20	30
Energy	0.45	−1.84	−1.6	−3.71	−1.62	−2.17
Materials	−0.23	0.11	0.14	−0.52	−0.08	−1.62
Industrials	0.22	0.86	1.1	1.68	2.08	2.57
Consumer Discretionary	0.21	−0.73	−1.25	−2.59**	−2.7	−2.39
Consumer Staples	2.42***	0.27	−0.94	1.09	0.35	1.52
Health care	0.56	2.89***	1.69	4.17***	3.42	8.96***
Financial	−0.73	−3.46**	−2.18	−4.2	−5.21	−6.52
Information Technology	−0.31	3.64***	3.19**	4.41**	5.49*	4.3
Telecommunication Services	−1.59*	0.8	0.89	1.79	1.61	0.53
Utilities	−0.43	−0.3	−0.1	−1.25	−1.63	−0.99

Source: Wind and authors' calculations.

Table 3. Cumulative abnormal return from 4 April 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	−0.29	0.12	0.38	1.64	1.8	5.72
Materials	−0.23	0.34	0.3	0.81	−0.47	−0.32
Industrials	−0.15	−0.73	−0.65	0.25	0.44	0.11
Consumer Discretionary	0.47	−0.3	−0.26	−0.85	−0.69	0.17
Consumer Staples	2.66***	0.75	0.62	0.85	2.48	3.88
Health care	0.16	0.13	0.89	−0.61	5.65**	5.74**
Financial	−0.16	1.72	1.11	−0.99	−2.3	−2.92
Information Technology	−1.51**	−2.65**	−2.33	0.67	−1.2	−3.38
Telecommunication Services	−1.08	−1.21	−1.12	−1.44	−1.48	−2.35
Utilities	−0.06	−0.18	0.03	−0.76	−0.17	1.38

Source: Wind and authors' calculations.

market declined significantly. On 4 April 2018, the US issued a tariff list for 1300 products, involving 25% tariffs on products worth US$50 billion. The market gradually responded to the trade war. On 15 June 2018, the US government released a list of goods subject to tariffs, imposing a 25% tariff on approximately US$50 billion worth of goods imported from China: (1) the tariffs would be imposed on 6 June2018 for approximately US$34 billion worth of goods. (2) The tariffs would be imposed on 23 August 2018 on US$16 billion worth of goods. During this period, 4 April 2018 and 15 June 2018 were the announcement dates, 6 July 2018 was the US$34 billion tariff implementation date, and 23 August 2018 was the original US$16 billion tariff implementation date.

When the news was reported, the CSI All Share Index dropped only by 0.4% on 4 April 2018. The Consumer Staples Index had a significant positive excess return, which did not respond to the US$50 billion tariffs negatively. The negative abnormal return of the Information Technology Index was significant, and other sectors did not have significant excess returns relative to the market average (Table 3).

On the 30 days effect, only the Healthcare Index had a significant positive cumulative abnormal return. Other sectors did not have a significant return, even when the excess return accumulated to other specified days.

On 16 June 2018, the US government announced once again that it would impose a 25% tariff on approximately US$50 billion worth of products imported from China. Consequently, the CSI All Share Index dropped by nearly 5% the following Monday. However, only the Utilities Index had a significant negative return. Meanwhile, as the impact of the trade war on the entire market gradually became apparent, its impact

Table 4. Cumulative abnormal return from 16 June 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	0.37	1.32	1.09	0.71	−0.9	2.06
Materials	−0.41	0.15	0.73	1.13	1.19	3.57
Industrials	−0.45	−0.61	−0.04	1.11	−0.2	2.38
Consumer Discretionary	0.15	0.23	0.39	−0.65	−2.17	−3.72*
Consumer Staples	0.29	1.6	2.14	−1.24	−0.69	−4.85
Health care	0.61	2.98**	3.57**	4.07*	4.57	−6.03
Financial	0.59	0.19	−1.54	−5.56**	−4.51	0.03
Information Technology	0.25	−1.76	−1.1	5.67**	5.59	2.25
Telecommunication Services	−1.08	−3.57**	−3.69*	0.45	3.3	1.79
Utilities	−1.98***	−2.16***	−2.34***	−2.05*	−1.27	5.06***

Source: Wind and authors' calculations.

Table 5. Cumulative abnormal return from 6 July 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	−0.61	−0.22	−1.62	−1.93	2.22	6.9
Materials	−0.01	0.71	0.64	1.36	4.37	4.5
Industrials	−0.5	−0.85	−0.99	−0.83	1.84	2.54
Consumer Discretionary	0.12	−0.35	−0.8	−0.87	−3.59**	−5.7***
Consumer Staples	0.65	0.65	1.09	0.51	−2.96	−8.24
Health care	−0.32	0.84	1.94	0.94	−5.78*	−8.71**
Financial	0.39	0.94	0.83	−0.62	2.22	3.4
Information Technology	−0.25	−1.22	−1.11	−0.38	−3.11	−0.76
Telecommunication Services	−0.25	−1.21	−0.08	3.03	1.8	8.61*
Utilities	−0.59	−0.58	−0.95	2.06*	5.29***	4.74**

Source: Wind and authors' calculations.

on various sectors was nearly the same. The 30 days effect also showed the same result; only the Consumer Discretionary Index had a significant negative cumulative abnormal return, and the Utilities Index had a significant positive return. The cumulative abnormal returns of other sectors were not significant relative to the market average (Table 4).

On 6 July 2018, when the US executed the 25% tariff on US$34 billion in products, the CSI All Share Index increased by 0.55%. There was no obvious excess return between any sector and the market average. However, as the impact accumulated, some sectors started showing significant excess returns, such as the Consumer Discretionary Index and the Health care Index, which showed significant positive returns (Table 5).

3rd period: increase tariffs on US$200 billion worth of products

The tariffs levied in this period generated a far-reaching impact on the economy and stock markets. On 2 August 2018, the US planned to increase the tariff rate from 10% to 25% on US$200 billion worth of goods. On 18 September 2018, the US announced that it would impose a 10% tariff on US$200 billion worth of Chinese products from 24 September 2018, and the tax rate would increase to 25% from 1 January 2019.

On 11 July 2018, the US issued measures to impose tariffs on US$200 billion worth of Chinese goods. The CSI All Share Index dropped by 1.92% on that day, but the impact on various sectors was not significantly different from the market average.

Table 6. Cumulative abnormal return from 11 July 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	−0.5	−2.33	−2.37	−0.69	6.88	7.44
Materials	0.63	0.35	0.37	1.6	3.45	3.2
Industrials	−0.14	−0.59	0.08	1.82*	3.34**	2.9
Consumer Discretionary	0	−0.47	−0.77	−1.98	−4.3**	−5.99***
Consumer Staples	0.47	1.34	0.66	−1.94	−5.84	−8.66*
Health care	1.07	2.31*	1.49	−6.2**	−10.33***	−11.13***
Financial	−0.44	−0.62	−1.9	1.73	3.38	3.87
Information Technology	−0.51	−0.14	1.31	−0.27	−2.28	0.47
Telecommunication Services	−0.56	0.71	4.07**	3.15	3.07	10.67**
Utilities	−0.53	−0.68	−0.17	3.66***	6.43***	5.75***

Source: Wind and authors' calculations.

Table 7. Cumulative abnormal return from 2 August 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	0.64	3.89**	6.94***	5.88*	5.98	10.05*
Materials	0.7	0.54	1.56	1.04	−0.43	−1.8
Industrials	0.07	0.22	1.01	1.11	−0.42	1.51
Consumer Discretionary	−0.94**	−1.73**	−2.38***	−2.75**	−4.74***	−5.57**
Consumer Staples	−0.44	−2.28	−3.13	−3.96	−6.51	−9.38*
Health care	1.62**	−1.64	−3.15*	−1.56	−2.69	−5.55
Financial	−0.7	0.9	1.29	−0.33	3.73	4.72
Information Technology	0.23	0.37	−0.79	2.28	1.91	1.17
Telecommunication Services	0.71	1.18	0.8	5.29*	9.21**	8.07
Utilities	0.24	1	1.51	−0.15	−0.51	2.05

Source: Wind and authors' calculations.

After 30 trading days, the Consumer Discretionary Index and the Health Care Index had relatively large negative cumulative abnormal returns, and the Telecommunication Services Index and Utilities Index had significant positive returns relative to the market average (Table 6).

On 2 August 2018, the US planned to increase the tariff rate on US$200 billion worth of Chinese goods from 10% to 25%. That day, the Consumer Discretionary Index showed a significant positive excess return, and the Health care Index had a significant negative excess return relative to the market average. There was no significant difference between the other industries and the market (Table 7).

After 30 trading days, the Consumer Discretionary and the Consumer Staples Indexes showed significant negative cumulative abnormal returns, and the Energy Index showed significant positive excess returns. The cumulative abnormal return of the other sectors had no significant difference.

On 18 September 2018, the US announced that it would impose a 10% tariff on US$200 billion worth of Chinese products, and it would take effect on 24 September 2018. Additionally, this tax rate would increase to 25% from 1 January 2019. Only the Industrials Index had a significant positive excess return that day. After 30 trading days, there was no significant difference between any sectors and market average (Table 8).

On 1 December 2018, China and the US reached a consensus to suspend the imposition of new tariffs on each other's products. Compared with the market average, only the Consumer Discretionary Index had a significant positive excess return. After 30 trading days, the Health care Index showed significant negative cumulative

Table 8. Cumulative abnormal return from 18 September 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	−0.53	0.56	0.72	5.01	1.84	0.18
Materials	0.42	0.41	0.06	1.29	−2.22	−1.94
Industrials	0.65*	0.43	−0.09	−0.29	−1.42	0.65
Consumer Discretionary	−0.59	−0.19	0.16	0.31	−0.86	−1.69
Consumer Staples	0.03	0.57	1.53	3.19	2.34	−6.04
Health care	−0.01	−0.27	0.06	0.84	−2.04	−1.76
Financial	0.22	0.56	1.24	0.78	5.04	6.75
Information Technology	−0.88	−1.82	−3.04	−5.48*	−4.04	−4.54
Telecommunication Services	−1.56	−2.9*	−3.71*	−6.24**	−5.34	−6.28
Utilities	0.21	0.06	−0.3	−0.76	−3.27	−0.9

Source: Wind and authors' calculations.

Table 9. Cumulative abnormal return from 1 December 2018 in the 2nd period.

Sectors	1	3	5	10	20	30
Energy	−0.23	−0.62	0.4	0.14	−3.98	−3.75
Materials	−0.09	0.43	1.36	1.14	1.04	0.71
Industrials	−0.16	−0.03	1.09	1.81	2.28	3.68*
Consumer Discretionary	0.7*	0.42	0.56	1.66	2.49	3.2
Consumer Staples	0.67	1.72	1.47	2.4	4.54	5.2
Health care	0.02	1.55	−3.43	−5.74*	−7.58*	−13.58**
Financial	−0.62	−1.33	−1.22	−1.49	−3.47	−3.49
Information Technology	0.01	−0.79	−0.33	−0.95	−0.04	0.26
Telecommunication Services	1.3	0.54	−0.29	0.64	6.4	9.07*
Utilities	0.22	0.63	1.55	1.72	4.6*	2.79

Source: Wind and authors' calculations.

abnormal returns, the Industrials and Telecommunication Services Index showed significant positive cumulative abnormal returns, and the cumulative abnormal returns of other sectors were not significantly different from the market average (Table 9).

Conclusion

The trade war is a protracted war. This article attempts to reveal how the trade war affected Chinese listed companies and test whether the trade war effects on the Chinese stock market was the contagion effect or the present value effect.

In the very short term, the trade war affected the stock market. However, the impact of the trade war on the Chinese stock market differs in different periods. Initially, in the trade war, we found that the market's expectations were unclear, and some people were even optimistic. However, by imposing more tariffs on the US$50 and US$200 billion worth of products, the market realised that the trade war was real with long-term trade friction, and the stock market had a larger decline during this period.

Through an event study, we also found that the announcement day of the trade war greatly affected the stock market the following day, though the influence on each industry was different. After the announcement of more tariffs on steel and aluminium, many industries did not respond to the trade war. By the time the tariffs were imposed on US$50 billion worth of Chinese products, the impact on different industries became apparent. Some industries had a significantly negative excess returns, while some industries were sensitive to the start of the trade war.

However, there is no obvious difference between the various industries and the market trend during the execution period. During the announcement period and the execution period, when tariffs were to be imposed on US$200 billion worth of products, the impact of the trade war on various industries at all points of time did not deviate significantly from the market. Therefore, the impact of the trade war on various industries has now become a systemic risk.

Additionally, the impact of the announcement of increased tariffs on the US$300 billion worth of products and the suspension of these tariffs on various industries is not significantly different from the market. The impact of the trade war on the industry is reflected in the systemic risk of the entire market. Therefore, the short-term impact of the trade war on various industries showed insensitivity to industry differentiation. The overall impact of the trade war on the stock market was the same. There was no significant difference between sectors. These results suggest that the effect of the trade war on the Chinese stock market was mainly contagion effect.

Since 2019, China and the US have launched multiple rounds of high-level negotiations and made substantial progress; the two sides have stopped increasing each other's tariffs, and the trade frictions were eased but not stopped. The US continues to blacklist Chinese entities. Under these circumstances, the effect of the trade friction on the Chinese stock market may be mainly present value effect rather than contagion effect. However, this judgment requires us to analyse listed companies or related industries on the entity list, which will be our future research direction.

Notes

1. On 18 June 2018, Trump claimed that, on the basis of the previous US$50 billion in goods, he would impose a 10% punitive tariff on US$200 billion in Chinese goods. The Chinese Ministry of Commerce responded with counter-sanctions on the US.
2. Wind Information Inc. (WIND) are the largest and most prominent financial data provider in China. WIND serves 90% of China's financial institutions and 70% of the Qualified Foreign Institutional Investors (QFII) operating in China (Liu et al., 2019).

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