

Could State-Controlled Media Stabilize the Market during the U.S.-China Trade Frictions?

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Abstract

The China-U.S. trade frictions brought about many uncertainties to the Chinese economy. This research investigates whether China's state-controlled media played a role in stabilizing investors' expectations by examining the relations between media tone and Chinese stock market reactions in the context of China-U.S. trade frictions. Firstly, even though the media tone of news on trade frictions did not elicit significant reactions at the market level, those firms heavily exposed to export business with the U.S. produced significant positive reactions to a high media tone of the state media. Secondly, investors, especially SME investors, perceived more uncertainties to the high tones of Chinese media in the early days of Trump's presidency and reacted negatively to the media's high stance, as shown in the volatility. Thirdly, after the war was initiated, higher-tone news released from the state-controlled press eased people's anxieties and stabilized the market, especially for the large caps, leading to lower volatilities in most subsequent stages. Generally, the official media's tone manipulation is partially effective in preventing a market meltdown and easing investors' worries.

Keywords: State-controlled media, Media tone, U.S.-China Trade Frictions

JEL Classification: E 44

“For the real environment is altogether too big, too complex, and too fleeting for direct acquaintance. We are not equipped to deal with so much subtlety, so much variety, so many permutations and combinations. And although we have to act in that environment, we have to reconstruct it on a simpler model before we can manage with it.” (Lippman, 1922)

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I. Introduction

This research aims at investigating whether China's state-controlled media played a role in stabilizing investors' expectations during the China-U.S. trade frictions. The trade war between China and the United States brought great uncertainty and instability to the world economy. Chinese direct investment in the United States plummeted by 88%, from a peak of \$46.5 billion in 2016 to \$5.4 billion in 2018¹. Such impacts were not limited to outbound foreign direct investment (OFDI) into the U.S. but spread to the domestic economy. During the trade war, the social-psychological expectations of consumers and other market participants in China are complex and sensitive, determining how they behave and expand or reduce investment or consumption. The Chinese government, therefore, had a solid motive to stabilize people's expectations and emphasized it with "six stabilizations"² to stimulate the enthusiasm for new investment from private-funded and foreign-funded enterprises, enhancing market players' vitality and thus driving China's economic development.

Although the news media "present themselves as detached observers of market events, they are themselves an integral part of these events" (Shiller, 2015). The media are a carrier of information and an indispensable force shaping or changing people's beliefs and emotions. Investors may obtain information from the media, form expectations, and make investment decisions, thereby affecting asset prices. However, evidence on this role is primarily limited to a particular type of media, the market-oriented media controlled by private owners (You, Zhang, and Zhang, 2018). In contrast, the majority of the world's population receives information from the other type of media outlets controlled by the government) (Karlekar and Dunham, 2014). Thus, how the state-controlled media play a role in shaping public opinions is worth investigating. Moreover, our focus on market-wide attention is consistent with Peng and Xiong (2006) who suggest that investors are more likely to process market-wide information than firm-specific information, where the spread of panic in emergencies is a common phenomenon (Tsai, 2014).

Under China's authoritarian regime, the media are strictly controlled by the government. The media represents an essential tool for the government to convey its opinions on various significant events, including this trade war, and attempt to shape the public views and attitudes toward these events. We take the nature of the Chinese media as primarily determined by the supply side (i. e.,

¹ The data are from *the 2016 Statistical Bulletin of China's OFDI* and *the 2018 Statistical Bulletin of China's OFDI*, China Commercial Publishing House.

² A meeting of the Political Bureau of the CPC Central Committee was held on July 31, 2018. In the face of challenges from the external environment, the Political Bureau for the first time proposed the "six stabilizations" concerning employment, finance, foreign trade, foreign investment, investment, and expectations.

the government) and examine whether the government's propaganda strategy has achieved the goal of maintaining market stability, which is supposed to contribute to political harmony and economic growth. The trade war between China and the U.S. is a complicated game, and both sides are constantly testing each other's bottom line. And market sentiment becomes quite volatile. It would be a strategy for the government to use the media to convey confidence and stabilize the market.

Sino-U.S. economic relations are also of particular significance to the global economy. As the global economic growth slowed down³, the effects of tensions between China and the U.S. on the world economy will be dramatically amplified, therefore severely impacting the global production chain and value chain. This study investigates whether the media in China stabilized people's expectations about the real economy in the context of trade frictions, which should be reflected on the stock market, i.e., whether the state-controlled media tone led to significant stock market reactions in China. We firstly find that for both the big caps (SSE50) and smaller ones (SME), there was no significant relationship between the media tone of news on China-U.S. trade frictions and stock returns overall. That is, media tone could not predict stock returns. Secondly, the news with higher tones from the state-controlled media could elicit a significant influence on the big cap's volatility. More positive media tones generally led to lower volatilities on the large stocks while specifying different patterns during different stages. Thirdly, the effect of the Chinese government's media regulation and manipulation to stabilize the investors' expectations differs in different stages.

Although studies have investigated the impacts of large shocks on the stock market (e.g., *Chen and Siems, 2004; Maillet and Michel, 2005; Charles and Darné, 2006; Rahmayani and Oktavilia, 2021*), as well as the influences of media tone on the stocks (e.g., *Tetlock, 2007; Boudoukh et al., 2013; Peress, 2014; Garz, 2014*), no one has brought these two issues together. This study makes several contributions. Firstly, we contribute to the literature by using the U.S.-China trade war as a setting to shed light on how an authoritarian government tries to stabilize investors' confidence through media tone manipulation when facing major shocks. Secondly, we are the first to quantify the media tone of state-controlled newspapers regarding the trade war news in China using lexical analysis and investigate its impacts at both market level and firm level. Thirdly, we are the first to investigate the impact of both media tone on the subject of "the China-U.S. trade" and trade friction events on the stock market and whether the Chinese state-controlled media could stabilize people's expectations during the trade friction in the Trump era. Lastly, we are also the first to identify the asymmetric influence of media tone on stock volatilities during different stages.

³ The global economic growth has slowed from 3.5% in 2017 to -3.3% in 2020, with China contributing the only positive growth.

The rest of the paper proceeds as follows. Section 2 conducts a literature review and develops related hypotheses. In section 3, the data sources and methodology are specified. In section 4, our empirical results are reported, and a further discussion is held. Section 5 provides the conclusion.

II. Literature Review and Hypotheses Development

Some studies have shown that media tone can have significant influences on the public opinion/sentiment about the economic fundamentals (*Doms and Morin, 2004*), gubernatorial elections (*Clark and Makse, 2018*), E.U. enlargement (*DeVreese and Boomgaarden, 2006*) in different ways. Many investors rely more on financial news agencies for information about companies than the direct releases from the companies themselves, and news agencies help clarify corporate disclosure (*Dzielinski, 2013*). While quite some shreds of evidence are provided at the firm level (*Tetlock, 2007; Fang and Peress, 2009; Ferguson et al., 2015; etc.*), relatively few studies investigate the influence of news at the market level. Moreover, before its concretization and implementation, most news is expected to exert a holistic impact on the market rather than specifically influence some firms.

According to the efficient market theory, investors hold homogeneous expectations in the mean-variance framework on a frictionless market. However, since the 1980s, the efficient market theory has come under increasing suspicion and criticism. More and more contradicting abnormal phenomena emerged in the financial market. People realized that investors are not as rational as predicted by theoretical models but have certain sentiments. In the real world, they have bounded rationality and are a kind of “naive investors”, as shown in the literature later on (such as *Kahneman and Tversky, 1979; Tversky and Kahneman, 1992; Odean, 1998; Thaler, 1999; Gruen and Gizycki, 1993*).

In practice, the media play a substantial role in the capital market as an information intermediary. Mass media is an indispensable part of modern society, through which financial market information is disseminated. *Lippman (1922)* claims that “the media should, through their knowledge, enlighten the public and thus actively shape public opinion.” It has been found that newspapers help improve the efficiency of the stock market by contributing to the dissemination of information among investors and its incorporation into stock prices (*Peress, 2014*). It remains significant in China’s context concerning the role of the media. As an emerging market, China’s stock market is highly volatile, and most market participants are individual investors⁴. Limited margin trading and short selling

⁴ According to the *Shanghai Stock Exchange Statistics Annual 2018*, as of the end of 2017, individual investors in Shanghai stock market contributed nearly 80% of the total

also limit arbitrageurs' arbitrage ability, and there might be different sources and patterns of emotionally driven market movements in such an emerging capital market.

China-U.S. trade frictions and negotiations could be critical issues affecting investors' expectations and motivating their behaviours on the market. Facing the opacity of the policy-making process in an authoritarian regime, investors attempt to infer the policy intention of the central leadership through the state-sanctioned media reports. The limited press freedom of the state-controlled media, as well as professional media outlets and the common practice of self-censorship of the media industry, enable the Chinese government to make use of the media to shape public reactions and sentiments toward major international relations events. We can see signs that the Chinese government has appointed experts to guide the public to discern the facts and circumstances. In China, thanks to the one-party rule, the Chinese Communist Party (CCP) has the absolute authority to endorse the content of news reports and certify what news to release to "stabilize expectations". On the one hand, traditional newspapers, such as *People's Daily*, provide sanctioned information on the latest incidents, directly convey the government's viewpoints, and inevitably influence the stock market. On the other hand, even in the current era of excessive information flow and diverse information sources, after hearing about some major events, the audience will still actively seek official media for verification due to the credibility and authority established by the official media (compared with professional media and we-media) for a long time in the process of information dissemination. However, its efficacy has been seldom investigated. It would be worth investigating whether its reporting strategy contributes to the market stabilization, as claimed by Xi Jinping "the propaganda and ideological work should facilitate the future and destiny of the Party, the long-term peace and stability of the country, and the cohesion and cohesiveness of the nation."⁵

2.1 Media Tone and Stock Returns

Existing studies have identified relations between information revealed in the media and the stock market movements. *Dyck and Zingales (2003)* find that media spin, tending to report information biased in favor of companies, affects the stock market responses to earnings announcements. *Antweiler and Murray (2004)* find that the message boards do not successfully predict stock returns but play a role in predicting volatility at a daily frequency and within the trading

trading volume, which is equivalent to five times the trading volume of institutional investors.

⁵ Refer to People's Daily Online (Chinese), <http://theory.people.com.cn/GB/40557/368340/>.

day. Ryan et al. (2008) adopt genetic programming and found that using the news alone could successfully predict stock price movement.

Since a higher media tone represents more positive evaluation, more optimistic attitude, and happier mood, a higher tone of trade-related news from the official outlets would show the optimism and the Chinese government's confidence in winning the trade war and their intention to boost the confidence of the public in the prospects of the trade war. If the government narrative released through the media effectively shapes investors' beliefs and sentiments, such signals are supposed to stabilize the investors' expectations, enhance their confidence, and lead to higher returns. Specifically, we assume,

H1: A higher media tone of China-U.S. trade friction news brings about higher stock returns on the Chinese market.

2.2 Media Tone and Stock Volatilities

Many practitioners claimed that rising trade frictions significantly impact investors' sentiment and risk appetite, as seen in many of their speeches or research reports⁶. However, it has seldom been investigated in the academic literature.

In the early days of Trump's administration, his China policy team was characterized by "clique decision-making" and arbitrariness, which made Trump's China policy seemingly unstable and immature. During Trump's four years in office, his China policy went through transactional diplomacy, strategic competition and strategic confrontation. In year 2018, the Trump administration launched a trade war on an unprecedented scale against China, and put pressure on China in technology, diplomacy, security, and politics, highlighting the overall competitive situation against China. Investors have perceived more uncertainties over the bilateral relations, fearing that China and the U.S. would enter the Thucydides trap or even into a "new cold war". The spread of this sentiment has become a significant force affecting the volatility of the stock market, and drove the market up and down considerably. The news release from the state-controlled media reveals official attitudes, and the capital market is intensely subject to the influence of government policies in China. Therefore, we expect that, by revealing the Chinese government's attitudes and potentially future policies, the tone of news is likely to irritate the investors' nerves. It either leads to a lower level of volatilities by easing their feelings of uncertainty or leads to a higher level of volatilities by increasing their panic moods.

⁶ For example, <https://www.yicai.com/news/5409782.html>.

The government policies significantly affect the stock market (e.g., Wang, 2009; Li and Zhou, 2016; Wang, Tsai, and Li, 2017; Brunnermeier, Sockin, and Xiong, 2017). Speculations about government policies and interventions play a crucial role in driving China's financial market dynamics. Market participants pay more attention to government policies than economic fundamentals and are unwilling to look for market information (Brunnermeier, Sockin, and Xiong, 2017). With its information creation function, the state-controlled news media may selectively and even in a distortive way report news, purposefully delivering optimistic or pessimistic views on the situation of trade frictions to guide the formation of public attitude. In the context of a trade war, if the news, showing official optimism in achieving reconciliation/truce or confidence in eliminating significant adverse effects of trade frictions, is credible enough, it would be a piece of "good" news for investors. The "good" news is supposed to stabilize investors' expectations and lead to lower volatilities in the market. Thus, our hypothesis is:

H2: A more positive (negative) media tone of China-U.S. trade friction news reduces (increases) stock volatility on the Chinese market.

2.3 Market Reactions in Different Stages of the Trade Frictions

From the normalization of diplomatic relations between China and the United States in 1972 to the late 1980s, China and the United States conducted comprehensive cooperation in various fields. The United States adopted an "engagement and enforcement" policy, focusing on the engagement until the Obama administration. Despite some twists and turns, China-U.S. relations have developed steadily during this period. In Obama's second term, U.S. policy toward China began to show an apparent inclination to contain China, but cooperation remained dominant. After Donald Trump took office as U.S. President in 2017, the overall tone of U.S. policy towards China has gradually shifted to "containment and repression". During his election campaign, Trump argued that China was unfairly taking advantage of the U.S. and prioritized "eliminating America's chronic trade deficit," particularly with China (Navarro and Ross, 2016). He presented strong economic nationalism and put forward the slogan of "America First". Trump's China policy has shaken and undermined the China-U.S. strategic cooperative relations that lasted for nearly 40 years. However, the overall trade deficit increased by 10% in 2017 and 13% in 2018, compared to single-digit increases during the preceding three years⁷.

Referring to Gao (2018) and other major events, we divide the whole process of trade frictions since the election of Donald Trump as the U.S. president (No-

⁷ Refer to the FRED website, <https://fred.stlouisfed.org/graph/?g=ncgT>.

ember 9, 2016) into six stages. The trade war is supposed to be an essential factor in driving the market movements without excluding other elements. In normal times, the investors may be less suspicious about what the government claims. The “good” news, showing the government’s unyieldingness or full confidence, is supposed to stabilize investors’ expectations, enhance their confidence, and lead to higher returns and lower volatilities. But after Trump’s inauguration, especially in periods when the China-U.S. trade frictions escalated, investors would be very sensitive (alert) and even sceptical to what was happening, therefore would interpret it in different ways and show disagreement of opinion, which would mitigate the former effect or even lead to higher volatilities (Hong and Stein, 2007; Duchin and Levy, 2010). It is also consistent with the idea that higher volatility in the securities market is always associated with a higher level of informational asymmetry (Illeditsch, 2011). In each stage, the news was released on different aspects/topics of the trade frictions (see Table 3) and was toned differently (see Appendix A). We assume investors were likely to interpret and react differently to the same media tone level at different stages. In accordance with the variation in investors’ sensitive psychology, the stock market reaction to news releasing of the same tone level varies over time. So,

H3: The stock market reaction to news releases varies over time.

III. Data Sources and Methodological Design

3.1 Data Sources

In this article, the research sample starts from November 9, 2016, when Donald Trump won the election for the U.S. president and extends to January 17, 2020, two days after the U.S.-China phase-one trade agreement was signed on January 15, 2020. The daily returns and volatilities of the SSE50 Index and the Small and Medium Board Index (SME) have been extracted from the RESSET database.

In view of the overriding influence of the leading official media *People’s Daily* and the requirement of the China Securities Regulatory Commission (CSRC) that listed companies must disclose information in the “Seven Newspapers and One Journal”⁸, we refer to related studies (Li and Shen, 2010; You and Wu, 2012; Wang and Wu, 2015) and select seven newspapers, i. e., *People’s Daily*, *Shanghai Securities Daily*, *China Securities Daily*, *Securities Times*, *Financial Times*⁹, *Eco-*

⁸ Including *Shanghai Securities Daily*, *China Securities Daily*, *Securities Times*, *Financial Times*, *Economic Daily*, *China Reform Daily*, *China Daily*, and *Stock Market Weekly*.

⁹ Here, the Chinese newspaper “Financial Times” differs from the UK newspaper “Financial Times”. The Chinese Financial Times was founded on May 1, 1987, jointly fund-

omic Daily and Stock Market Weekly as the media outlets covered in our research. All the news texts in the above newspapers are retrieved from their official websites and the Genius Finance database during the sample period. In total, 251 articles were published in 164 days.

The main reasons for not using professional media (such as commercialized media outlets and financial we-media) as reporting sources are as follows. First, the influence, popularity, and credibility of the professional media were not as good as those of newspapers in China. State-controlled media are essential in conveying government attitude with regard to such politically sensitive issues and investors care about the prospects of the trade war and how China reacts. Second, a lot of professional media comes from the reprint of government newspapers or outlets, especially for politically sensitive issues such as the trade war, and it is quite difficult to separate such information, which is particularly true when politically sensitive news is covered. Third, although professional media may provide more in-depth coverage, their reports are overall less timely. Last but not least, for politically sensitive issues like trade war, professional media are unlikely to go beyond the official guidelines, although they may have more detailed content. Therefore, professional media are not included in our research.

An event study is adopted to measure the abnormal market returns and volatilities. Admittedly, it faces some challenges. Chief among them is the confounding events that also potentially impact the variables of interest. To address such issues, we manually identify those days with confounding events and exclude them from our investigation. Specifically, the announcement days of crucial macroeconomic news, including press conferences on national economic performance, China Purchasing Managers Index Monthly Reports, Monthly Consumer Price Index Reports, and Industrial Producer Price Index Monthly Reports from the National Bureau of Statistics, have been deleted to disentangle their potential influences from the impact of the trade war development. Then, it leaves 127 news-releasing days with us.

3.2 Measurement of Media Tone

Tetlock, Saar-Tsechansky, and Macskassy (2008) use a quantitative measure of language to predict individual firms' accounting earnings and stock returns. They find that linguistic media content captures otherwise hard-to-quantify aspects of firms' fundamentals, which are quickly incorporated into stock prices by investors. Moreover, *Loughran and McDonald* (2011) develop alternative word lists that better reflect tones in the financial text.

ed by eight state-owned financial institutions. It is the first news media established in shareholding after China's opening up.

Following *Tetlock, Saar-Tsechansky, and Macskassy (2008)*, *Loughran and McDonald (2011)*, and *Wang and Wu (2015)*, we measure the media tone by the proportion of positive and negative words in the total vocabulary in the media news on “China-U.S. trade”. We use NLPiR Chinese lexical analysis system, the most popular lexical analysis software in China, to divide every news report into positive and negative phrases using sentiment analysis. The tone index is constructed based on them. Specifically, following *Garcia (2013)*, we defined the media tone as the difference between the negative and positive media contents,

$$\text{Media Tone} = \frac{\text{Number of Positive Phrases} - \text{Number of Negative Phrases}}{\text{Total Number of Phrases in the News}}$$

If there are multiple articles published on the same day, the average is taken. The days following the news releasing day are given the same tone index until the newly released news updates the old one.

In the trade war, most news reports with high (cheerful) tones are characterized by showing a tough stance, advocating win-win cooperation, displaying confidence in the development of China’s economy and trade, condemning the U.S. for imposing tariffs and economic bullying, etc. For example, in the third stage, out of 31 pieces of news with above-average tones, 11 reports show the Chinese government’s tough stance.

3.3 Baseline Model

Regressions are conducted on both the daily returns and volatilities¹⁰ of the SSE 50 (and SME) Index, with media tone as the key explanatory variable and some control variables added.

$$(1) \quad \begin{aligned} \text{Abnormal Return of SEE50} &= \alpha + \beta_0 * \text{Media Tone} + \beta_0' * \text{Trade Event} \\ &+ \sum \beta_i * \text{CONTROL} + \varepsilon_i \end{aligned}$$

$$(2) \quad \begin{aligned} \text{Volatility of SEE50} &= \alpha + \beta_0 * \text{Media Tone} + \beta_0' * \text{Trade Event} \\ &+ \sum \beta_i * \text{CONTROL} + \varepsilon_i \end{aligned}$$

¹⁰ The volatility is calculated as: $\sqrt{h_t} e_t$

$$h_t = a_0 + a_1 r_{t-1}^2 + b_1 h_{t-1}$$

$$e_t \sim \text{iid } N(0,1),$$

where h_t and h_{t-1} are the conditional variance of current and the preceding trading day, respectively.

“*Media Tone*” is the media tone index of the news related to the “China-U.S. trade” and is constructed based on the sentiment analysis of the articles on “China-U.S. trade” published in *People’s Daily* and the other eight major financial and economic media outlets selected. To mitigate the effect of potential outliers (of a continuous variable), we divide the media tone into three discrete ranks and include the rank variable in the regressions. To differentiate the effects of the media tone of the news released by state-controlled media from the effects of the actual trade events, i.e., what happened in the real world during the trade frictions, we include another key explanatory variable, “*Trade Event*”. It equals one if some important trade-friction event(s) happened on day $t-1$ ¹¹ during the U.S.-China trade war, and 0 otherwise.

Some control variables have been added to control the potential effect of macroeconomic factors. Long-term interest rates can influence stock prices (*Humpel and Macmillan*, 2007). The yield spread between long-term and short-term government bonds significantly explained stock market returns (*Chen, Roll, and Ross*, 1986), by directly changing the discount rate in the valuation model and therefore influencing the stock valuation. Moreover, according to the Fed Model, stocks and bonds are competing asset classes for investors, and the earnings yield of stocks is compared with the yield on 10-year Treasury bonds. When the earnings yield is lower than the bond’s yield, investors tend to shift their money into the less risky T-bonds (*Yardeni*, 1997, 1999; *Greenspan*, 2007). Therefore, changes in long-term interest rate (e.g., a 10-year bond yield)¹² are adopted to control this effect.

The exchange rate could also play a role. The earlier research produced a mixed picture. Currency appreciation pushes up the Singaporean market (*Maysami and Koh*, 2000). In contrast, a more robust currency drives the Japanese (*Mukherjee and Naka*, 1995) and the U.S. (*Fang and Loo*, 1994) stock market lower. *Maysami and Koh* (2000) and *Eun and Resnick* (1984) claimed that using monthly data led to a more robust estimate, but we used daily data¹³ to better depict stock prices’ volatile nature.

Table 1 provides an overview of all the variables used in our analysis and their definitions.

¹¹ Due to the time lag between China and the U.S., we adopt the events in day $t-1$ instead of day t , since the trade events are defined by the U.S. media using local time.

¹² The data of the 10-year bond yield rate is obtained from <https://cn.investing.com/rates-bonds/china-10-year-bond-yield-historical-data>.

¹³ The data of the exchange rate is obtained from <https://cn.investing.com/currencies/usd-cny-historical-data/>.

Table 1
Variable Definition and Sources

<i>Variable name</i>	<i>Description</i>	<i>Source</i>
<i>Abnormal Return</i>	Equals the daily return in the event day t minus the expected return derived from the one-year estimation window $[-280, -31]$ using the market model. The percentage sign is omitted in regressions.	RESSET database
<i>Abnormal Volatility</i>	<i>The volatility</i> of individual firms is derived using the GARCH model based on daily returns. <i>Abnormal Volatility</i> equals volatility in the event day t minus the one-year average from the estimation window $[-280, -31]$. The percentage sign is omitted in regressions.	RESSET database
<i>Media Tone</i>	The media tone index of those “China-U.S. trade” news, constructed based on the sentiment analysis of the articles on “China-U.S. trade” published in People’s Daily and other eight major financial and economic media that we have selected.	Calculated on public information
<i>Media Tone_R</i>	The media tone rank is calculated on the tone index. <i>Media Tone</i> is separated into quintiles and assigned a rank between 1 and 5, which is referred to as media tone rank (<i>Media Tone_R</i>) with 1 being the lowest ratio quintile (lowest tone).	Calculated on Media Tone Index
<i>Trade Event</i>	A dummy variable, which equals one if there is some important trade friction event that happened on day $t-1$ during the U.S.-China trade war, and 0 otherwise. And a trade event is defined as a good (bad) trade event if the trade-war progress (conveyed by the news on facts) brought about a favorable (unfavorable) situation for the Chinese economy.	“Timeline: Key dates in the U.S.-China trade war”, https://www.reuters.com/article/us-usa-trade-china-timeline/timeline-key-dates-in-the-us-china-trade-war-idUSKBN1WP23B ; “The US-China Trade War: A Timeline”, https://www.china-briefing.com/news/the-us-china-trade-war-a-time

<i>Variable name</i>	<i>Description</i>	<i>Source</i>
		line/; “Trump’s Trade War Timeline: An Up-to-Date Guide”, https://www.piie.com/blogs/trade-investment-policy-watch/trump-trade-war-china-date-guide .
<i>Change of 10-year Bond Yield</i>	Equals the 10-year Treasury Bond Yield of the secondary market in day t minus that in day t-1.	https://cn.investing.com/rates-bonds/
<i>Change of Exchange Rate</i>	The percentage change of the daily exchange rate (direct pricing method), where the positive number represents the depreciation of the RMB, and the percentage sign is omitted.	https://cn.investing.com/currencies/
<i>Change of Economic Prospect</i>	The “Economic Prospect Index”, composed by the Nation Bureau of Statistics, in day t minus that in day t-1.	Genius database
<i>Change of Consumer Confidence</i>	The Consumer Confidence Index in day t minus that in day t-1.	Genius database

IV. Empirical Results

Table 2 reports the descriptive statistics of key variables in our analysis. Panel A shows that all variables are stationary based on ADF tests. Panel B presents correlations between these variables.

Table 2
Descriptive Statistics

Panel A: Statistics of Individual Variables

	Media Tone_R	Change 10-year Bond Yield (%)	% Change of Exchange Rate	Change of Economic Prospect	Change of Consumer Confidence
Mean	2.906	1.967	0.000	0.000	-0.011
Median	3.000	2.000	0.000	0.000	0.000
Maximum	5.000	3.000	0.032	0.016	1.220
Minimum	1.000	1.000	-0.031	-0.011	-0.960
Std. Dev.	1.575	0.865	0.006	0.003	0.094
ADF test	-6.246	-16.910	-24.878	-26.164	-25.868
Probability	0.000	0.000	0.000	0.000	0.000
Observations	668	668	668	668	668

Panel B: Correlations between Variables

	Media Tone_R	Change of 10-year Bond Yield	% Change of Exchange Rate	Change of Economic Prospect	Change of Consumer Confidence
Media Tone_R	1.000				
Change of 10-year Bond Yield	0.011	1.000			
% Change of Exchange Rate	-0.004	-0.040*	1.000		
Change of Economic Prospect	-0.025	0.006	-0.083***	1.000	
Change of Consumer Confidence	-0.006	-0.052**	0.018	-0.028*	1.000

Note(s): This table reports the descriptive statistics of key variables in our analysis. The definitions of variables are listed in Table 1. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Table 3 reports the main topics of news in each stage, as well as the amount of news on each topic, and Appendix A presents the details and news released in each stage.

Table 3
News Topics in Different Stages

<i>Date</i>	<i>Topics</i>
<i>Stage I:</i> Trump's Winning Election till the Section 301 Invest (Nov 9, 2016 – August 17, 2017)	Analysis of export situation (5), Experts' viewpoints on win-win cooperation (4), Viewpoints on economic and trade cooperation/ trade imbalance (2), Editorials (3), Official line on China-U.S. trade cooperation (2), Xi-Trump meeting, Domestic officials' viewpoints on the exchange rate, Foreign officials' viewpoints on the trade war, On the causes of trade imbalance, American key officials' viewpoints on U.S.-China relations, Viewpoints on China-U.S. trade from a spokesman of Ministry of Commerce, News on U.S.-China dialogue, Declaration from PBC, Viewpoints from Representatives of Chamber of Commerce of the USA, Viewpoints from entrepreneurs
<i>Stage II:</i> Early Stage of U.S.-China Trade Friction (August 18, 2017 – March 7, 2018)	Analysis of U.S.-China trade (2), Brokers' viewpoints on Trump's threat, Viewpoints from foreign media on trade war, American report on fishing and trade, Trump's visit to China, On Trump' Presidential Address, Experts' viewpoints on U.S.-China trade imbalance
<i>Stage III:</i> Escalation of U.S.-China Trade Friction (March 8– June 14, 2018)	Condemn trade protectionism/trade hegemony/unilateralism (13), Official attitude on trade war (10), Progress of the U.S.-China trade negotiations (5), Analysis of trade situation (5), China-U.S. trade war and capital market (4), the impact of U.S.-China trade frictions (3), U.S.-China economic and trade relationship/great power relations (3), Experts' viewpoints on U.S.-China trade frictions (3), U.S.-China trade war and gains/ losses in U.S. (2), countermeasures to U.S.-China trade war (2), U.S.-China trade frictions and foreign exchange market/ cross-border financial flows (2), On U.S.-China trade deficit (2), Economic data/domestic demand (2), Market access, etc.
<i>Stage IV:</i> Further Escalation of U.S.-China Trade War (June 15 – November 30, 2018)	Condemn trade protectionism/hegemony/unilateralism (10), On U.S.-China trade (7), On China's economy (6), Impact on China (6),” White Paper: China and the World Trade Organization” and its interpretation (6), Public opinion in the U.S. (5), Analysis on exportation (4), International public opinion (3), Analysis on China/U.S. stock market (3), Condemn on American's “Reconstruction of China”/Mislabelling (3), Countermeasures (2), Analysis on economics prospect (2), Progress of trade negotiation (2), Responding to and interpreting “Statement on Section 301 Action” (2), Review of reform and development, Policies easing trade frictions, Significance of financial stability, etc.

(continue next page)

(Table 3 continued)

<i>Date</i>	<i>Topics</i>
<i>Stage V:</i> Temporary reprieve (December 1, 2018, till May 4, 2019)	Progress of U.S.-China trade negotiations and interpretation (4), Appeal for strengthening cooperation (2), International Forum of Hongkong, China's Contributions to the world economy, U.S.-China toy trade
<i>Stage VI:</i> New conflicting stage (May 5, 2019, till January 17, 2020)	Declaration of China's position (29), Analysis of trade situation (7), Analysis of countermeasures (2), call for cooperation, China imposed tariffs on the United States, capital markets

Note(s): This table specifies the main topics of the investigated news released during different stages of the U.S.-China trade frictions, with the amount of news on the same issue in the parenthesis.

4.1 *Media Tone and Stock Market Returns*

Table 4 (Table 5) reports the regressions on the daily return of SSE50 (SME). There is no significant impact of media tone detected for each type of stock, no matter the whole Trump era or individual stage is investigated.

Table 4
The Impact of State-Controlled Media Tone on the Abnormal Return of SSE50

Panel A:	Dependent Variable: Abnormal Return of SSE50															
	The Whole Trump Era			Stage I			Stage II			Stage III						
Intercept	0.036 0.337	0.017 0.160	0.024 0.228	0.000 0.000	0.080 0.609	0.094 0.722	0.063 0.478	0.081 0.623	-0.043 -0.178	-0.007 -0.029	-0.041 -0.167	-0.002 -0.009	-0.651* -1.757	-0.744* -1.852	-0.687* -1.796	-0.796* -1.926
State-controlled Media Tone_R	-0.001 -0.026	0.003 0.063	-0.004 -0.089	-0.001 -0.017	-0.010 -0.239	-0.017 -0.435	-0.009 -0.221	-0.016 -0.395	0.057 0.332	0.015 0.084	0.057 0.332	0.015 0.083	0.214 1.200	0.263 1.387	0.212 1.180	0.262 1.370
Trade Event		0.147 1.114	0.206 1.598		0.276 0.880	0.271 0.865			-0.052 -0.133	-0.104 -0.263			0.155 0.433	0.230 0.608		
Change of 10-year Bond Yield	19.595*** 2.944		20.060*** 3.014		-4.438 -0.667		-4.932 -0.738		18.576 1.035		18.892 1.046		33.585 1.220		35.830 1.281	
% Change of Exchange Rate	-98.361*** -5.999		-99.638*** -6.077		-62.819** -2.145		-64.699** -2.201		-36.395 -1.042		-36.964 -1.052		-19.635 -0.265		-28.531 -0.375	
Change of Economic Prospect	-0.448 -1.012		-0.374 -0.842		-0.621 -1.125		-0.565 -1.016		-2.881 -1.037		-2.892 -1.036		-2.279 -0.476		-2.009 -0.415	
Change of Consumer Confidence	0.056 0.637		0.059 0.678		0.190 1.385		0.183 1.335		0.005 0.033		0.003 0.024		0.106 0.312		0.074 0.214	
Adjusted R-squared	-0.001	0.064	-0.001	0.066	-0.006	0.023	-0.007	0.021	-0.008	-0.019	-0.017	-0.028	0.008	-0.036	-0.007	-0.050
n	668	668	669	668	165	164	164	164	115	115	115	115	55	55	55	55
Akaike info criterion	3.048	2.986	3.049	2.985	2.116	2.102	2.114	2.110	2.707	2.752	2.724	2.768	3.145	3.256	3.178	3.285

(continue next page)

(Table 4 continued)

Panel B:

	Dependent Variable: Abnormal Return of SSE50 (%)											
	Stage IV			Stage V			Stage VI					
Intercept	-0.183	0.128	-0.248	0.048	0.52	0.366	0.542	0.366	0.099	0.035	0.109	0.033
	-0.48	0.329	-0.599	0.115	1.411	1.082	1.563	1.082	0.358	0.143	0.393	0.134
State-controlled	0.085	-0.024	0.104	-0.003	-0.11	-0.141	-0.217	-0.141	-0.041	-0.01	-0.036	-0.011
Media Tone_R	0.443	-0.127	0.523	-0.013	-0.591	-0.823	-1.219	-0.823	-0.402	-0.112	-0.345	-0.125
Trade Event		0.171	0.22		1.532***	1.795***	1.532***			-0.127	0.031	
		0.417	0.545		2.996	3.45	2.996			-0.595	0.156	
Change of 10-year Bond Yield	43.334	1.429	42.86	1.408	45.062**	45.062**			28.797*	1.945	29.038*	1.944
% Change of Exchange Rate	-99.478*	-1.978	-100.023*	-1.981	-113.891**	-113.891**			-154.071***	-5.267	-154.393***	-5.247
Change of Economic Prospect	1.871	1.14	1.915	1.161	-2.778	-2.778			-0.259	-0.452	-0.241	-0.412
Change of Consumer Confidence	0.215	0.459	0.246	0.519	-0.444	-0.444			0.407**	2.039	0.409**	2.038
Adjusted R-squared	-0.008	0.036	-0.017	0.029	-0.008	0.185	0.109	0.185	-0.006	0.206	-0.01	0.2
n	98	98	98	98	85	85	85	85	151	151	151	151
Akaike info criterion	3.702	3.696	3.721	3.713	3.628	3.471	3.516	3.471	2.909	2.699	2.919	2.712

Note(s): This table reports the regressions on the "Abnormal Return of SSE50", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Table 5
The Impact of State-Controlled Media Tone on the Abnormal Return of SME

Panel A:	Dependent Variable: Abnormal Return of SME															
	The Whole Trump Era			Stage I			Stage II			Stage III						
Intercept	0.078	0.064	0.079	0.061	0.013	0.050	0.012	0.060	0.081	0.002	0.082	0.000	-0.306	-0.300	-0.293	-0.304
	0.634	0.527	0.642	0.507	0.079	0.300	0.073	0.356	0.300	0.006	0.304	0.001	-0.828	-0.757	-0.767	-0.742
State-controlled Media Tone _R	-0.030	-0.029	-0.030	-0.030	-0.015	-0.030	-0.016	-0.031	-0.065	0.015	-0.065	0.015	0.088	0.100	0.089	0.100
	-0.529	-0.522	-0.521	-0.530	-0.299	-0.582	-0.310	-0.604	-0.343	0.074	-0.341	0.074	0.496	0.536	0.487	0.530
Trade Event			-0.018	0.026		-0.153	-0.217			-0.033	0.026			-0.070	0.016	
			-0.117	0.174		-0.379	-0.534			-0.076	0.061			-0.196	0.042	
Change of 10-year Bond Yield	10.475	1.348			-8.570	-0.998	-8.175	-0.946	-18.279	-0.931		-18.359	8.966	0.330		9.120
% Change of Exchange Rate	-76.607***	-4.001			-45.783	-1.212	-44.283	-1.166	52.469		52.614		-107.166	-1.466		-107.778
									1.372		1.367					-1.432
Change of Economic Prospect	-0.387	-0.750			-1.092	-1.533	-1.136	-1.581	5.452*		5.455*		-1.899	-1.899		-1.881
									1.792		1.784		-0.402	-0.402		-0.392
Change of Consumer Confidence	0.202*	1.969			0.263	1.489	0.268	1.513	-0.066		-0.065		0.245	0.729		0.243
									-0.434		-0.430					0.707
Adjusted R-squared	-0.001	0.031	-0.003	0.029	-0.006	0.019	-0.011	0.015	-0.008	0.000	-0.017	-0.009	-0.014	-0.035	-0.033	-0.056
n	669	668	668	668	165	164	164	164	115	115	115	115	55	55	55	55
Akaike info criterion	3.323	3.296	3.326	3.299	2.618	2.612	2.624	2.622	2.907	2.933	2.924	2.950	3.142	3.229	3.178	3.266

(continue next page)

(Table 5 continued)

Panel B:

	Dependent Variable: Abnormal Return of SME											
	Stage IV			Stage V			Stage VI					
Intercept	-0.566	-0.318	-0.414	-0.187	0.817**	0.632	0.838**	0.691*	0.473	0.428	0.486	0.428
	-1.327	-0.72	-0.9	-0.396	2.069	1.605	2.225	1.811	1.35	1.275	1.381	1.268
State-controlled Media	0.233	0.135	0.19	0.099	-0.247	-0.2	-0.349*	-0.296	-0.164	-0.136	-0.156	-0.136
Tone_R	1.086	0.621	0.863	0.446	-1.239	-1.021	-1.811	-1.533	-1.26	-1.091	-1.196	-1.086
Trade Event		-0.402	-0.359		1.727***		3.056	1.465**		-0.166	0.007	0.027
		-0.883	-0.79					2.544		-0.61		
Change of 10-year Bond Yield	52.969	1.547	53.743	1.566	22.839	0.958	22.324	0.968	35.885*	1.779	35.942*	1.766
% Change of Exchange Rate	-69.618	-1.225	-68.729	-1.207	-127.573**	-1.991	-96.594	-1.529	-113.927***	-2.858	-114.004***	-2.843
Change of Economic Prospect	0.985	0.531	0.913	0.491	-2.164	-0.604	-1.33	-0.382	0.23	0.294	0.234	0.293
Change of Consumer Confidence	0.351	0.662	0.301	0.562	0.577	1.22	0.512	1.117	0.489*	1.801	0.490*	1.792
Adjusted R-squared	0.002	0.02	0	0.016	0.006	0.05	0.097	0.112	0.004	0.093	0	0.087
n	98	98	98	98	85	85	85	85	151	151	151	151
Akaike info criterion	3.92	3.94	3.932	3.953	3.766	3.765	3.681	3.709	3.385	3.317	3.396	3.331

Note(s): This table reports the regressions on the "Abnormal Return of SME", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1 % levels, respectively, using a two-tailed test.

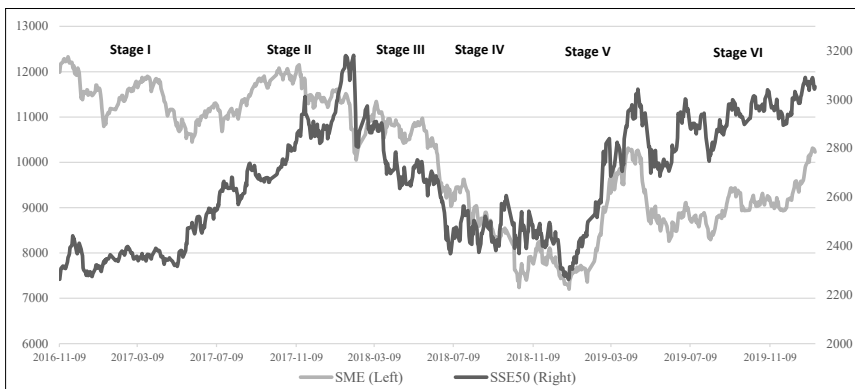
Table 6
Returns of SSE50/SMEs at Different Stages

Panel A:

	Stage I (before 301 investiga- tion)	Stage II (301 inves- tigation period)	Stage III (Early stage of U.S.-China trade war)	Stage IV (further escala- tion of U.S.- China trade war and China's re- taliation)	Stage V (tempo- rary re- prieve)	Stage VI (new con- flicting stage)
(1) SSE50	2282.42 to 2591.54	2878.15	2671.3	2428.08	2945.24	3042.59
(2) SSE50(Ret)	13.54 %	11.06 %	-7.19 %	-9.10 %	21.30 %	3.31 %
(3) SME	11987.46 to 11373.18	10936.88	10168.71	7813.08	9398.35	10226.66
(4) SME(Ret)	-5.12 %	-3.84 %	-7.02 %	-23.17 %	20.29 %	8.81 %

Note(s): This table reports the value (line (1) and line (3)) and returns (line (2) and line (4)) of SSE50 and SME index at different stages of U.S.-China trade frictions. "SSE50" represents the value of the Shanghai 50 Index, "SSE50 (Ret)" refers to the return of the SSE50 index during each stage. "SME" represents the value of the Small Medium Enterprise Index, "SSE50 (Ret)" refers to the return of the SME index during each stage.

Panel B:



Note(s): This panel shows the time series of SSE50 and SME in absolute terms during the U.S.-China trade frictions.

When we look at the performance of these two indexes, we find that SSE50 and SMEs move in the same direction in four out of six stages (see Table 6). The returns of SMEs were all negative from stage II to stage IV, and the returns of SSE50 were negative in stages III and IV. They were positive in stages V and VI after a reprieve was achieved on December 1, 2018. Although the market did reflect the trade tensions during some periods and the SME acted more sensitively, the market did not significantly fall in the whole process, and SSE50 even increased more than 30%. It seems the official tough stance and optimism en-

hanced investors' confidence and provided implicit guarantees for the market, especially for the blue chips. That is why there was no significant adverse reaction to the news releases instantly.

Considering it is possible that not all the stocks within these indices are exposed to the risk and uncertainty emerging from the trade war, a refined analysis with a focus on firms that are mostly exposed to the export business (with the U.S.) in China is conducted in Table 7¹⁴. In Table 7, regressions are conducted on the "100 most vulnerable firms", the 100 largest publicly traded companies by revenue share generated from the United States. It shows that a higher media tone leads to significantly higher abnormal returns for these firms in five out of six stages. Only in stage III, a higher tone leads to lower returns. During this stage, Trump formally ordered tariffs on Chinese goods; China made counter-attacks by imposing either tariffs or anti-dumping duties; most news released showed China's tough stance and confidence in China's economic and trade development. For example, the April 19th news "We hope the U.S. side does not underestimate China's determination" asserted that China would not waver in its determination and confidence to safeguard the country's interests and its people, and will fight resolutely. Although the market did not react significantly (see panel A of tables 4 & 5) during this stage, the investors of those firms with a large share of exportation began to worry and showed a dim view of the optimistic reports.

Since the U.S.-trade-intensive firms produced significant positive reactions to media optimism whereas the whole market did not produce significant effects, it could mean non-U.S.-trade-intensive firms actually produced negative, at least not positive, market reactions to mitigate the positive effect of the trade-intensive firms. In the economic sense, U.S.-trade-intensive firms care more about official attitudes on the trade war and potential policy supports afterward than non-U.S.-trade-intensive firms do. With a much larger number of non-U.S.-trade-intensive companies without significant positive responses, it makes sense that the market as a whole has not responded significantly.

¹⁴ We refer to the research report "Rising Sino-US trade Frictions: Possible Impacts and Responses" from China international capital corporation (CICC), where the Top 100 A-share listed Companies with Largest Share of Revenue from the U.S. in 2016 is listed in table 18.

Table 7
The Impact of State-Controlled Media Tone on the Daily Return of 100 Most Vulnerable Firms

	<i>Dependent Variable: Abnormal Return of 100 Vulnerable Firms</i>															
	The Whole Trump Era			Stage I			Stage II			Stage III						
Intercept	1.625***	1.624***	1.606***	1.604***	1.267***	1.254***	1.249***	1.234***	1.331***	1.366***	1.298	1.328***	2.259***	2.314***	2.173***	2.211***
	103.877	103.790	102.168	102.069	42.644	41.936	41.891	41.079	34.778	35.527	0.038	34.445	41.528	39.917	38.800	36.247
State-controlled Media	0.052***	0.050***	0.048***	0.046***	0.038***	0.036***	0.040***	0.039***	0.107***	0.079***	0.110	0.081***	-0.165***	-0.175***	-0.167***	-0.172***
Tone_R	10.998	10.618	10.012	9.621	4.223	3.950	4.382	4.225	4.720	3.435	0.023	3.529	-8.930	-9.109	-9.072	-8.973
Trade Event		0.276***	0.281***			0.476***	0.437***			0.550	0.590***			0.362***	0.339***	
		11.986	12.199			6.682	6.058			0.069	8.509			6.191	5.302	
Change of 10-year Bond Yield	2.583**	2.164	2.684***	2.252	12.931***	8.442	12.147***	7.911	4.728	1.506	8.260***	2.617	8.503*	1.931	13.538***	3.012
% Change of Exchange Rate	23.055***	7.839	23.869***	8.123	9.747	1.459	6.876	1.028	-5.448	-0.900	-10.594*	-1.748	-53.631***	-4.484	-31.228**	-2.468
Change of Economic Prospect	-0.483***	-6.069	-0.483***	-6.074	0.307**	2.411	0.396***	3.096	-6.361***	-13.229	-6.471***	-13.496	0.646	0.832	0.045	0.057
Change of Consumer Confidence	0.002	0.101	-0.004	-0.224	0.136***	4.319	0.126***	3.988	0.183***	7.561	0.182***	7.562	0.066	1.201	0.085	1.552
Firm Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
n	64755	64755	64755	64755	16005	16005	16005	16005	11155	11155	11155	11155	5335	5335	5335	5335
Adjusted R-squared	0.027	0.029	0.030	0.031	0.058	0.063	0.060	0.066	0.076	0.092	0.081	0.098	0.125	0.130	0.131	0.134

(continue next page)

(Table 7 continued)

Panel B:

	Dependent Variable: Abnormal Return of 100 Vulnerable Firms												
	Stage IV			Stage V			Stage VI			Stage VII			
Intercept	2.095*** 44.882	2.077*** 42.410	2.076*** 42.872	2.047*** 39.883	1.923*** 35.342	1.892*** 34.398	1.917*** 35.287	1.865*** 33.938	1.809*** 41.161	1.792*** 41.687	1.809*** 40.749	1.785*** 40.749	1.800*** 41.169
State-controlled Media Tone_R	0.028* 1.784	0.036** 2.233	0.029* 1.866	0.039** 2.411	0.086*** 5.123	0.088*** 5.227	0.102*** 5.964	0.111*** 6.492	0.032*** 3.232	0.023** 2.318	0.031*** 3.127	0.031*** 3.127	0.021** 2.198
Trade Event			0.081 1.420	0.111* 1.899			-0.419*** -5.420	-0.573*** -7.085			0.056 1.385	0.067* 1.385	0.067* 1.648
Change of 10-year Bond Yield		-22.533*** -5.103		-23.041*** -5.209		2.026 0.638		4.112 1.294		10.000*** 3.188		9.758*** 3.107	
% Change of Ex- change Rate		10.700 1.453		11.842 1.603		3.397 0.398		-8.000 -0.923		40.128*** 6.477		39.501*** 6.364	
Change of Eco- nomic Prospect		0.809*** 3.381		0.765*** 3.184		-0.907* -1.901		-1.556*** -3.212		-0.783*** -6.451		-0.806*** -6.598	
Change of Con- sumer Confidence		0.066 0.964		0.044 0.629		0.496*** 7.864		0.520*** 8.268		-0.551*** -13.036		-0.552*** -13.068	
Firm Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
n	9506	9506	9506	9506	8245	8245	8245	8245	14507	14507	14507	14507	14507
Adjusted R-squared	0.060	0.064	0.060	0.064	0.061	0.070	0.065	0.076	0.057	0.072	0.057	0.072	0.072

Note(s): This table reports the regressions on the "Abnormal Return of 100 Most Vulnerable Firms", with the percentage sign omitted. "100 Most Vulnerable Firms" are the 100 largest publicly traded companies by revenue share generated from the United States. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

It is also reasonable to expect that, while firms heavily exposed to the export business (with the U.S.) in China are affected by report tones, firms not exposed to international trade uncertainty are not affected by the corresponding news reports. So, a placebo test is provided in Appendix B. To construct a placebo group different from the 100 vulnerable firms, we first select the current SSE50 components and prior SSE50 components that were included after 2009, and then exclude those with large export revenues in absolute term¹⁵, with 95 firms left for our test. As shown in Appendix B, such firms did not react significantly to the report strategies during most stages, only reacting negatively in stage III as vulnerable firms did.

4.2 Media Tone and Stock Market Volatilities

Table 8 reports the regressions on SSE50 volatilities based on the GARCH model. The first group of regressions in Panel A shows that a higher media tone of news generally leads to lower stock volatility for large stocks in the whole Trump era, which is robust when the actual trade events are controlled. When we look at individual stages, such a relationship still exists in stages III and V. Therefore, H2 is generally supported in this case. In stages III, the news with the highest tones appeared frequently and demonstrated China's tough stance toward the trade war and its confidence in economic and trade development. In stage V, a consensus was reached on suspending additional tariffs, and the news reported such progress on negotiations and advocated win-win cooperation with high tones.

In this part, variable trade events generally did not significantly impact stock volatility, by contrast, there are significant impacts of media tone in two stages. It would be reasonable to say that media tone matters more in soothing investors' anxieties than trade event.

In the SME market, the effects of media tone are different, and there is no significant relation detected when the whole sample is investigated. In stages II, III, and V, a higher media tone leads to lower stock volatilities, consistent with the results of SSE50. So, for SMEs, H2 is partially supported in some specific periods.

¹⁵ Referring to the research report "Rising Sino-US trade Frictions: Possible Impacts and Responses" from China international capital corporation (CICC), where Top 100 A-share listed Companies with Largest Revenue from the U.S. in 2016 is listed in table 19.

Table 8
The Impact of State-Controlled Media Tone on the Abnormal Volatility of SSE50

	Dependent Variable: Abnormal Volatility of SSE50															
	The Whole Trump Era				Stage I				Stage II				Stage III			
Intercept	1.302***	1.305***	1.295***	1.299***	0.886***	0.882***	0.890***	0.886***	1.140***	1.321***	1.144***	1.188***	1.372***	1.412***	1.388***	1.351***
	31.01	31.123	30.746	30.849	24.192	23.523	24.151	23.547	10.707	16.919	10.687	10.846	21.614	19.121	21.403	20.056
State-controlled Media Tone_R	-0.068***	-0.071***	-0.070***	-0.072***	-0.023	-0.022	-0.024	-0.023	-0.068	-0.116**	-0.068	-0.095	-0.086***	-0.068*	-0.086***	-0.070**
	-3.486	-3.613	-3.589	-3.685	-1.401	-1.297	-1.418	-1.340	-0.904	-2.092	-0.898	-1.226	-2.831	-1.942	-2.809	-2.258
Trade Event		0.094*	0.077		-0.085	-0.084			-0.098	-0.084					-0.068	-0.041
		1.812	1.479		-1.168	-1.129			-0.576	-0.493					-1.127	-0.67
Change of 10-year Bond Yield		-2.733		-2.558	0.755	0.905			-10.344				7.928		9.621**	
		-1.011		-0.946	0.476	0.569			-1.861				1.566		2.111	
% Change of Exchange Rate		12.706*		12.227*	-1.130	-0.538			11.402				-17.396		-6.317	
		1.908		1.836	-0.162	-0.077			1.053				-1.277		-0.51	
Change of Economic Prospect		-0.277		-0.249	0.129	0.112			-0.687				-0.544		-0.332	
		-1.541		-1.381	0.984	0.849			-0.797				-0.618		-0.421	
Change of Consumer Confidence		-0.019		-0.017	0.022	0.024			-0.002				0.012		-0.032	
		-0.529		-0.491	0.672	0.732			-0.039				0.196		-0.572	
Adjusted R-squared	0.016	0.023	0.02	0.024	0.006	-0.009	0.008	-0.007	-0.002	0.048	-0.008	0.004	0.115	0.088	0.119	0.151
n	669	668	669	668	165	164	164	164	115	115	115	115	55	55	55	55
Akaike info criterion	-8.027	1.184	-8.029	1.184	-0.811	-0.766	-0.801	-0.762	-8.158	0.409	-8.144	1.088	-9.594	-0.131	-9.582	-0.343

Panel B:

Dependent Variable: Abnormal Volatility of SSE50

	Stage IV		Stage V		Stage VI							
Intercept	1.711*** 15.552	1.692*** 17.551	1.784*** 15.169	1.799 14.893	1.731*** 17.533	1.759*** 20.839	1.730*** 17.456	1.721*** 17.673	1.165*** 11.712	1.382*** 12.93	1.153*** 11.69	1.171*** 12.114
<i>State-controlled Media</i>	-0.031 -0.563	-0.013 -0.283	-0.052 -0.918	-0.066 -1.154	-0.147*** -2.947	-0.082* -1.953	-0.141*** -2.781	-0.137*** -2.768	-0.018 -0.489	0.006 0.155	-0.025 -0.678	-0.029 -0.807
<i>Trade Event</i>				-0.192 -1.647			-0.094 -0.635	-0.073 -0.499			0.154** 2.026	0.147 1.916
Change of 10-year Bond Yield	-1.473 -0.197		0.05 0.006		2.78 0.544		7.418 1.26		-7.584 -1.181			-6.357 -1.09
% Change of Exchange Rate	7.814 0.63		-8.642 -0.594		-1.928 -0.14		23.224 1.44		17.644 1.39			28.920** 2.518
Change of Economic Prospect	0.368 0.91		0.021 0.045		-1.162 -1.513		-1.797** -2.023		0.232 0.932			0.375 1.642
Change of Consumer Confidence	0.202* 1.747		0.262* 1.913		-0.147 -1.447		-0.277** -2.366		0.005 0.054			-0.008 -0.104
Adjusted R-squared	-0.007	0.017	0.011	0.027	0.084	0.039	0.077	0.146	-0.005	-0.002	0.015	0.061
n	98	98	98	98	85	85	85	85	151	151	151	151
Akaike info criterion	-7.999	0.896	-8.007	1.225	-8.218	0.685	-8.199	0.978	-8.344	1.029	-8.358	0.83

Note(s): This table reports the regressions on the dependent variable "Abnormal Volatility of SSE50", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Table 9
The Impact of State-Controlled Media Tone on Abnormal Volatility of SME

	Dependent Variable: Abnormal Volatility of SME															
	The Whole Trump Era				Stage I				Stage II				Stage III			
Intercept	1.342** 36.488	1.345** 36.602	1.334** 36.218	1.337** 36.305	0.967** 22.116	0.967** 21.688	0.966** 21.957	0.964** 21.497	1.301** 16.949	1.321** 16.919	1.294** 16.823	1.313** 16.811	1.434** 20.52	1.412** 19.121	1.453** 20.396	1.425** 18.825
State-controlled Media Tone_R	-0.002 -0.114	-0.004 -0.23	-0.004 -0.249	-0.006 -0.334	0.058** 2.907	0.057** 2.826	0.058** 2.910	0.058** 2.847	-0.109** -2.004	-0.116** -2.092	-0.109** -2.011	-0.116** -2.096	-0.081** -2.404	-0.068* -1.942	-0.080** -2.383	-0.067* -1.926
Trade Event		0.108** 2.38	0.095** 2.071		0.077 0.881	0.065 0.727			0.129 1.053	0.151 1.241			-0.082 -1.224	-0.082 -1.224		
Change of 10-year Bond Yield	-2.498 -1.055		-2.284 -0.966		2.430 1.288	2.315 1.220			-10.344* -1.861				7.928 1.566			7.355 1.436
% Change of Exchange Rate	10.630* 1.822		10.042* 1.723		-1.839 -0.221	-2.294 -0.275			11.402 1.053				-17.396 -1.277			-15.127 -1.086
Change of Economic Prospect	-0.213 -1.356		-0.18 -1.138		-0.116 -0.744	-0.103 -0.655			-0.687 -0.797				-0.544 -0.618			-0.612 -0.691
Change of Consumer Confidence	-0.013 -0.408		-0.011 -0.356		-0.002 -0.060	-0.004 -0.098			-0.002 -0.039				0.012 0.196			0.02 0.322
Adjusted R-squared	-0.001	0.003	0.005	0.008	0.043	0.032	0.042	0.029	0.026	0.048	0.027	0.052	0.081	0.088	0.09	0.082
n	668	668	668	668	165	164	164	164	115	115	115	115	55	55	55	55
Akaike 'info criterion	-8.292	0.92	-8.297	0.916	-0.456	-0.418	-0.446	-0.409	-8.813	0.409	-8.805	0.412	-9.402	-0.131	-9.394	-0.11

(continue next page)

(Table 9 continued)

	Dependent Variable: Abnormal Volatility of SME											
	Stage IV			Stage V			Stage VI					
Intercept	1.690*** 18.399	1.692*** 17.551	1.773*** 18.311	1.766*** 17.48	1.777*** 21.466	1.759 20.839	1.777*** 21.332	1.758*** 20.662	1.373*** 12.865	1.382*** 12.93	1.360*** 12.853	1.371*** 12.937
State-controlled Media Tone_R	-0.01 -0.206	-0.013 -0.283	-0.033 -0.716	-0.034 -0.712	-0.088** -2.106	-0.082 -1.953	-0.088** -2.051	-0.080* -1.864	0.009 0.222	0.006 0.155	0.001 0.036	-0.001 -0.017
Trade Event			-0.222** -2.312	-0.205** -2.11			-0.008 -0.061	-0.026 -0.2			0.166** 2.026	0.165* 1.968
Change of 10-year Bond Yield		-1.473 -0.197		-1.03 -0.14		2.78 0.544		2.789 0.542		-7.584 -1.181		-6.284 -0.982
% Change of Exchange Rate		7.814 0.63		8.323 0.683		-1.928 -0.14		-2.472 -0.176		17.644 1.39		15.899 1.262
Change of Economic Prospect		0.368 0.91		0.327 0.822		-1.162 -1.513		-1.177 -1.516		0.232 0.932		0.326 1.299
Change of Consumer Confidence		0.202* 1.747		0.173 1.516		-0.147 -1.447		-0.146 -1.425		0.005 0.054		0.017 0.192
Adjusted R-squared	-0.01 98	-0.017 98	0.034 98	0.02 98	0.039 85	0.039 85	0.028 85	0.027 85	-0.006 151	-0.002 151	0.014 151	0.018 151
Akaike info criterion	-8.36	0.896	-8.395	0.869	-8.57	0.685	-8.547	0.708	-8.203	1.029	-8.217	1.016

Note(s): This table reports the regressions on the dependent variable "Abnormal Volatility of SME", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Therefore, H2 is generally supported by both large caps and SME, though it the state-controlled media was more influential in easing Chinese investors' worries about the prospects of SSE50 companies, most of which are state-owned. This effect is less significant for SME investors and it influenced small caps oppositely during the first stage and led to "excess volatility". Although about 2/3 of the news released during the first stage had high tones, either showing their confidence in the U.S.-China trade relationship or envisioning a bright future of global economic and trade cooperation, the market seemed sceptical to this narrative, especially the SMEs. The SMEs dropped 5.12% during the first stage, whereas the SSE50 went up 13.54% (see Table 6). In stage III, both SME and SSE50 dropped about 7%. Generally, the SMEs were more volatile, responded more unfavorably to the situation, and reacted earlier. In China, the large caps, especially SOEs, are equipped with a soft budget constraint and implicitly guaranteed by the government. SMEs, normally private, are more vulnerable to systemic risks, and therefore more sensitive and volatile. Even there was no certainty that the war would happen, the investors in SMEs already felt restless.

Moreover, how the media tone influences firm-level volatilities is also investigated. Both firms heavily exposed and firms not heavily exposed to trade with the U.S. are significantly influenced by the media tone. The results are not reported here but available upon request.

4.3 Market Reactions in Different Stages

State-controlled media are questioned about their operational efficiency and independence because self-censorship undermines the quality of news articles they publish, especially when their reporting is intertwined with political interests (Djankov et al., 2003; Besley and Prat, 2006; Houston, Lin, and Ma, 2011; Dyck, Moss, and Zingales, 2013). Receiving and translating information mainly from state media, investors may have different views on the impact of the U.S.-China trade war and the future of China's economy, for most of the news is temporary and subject to many uncertainties. It is important to note that people's predictions of likelihood may vary at different stages.

With regard to the stock returns, although not all the firms are influenced by the media tones, firms with large shares of exports into the U.S. exhibited variation in their reactions, with significant positive returns in most cases and negative returns in stage III.

While optimism in state media tends to stabilize investor expectations for large-cap stocks, swings in investor sentiment are somewhat unpredictable. Early on (in stage I), large-cap investors were unconvinced that the U.S. would dare fight a trade war because Chinese exports have been so beneficial to U.S. consumers. How will the U.S. start a trade war at the expense of its economic inter-

ests? It seems they were indifferent to the news, shown by the insignificant estimated coefficients of media tone. But, since the second stage (days right after the 301 investigation, higher media tone exhibits stronger influence in reducing stock fluctuations till stage V. (see Table 8).

And this effect is more distinct in SMEs, with a volatility-enhancing impact in the first period. The possible explanation is that the investors in smaller stocks are more sensitive to the market risk and more alert to the influence of outside noises, and ready to act on the market even some uncertain signs are revealed in the news.

However, since stage II, once the trade war was really waged, investors seemed to count more on the media attitude, which could be seen on the negative estimated coefficients of the media tone. Optimistically-toned news releases helped reduce investors' expectations of uncertainties and brought about lower volatilities. Though tenuous, most of the estimated coefficients of the variable of media tone for SMEs are also negative. In stages III and VI, the news with the highest tones showed China's tough stance to confront any pressure and confidence in China's economic and trade development potentials. In stage V, as a consensus was reached and progress was made in negotiations, the tone was more conciliatory, and the win-win cooperation was advocated with high tones.

The impact of media tone on stock volatilities differs somewhat across stages, and H3 is partially supported.

4.4 Further Discussion

A trade war between the United States and China is likely to hurt China's small and medium-sized enterprises (mostly private ones) more than large ones. In the third tariff list (List 3) released by USTR, the tariffs on more than 6,000 items of Chinese origin (worth US\$200 billion) will mainly target small and medium-sized businesses. Increased costs and reduced orders caused by increased tariffs would lead to large losses on export-oriented small and medium-sized enterprises. If one enterprise suffers from a crisis, hundreds of upstream and downstream firms would be affected, and these firms are primarily small and medium-sized. Moreover, the U.S.-China trade friction would greatly influence the long-term business strategy of the U.S.-invested companies in China. They would consider delaying or cancelling investments in China, moving their production lines out of China into the surrounding countries, thereby seriously affecting the development of industrial clusters. Also, the state-owned enterprises are typically subsidized by the state, but these private enterprises' losses have to be borne by their owners. All these factors make the small firms suffer more than the big firms and might react differently to the same news.

Another thing to note is that the trade event variable typically produces positive estimated coefficients for the U.S.-trade intensive firms during the first three stages (see Table 7). A possible explanation is that, during the early days of the war, China's financial market generally held that the threat of the trade war between China and the United States was just "cheap talk". Investors of U.S.-trade intensive firms are likely to deem the mutual threats from China and the U.S. as just a prelude to a comprehensive agreement to be reached in the next step. They might even bet on the (optimistic) future and increase their holdings of such stocks once trade news was released, leading to positive returns of them. However, non-U.S.-trade intensive firms did not get as much investor attention and did not elicit significant market returns (see Appendix B). But later on, the "boots fell to the ground". With China and the U.S. formally committed (in stage IV) to tariffs implemented in stage V, investors seemed to quickly realize that the earlier views were utopian and that a trade war would be a serious threat to both countries, as shown in the significant negative coefficient of *Trade Event* for U.S.-trade intensive firms in stage V (Table 7).

Large-cap investors seem unmoved by deal news early in the Trump era, while investors in smaller companies are already worried about their future and sceptical of trade news releases. The higher the tone, the more uneasy they become. Since the trade war actually happened, however, the worries seemed to be alleviated by the optimistic news from the official media for both types of investors. It shows that the investors of SMEs seemed more anxious and suspicious about what the media claimed as early as Trump won his election. Still, large-cap investors presented a more peaceful mind about the future during this process.

There are several possible reasons why investors perceived more uncertainties from what Chinese media claimed than what happened in the early days of Trump's presidency, regardless of the high stance presented by the media. One reason is that investors may interpret this high profile as reflecting the Chinese government's intransigence or determination rather than optimism (Zhang and Du, 2021). Another possibility is consistent with the idea that differences in investor beliefs may be the source of *apparent* "excessive volatility" when individuals interpret the same information differently and hold different views (Hong and Stein, 2007). Finally, it suggests that investors have become more emotional about the inevitable clash between rising and established powers since Donald Trump's inauguration.

In addition, with actual trade events as the key explanatory variable and media tone variables as the moderating variable, we also test the moderating effect of media tone to see whether the interaction between trade-war event dummy (1 or 0) and media tone adds additional explanations. The result of Table 10 and Table 11 shows no clear relation between the actual events and market volatilities, and it does not significantly influence the market when combined with me-

dia tones. So, the moderating effect of media tone on volatility could be excluded. It might be because, compared with the news released by the mainstream media, trade events are fewer. Investors read the news and react to it, for the released news, instead of the trade events, is the channel they count on and bring about the information they usually need.

Table 10
Testing the Moderating Effect of Media Tone for SSE50

		Dependent Variable: Abnormal Volatility of SSE50					
	The Whole Trump Era	Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI
Intercept	1.159*** 63.608	0.838*** 64.316	1.063*** 26.986	1.216*** 38.113	1.672*** 33.004	1.481*** 32.207	1.097*** 33.621
Trade Event	0.075 1.284	0.239 -1.076	0.170 -0.491	-0.043 -0.670	-0.133 -1.164	-0.153 -1.019	0.141* 1.855
Trade Event* Media Tone_R	-0.004 -0.065	-0.159 -1.361	-0.190 -0.539	-0.002 -0.026	0.069 0.446	-0.083 -0.478	0.130 1.337
Change of 10-year Bond Yield	-2.191 -0.804	0.942 0.591	-9.962 -1.280	11.007** 2.341	-0.619 -0.071	8.507 1.391	-6.425 -1.103
% Change of Exchange Rate	12.237* 1.820	12.225* 1.816	5.555 0.373	-6.653 -0.516	-6.640 -0.509	19.123 1.144	28.650** 2.498
Change of Economic Prospect	-0.220 -1.207	0.116 0.879	-1.574 -1.332	-0.724 -0.904	-0.046 -0.047	-1.959** -2.123	0.373 1.635
Change of Consumer Confidence	-0.019 -0.527	0.011 0.336	0.003 0.047	-0.024 -0.413	0.253 1.851	-0.279 -2.286	-0.005 -0.070
Adjusted R-squared	0.006	0.004	-0.001	0.081	0.024	0.073	0.063
n	669	164	115	55	98	85	151
Akaike info criterion	1.201	-0.763	1.085	-0.278	1.220	1.048	0.822

Note(s): This table tests the moderating effect of media tone. The dependent variable is "Abnormal Volatility of SSE50", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Table 11
Testing the Moderating Effect of Media Tone for SME

		Dependent Variable: Abnormal Volatility of SME						
The Whole Trump Era		Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI	
Intercept	1.326*** 84.060 0.094** 2.058	1.084*** 68.391 0.055 0.606	1.161*** 40.789 0.151 1.225	1.295*** 36.618 -0.060 -0.847	1.296*** 36.377 0.020 0.129	1.701*** 40.309 -0.191** -2.012	1.617*** 41.263 -0.073 -0.567	1.370*** 38.344 0.165** 1.981
Trade Event* Media Tone_R	0.052 1.090	-0.286** -2.022	-0.331 -1.309	-0.041 -0.587		0.049 0.385	0.016 0.108	0.164 1.540
Change of 10-year Bond Yield	-2.255 -0.955	2.355 1.146	-9.823 -1.747	8.683 1.665	9.131* 1.722	-1.376 -0.188	3.430 0.658	-6.319 -0.986
% Change of Exchange Rate	10.043* 1.725	-0.694 -0.081	16.741 1.555	-15.449 -1.080	-15.111 -1.049	9.492 0.789	-4.886 -0.343	15.893 1.266
Change of Economic Prospect	-0.177 -1.125	-0.146 -0.913	-0.302 -0.353	-0.295 -0.347	-0.886 -0.973	0.305 0.770	-1.272 -1.618	0.326 1.303
Change of Consumer Confidence	-0.011 -0.360	-0.012 -0.295	-0.003 -0.064	0.028 0.432	0.022 0.334	0.169 1.485	-0.147 -1.413	0.017 0.194
Adjusted R-squared	0.010	0.010	0.023	0.029	0.032	0.018	-0.004	0.024
n	669	668	164	115	55	55	85	151
Akaike info criterion	0.913	0.915	-0.371	0.436	-0.072	-0.043	0.728	0.999

Note(s): This table tests the moderating effect of media tone. The dependent variable is "Abnormal Volatility of SME", with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

So far, we have controlled the real trade events without differentiating the good news from the bad news in all the tests, for our focus is how the media tone influences the market. But there might be an asymmetric effect of good news vs. bad news on the market, and the market might react more violently to bad news. To answer whether the market reacts differently to these two types of events, we classify the news releasing days based on whether the trade-war progress (conveyed by the news on facts) brought about a favourable situation for the Chinese economy. The results are reported in Appendix C and Appendix D. Generally, good news led to higher returns, and bad news led to lower returns (see Appendix C)¹⁶, which corresponds to the mainly insignificant impact of *Trade Event* (see Table 4), for these two effects cancel each other out. As for the influence on volatilities, there is no significant difference between good news and bad news (see Appendix D). As shown in the first group of regressions, both good news and bad news tended to increase the volatilities, but this effect is not strong enough to last when control variables are added and when individual stages are investigated. It is consistent with the insignificant results in Table 8. The impacts of media tone on both returns and volatilities are basically the same when *Trade Event* is replaced by Good or Bad trade events separately. Therefore, while some asymmetric effects of trade events have been detected, our result on media tones still holds.

V. Conclusion

China-U.S. economic relations are of particular importance to the world economy. Economic ties are naturally characterized by cooperation. One-fifth of Chinese products are sold to the United States, and 22% of U.S. imports come from China. However, the trade frictions brought about tremendous uncertainties to the economy. Sino-us trade talks/frictions could be the big issue that shapes investor expectations and motives their actions. By examining the relationship between media tone and Chinese stock market reaction in the context of Sino-U.S. trade frictions, this study aims to explore whether Chinese state-controlled media has played a role in stabilizing investor expectations in the Trump era.

Specifically, we found no significant relationship between the media tone of news on China-U.S. trade frictions and the overall stock market returns. That is, the media tone could not predict stock returns. There was only a weak negative effect in stage VI for the small and medium caps (SMEs). When firm-level data are investigated, the result shows firms heavily exposed to export business with

¹⁶ For SMEs, they are more sensitive to bad news. For brevity, the results on SMEs and individual firms are not provided here but available upon request.

the U.S. were affected more by the media reports than firms not heavily exposed to U.S. trade.

During the early days of the trade-frictions, higher tones of news released from the state-controlled media seemed to enhance people's anxieties about the fundamentals, especially for the SME investors. As SMEs are usually vulnerable to systematic risks, SME investors would be more sensitive and more likely to interpret the information behind the tones differently. Since stage III, a high tone can stabilize people's expectations and reduce the stock volatilities. Therefore, H2 is generally supported since stage III and rejected before that, especially in SMEs. Moreover, since our results showed that the impact of releasing news/media tone differed across different stages of the trade war, H3 is generally supported.

The Chinese government has a solid motive to soothe investors and stabilize the stock market and investors' expectations by selectively reporting the news and adopting high tones. In the case of the trade war, the official media's tone manipulation partially achieved its goal of preventing a market meltdown, but it failed to dramatically boost Chinese investors' confidence. Our research sheds light on how authoritarian governments use media regulation and manipulation to stabilize their markets.

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Appendix A: Detailed Description of Each Stage and News Release

Stage I (before the 301 Investigation): November 9, 2016, till August 17, 2017

From the election of Donald Trump as the president of the United States until before USTR formally launched a 301 investigation of China under the Trade Act of 1974

During the first stages, in most news reports, the Chinese government wished to prevent the trade war from happening, and thus cooperation and mutual understanding were called for. While there was a sign of a trade war, the media tone was optimistic (above average).

Stage II (301 investigation period): August 18, 2017, till March 7, 2018

Since the initiation of the U.S.'s 301 investigation of China until Trump formally orders tariffs on steel, aluminium imports¹⁷.

Things started to change in stage II. On August 18, 2017, U.S. Trade Representative (USTR) formally initiated an investigation of China under Section 301 of the 1974 Trade Act¹⁸. China also began to take some counter-attacks by investigating U.S. exports of sorghum on February 5, 2018. During this short period, only six pieces of news were released, among which only one had above average tone and was about the China-U.S. presidents' meeting. Other low-tone pieces of news analyse the harmful consequences or the persistence of the trade war, etc. Such a significant portion of negative information might indicate a high likelihood of the war.

Stage III (early stage of U.S.-China trade war): March 8, 2018, till June 14, 2018

Since Trump formally ordered tariffs on steel, aluminium imports, until before Trump released a \$34 billion list of Chinese goods to face a 25% tariff, starting on July 6¹⁹. Also, another list with \$16 billion of Chinese goods was released, with an implementation date of August 23.

On March 8, 2018 (stage III), Trump formally ordered the imposition of tariffs on steel and aluminium imports from China. In retaliation, the Chinese government announced more counter-attacks by imposing either tariffs or anti-dumping duties. On May 20, China and the United States agreed to suspend

¹⁷ Refer to the website of NPR, see <https://www.npr.org/2018/03/08/591744195/trump-expected-to-formally-order-tariffs-on-steel-aluminum-imports>.

¹⁸ Refer to the official website of USTR, see <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2017/august/ustr-announces-initiation-section>.

¹⁹ See, <https://business.financialpost.com/pmn/business-pmn/trumps-tariffs-what-they-are-and-how-china-is-responding>.

their trade war, following reports that China had agreed to buy more American goods.

In this stage, more news was released, 73 in total, with most criticizing trade protectionism/trade hegemony/unilateralism/trade war. It shows the relations between China and the U.S. were tenser. The media tone in this stage became more negative (below average). Most news released showed China's tough stance and confidence in China's economic and trade development. The high-tone news reports also expressed optimism that the trade war would not be waged eventually, given the importance of the U.S.-China trade partnership. They also highlighted the encouraging progress in bilateral negotiations.

Stage IV (further escalation of U.S.-China trade war and China's retaliation):
June 15, 2018, till November 30, 2018

Since the release of a \$34 billion list of Chinese goods to face a tariff on June 15, till Trump and Chinese President Xi Jinping agreed on a temporary stop to their bilateral trade disagreement²⁰.

In stage IV, the "boots fell to the ground". The U.S. reinstated tariff plans after a brief truce on May 29, and on June 15, Donald Trump unveiled a list of \$34 billion of Chinese goods that will face a 25% tariff starting on July 6²¹. Another list of Chinese goods worth \$16 billion was also announced, with an implementation date of August 23. Counter-attacks dominated China's actions during this period, and the media tone was the most negative among these six periods. On June 16, China revised its initial tariff list (25 percent on 106 products), raising tariffs on 545 products (worth \$34 billion) to 25 percent, and also proposed a second round of 25 percent tariffs on another 114 products, worth \$16 billion.

During this stage, 80 pieces of news were released, and the high-tone media reports mainly voiced the Chinese government's optimism about the prospects of China winning the trade war, the confidence in China's economic situations, and the limitedness of the trade war's impacts on the Chinese economy. At the same time, these reports condemned trade protectionism and advocated win-win cooperation. Besides criticizing trade protectionism/trade hegemony/unilateralism/trade war, more analysis on the Chinese economy and impacts from trade war was conducted. With the escalation of the war, the news became more concrete and objective regarding the impacts of the war and countermeasures

²⁰ Refer to "Trump hails trade deal with China as one of the largest ever made" from CNBC website, see <https://www.cnbc.com/2018/12/02/trump-hails-trade-deal-with-china-as-one-of-the-largest-ever-made.html>. More details about what happened during this stage can be found on https://en.wikipedia.org/wiki/Presidency_of_Donald_Trump#cite_note-314.

²¹ See, <https://business.financialpost.com/pmn/business-pmn/trumps-tariffs-what-they-are-and-how-china-is-responding>.

from China. The media tone in this stage was still pessimistic (below average), even lower than the fourth stage.

Stage V (temporary reprieve): December 1, 2018, till May 4, 2019

Since December 1, 2018, when Trump and President Xi reached an agreement to temporarily halt bilateral trade differences, till May 4, 2019.

Since February 2018, seven rounds of high-level economic and trade consultations have been held. A major turning point in the trade war between China and the United States came during the G20 summit in 2018 December, when the two presidents agreed to a 90-day truce.

During the sixth stage, eight pieces of news were released, with media tone well above average and four pieces of news on the progress of U.S.-China trade negotiations and interpretation. The high tone of interim news mainly came from the report of the improved situation. For example, one article entitled “The ‘warm tone’ of the Sino-U.S. economic and trade negotiations is improving”, was released in *Securities Daily* on December 12, 2018. China also made some concessions, temporarily lowered tariffs on American autos, and resumed purchases of American soybean exports on December 14, 2018. The optimistic tone was also reflected in anticipation of a truce and praise of China’s contribution to world economic growth.

Stage VI (new conflicting stage): May 5, 2019, till January 17, 2020

From May 5, 2019, to January 17, 2020, two days after the phase-one trade agreement was signed on January 15, 2020.

Stage VI is a new conflicting stage, starting from May 5, 2019, when Trump tweeted that he intended to raise tariffs on \$200 billion of Chinese goods to 25 percent on May 10 and formally gave notice of his intention to raise tariffs on May 8. These increased the uncertainties of the trade war. Most of the news released by Chinese media was the governmental declaration of its position and analyses of its bilateral trade situation. The high tones in the news mainly came from China’s uncompromising stance to continue the trade war, condemning the U.S. for imposing tariffs and economic bullying, and expressing confidence in China’s economic strength and resilience.

Appendix B: Placebo Tests
The Impact of State-Controlled Media Tone on Abnormal Return of Placebo Group

This table reports the regressions on the dependent variable “Abnormal Return of Placebo Group” of the placebo group, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10, 5, and 1% levels, respectively, using a two-tailed test.

Panel A

		<i>Dependent Variable: Abnormal Return of Placebo Group</i>															
		The Whole Trump Era				Stage I				Stage II				Stage III			
Intercept		0.031*	0.031*	0.032*	0.031*	0.024	0.029	0.024	0.029	0.042	0.042	0.039	0.042	0.132**	0.124*	0.099	0.092
		1.905	1.893	1.916	1.905	0.699	0.828	0.680	0.816	0.779	0.779	0.729	0.759	2.181	1.925	1.585	1.355
State-controlled Media Tone_R		-0.008*	-0.009*	-0.008*	-0.009*	-0.017	-0.018	-0.017	-0.018	-0.014	-0.009	-0.013	-0.009	-0.062***	-0.060***	-0.062***	-0.059***
		-1.694	-1.757	-1.672	-1.733	-1.539	-1.627	-1.535	-1.623	-0.425	-0.291	-0.418	-0.289	-2.999	-2.802	-3.039	-2.758
Trade Event				-0.005	-0.005			0.014	0.005			0.042	0.013			0.137**	0.105
				-0.205	-0.215			0.169	0.060			0.431	0.130			2.113	1.481
Change of 10-year Bond Yield				-1.358	-1.359			0.234	0.225			-6.582	-6.505			-10.483**	-8.909*
				-1.082	-1.083			0.129	0.124			-1.492	-1.462			-2.141	-1.778
% Change of Exchange Rate				3.919	3.903			-4.198	-4.232			8.768	8.656			-15.915	-8.930
				1.279	1.274			-0.532	-0.534			1.032	1.014			-1.199	-0.634
Change of Economic Prospect				-0.057	-0.057			-0.243	-0.242			0.859	0.856			-0.556	-0.742
				-0.687	-0.686			-1.620	-1.602			1.267	1.263			-0.643	-0.850
Change of Consumer Confidence				0.025	0.025			-0.028	-0.028			-0.018	-0.018			0.034	0.040
				1.522	1.528			-0.745	-0.747			-0.538	-0.538			0.561	0.657
Firm Fixed Effect		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
n		58686	58686	58686	58686	13635	13635	13635	13635	9751	9751	9751	9751	4767	4767	4767	4767
Adjusted R-squared		0.004	0.004	0.004	0.004	0.014	0.014	0.014	0.014	0.003	0.003	0.003	0.003	0.046	0.047	0.047	0.047

Panel B

Dependent Variable: Abnormal Return of Placebo Group

	Stage IV			Stage V			Stage VI						
Intercept	-0.042	-0.062	-0.005	-0.013	0.050	0.055	0.085**	0.085**	0.085**	0.085**	0.085**	0.085**	0.085**
<i>State-controlled Media Tone_R</i>	-0.960	-1.345	-0.116	-0.272	0.914	0.982	0.915	0.989	2.105	2.093	2.085	2.085	2.089
<i>Trade Event</i>	0.017	0.019	0.015	0.014	-0.012	-0.013	-0.013	-0.014	-0.011	-0.011	-0.011	-0.011	-0.011
	1.177	1.284	0.994	0.946	-0.725	-0.784	-0.729	-0.798	-1.261	-1.215	-1.261	-1.261	-1.206
			-0.163***	-0.185***			0.006	0.012			0.002	0.002	-0.004
			-3.057	-3.389			0.080	0.148			0.052	0.052	-0.096
Change of 10-year Bond Yield	1.206	0.291	2.069	0.500	0.846	0.264	0.802	0.249	-0.689	-0.236	8.317	1.437	-0.675
% Change of Exchange Rate	14.449**	2.089	12.537*	1.808	6.578	0.764	6.820	0.778	8.284	1.433	8.317	1.437	-0.231
Change of Economic Prospect	0.045	0.200	0.118	0.524	0.311	0.645	0.324	0.661	0.110	0.978	0.112	0.982	0.112
Change of Consumer Confidence	0.164**	2.562	0.202***	3.105	0.120*	1.887	0.119*	1.876	0.075*	1.889	0.075*	1.891	0.075*
Firm Fixed Effect	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
n	8643	8643	8643	8643	7800	4767	7800	7800	14090	14090	14090	14090	14090
Adjusted R-squared	0.020	0.020	0.021	0.021	0.003	0.003	0.003	0.003	0.034	0.034	0.034	0.034	0.034

Note(s): This table reports the regressions on the dependent variable “Abnormal Return of Placebo Group” of the placebo group, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Appendix C: Testing the Asymmetric Effects of Trade Events on the Abnormal Return of SSE50

This table reports the regressions on the “Abnormal Return of SSE50”, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10, 5, and 1 % levels, respectively, using a two-tailed test.

Panel A

	Dependent Variable: Abnormal Return of SSE50															
	The Whole Trump Era			Stage I			Stage II			Stage III						
Intercept	0.020	0.001	0.055	0.042	0.073	0.087	0.071	0.081	-0.031	-0.019	-0.068	-0.064	-0.57*	-0.616*	-0.442	-0.469
State-controlled Media Tone_R	0.187	0.012	0.621	0.486	0.56	0.673	0.537	0.618	-0.147	-0.086	-0.316	-0.29	-1.705	-1.692	-1.355	-1.3
Good Trade Event	-0.002	0.002	0.005	0.004	-0.01	-0.017	-0.008	-0.015	0.053	0.032	0.074	0.057	0.1289	0.149	0.104	0.115
Bad Trade Event	-0.042	0.086	0.197	0.142	-0.243	-0.439	-0.192	-0.368	0.423	0.252	0.578	0.435	1.1412	1.230	0.953	0.980
	0.558**	0.491**			1.176*	1.256*			-2.12**	-2.12**			-0.136	-0.249		
	2.276	2.065			1.703	1.852			-2.312	-2.294			-0.251	-0.428		
Bad Trade Event			-0.866***	-0.726***		0.278	0.383		-0.769	-0.424			-1.381**	-1.315*	-2.078	-1.903
			-4.16	-3.557		0.561	0.784		-1.165	-0.566						
Change of 10-year Bond Yield		19.35***		18.59***		-5.213	-4.283		16.84	14.64			29.841			24.142
		2.916		2.816		-0.788	-0.642		0.958	0.751			1.078			0.900
% Change of Exchange Rate		-97.77***		-92.75***		-64.22**	-65.23**		-38.03	-29.22			-16.69			-23.89
		-5.977		-5.68		-2.209	-2.212		-1.123	-0.81			-0.222			-0.329
Change of Economic Prospect		-0.427		-0.587		-0.611	-0.617		-2.894	-2.653			-2.826			-1.49
		-0.966		-1.333		-1.117	-1.117		-1.076	-0.962			-0.558			-0.315
Change of Consumer Confidence		0.044		0.042		0.192	0.19		0.003	0.009			0.144			0.087
		0.499		0.487		1.413	1.388		0.02	0.063			0.4024			0.262
Adjusted R-squared	0.005	0.069	0.022	0.08	0.006	0.037	-0.01	0.02	0.031	0.021	-0.003	-0.024	-0.012	-0.064	0.064	0.007
n	669	668	669	668	165	164	165	164	115	115	115	115	55	55	55	55
Akaike info criterion	3.043	2.983	3.025	2.97	2.11	2.093	2.126	2.11	2.676	2.72	2.71	2.764	3.1828	3.2979	3.1042	3.229

Dependent Variable: Abnormal Return of SSE50 (%)

	Stage IV			Stage V			Stage VI					
Intercept	-0.099	0.177	0.091	0.374	0.209	-0.010	0.438	0.344	-0.026	-0.028	0.068	0.030
	-0.302	0.524	0.270	1.090	0.562	-0.030	1.106	0.924	-0.114	-0.137	0.303	0.145
<i>State-controlled Media Tone_R</i>	0.029	-0.033	-0.006	-0.068	0.013	0.049	-0.035	-0.034	-0.009	0.000	-0.005	0.002
	0.259	-0.295	-0.054	-0.626	0.109	0.482	-0.288	-0.298	-0.178	0.002	-0.096	0.033
<i>Good Trade Event</i>	-0.109	-0.127			3.299***	4.775***			1.059***	0.693**		
	-0.138	-0.165			3.298	4.695			2.890	2.054		
<i>Bad Trade Event</i>			-1.014**	-1.025**			-0.463	-1.717			-0.829**	-0.498
			-2.000	-2.068			-0.435	-1.464			-2.481	-1.542
Change of 10-year Bond Yield		43.516		42.474		35.922*		50.009**		30.054**		28.920*
		1.430		1.428		1.872		2.329		2.051		1.963
% Change of Exchange Rate		-101.173**		-100.715**		-170.014***		-143.510**		-143.839***		-149.303***
		-1.994		-2.031		-3.297		-2.501		-4.900		-5.100
Change of Economic Prospect		1.902		2.144		-4.641		-6.197*		-0.249		-0.476
		1.153		1.327		-1.615		-1.704		-0.439		-0.810
Change of Consumer Confidence		0.219		0.230		-1.286***		-0.306		0.362*		0.310
		0.465		0.500		-3.023		-0.717		1.821		1.491
Adjusted R-squared	-0.020	0.027	0.021	0.070	0.096	0.291	-0.021	0.115	0.042	0.223	0.028	0.213
n	98	98	98	98	85	85	85	85	151	151	151	151
Akaike info criterion	3.724	3.715	3.683	3.670	3.530	3.332	3.652	3.553	2.867	2.683	2.881	2.695

Note(s): This table reports the regressions on the „Abnormal Return of SSE50“, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.

Appendix D: Testing the Asymmetric Effects of Trade Events on Abnormal Volatility of SSE50

This table reports the regressions on the dependent variable “Abnormal volatility of SSE50”, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10, 5, and 1% levels, respectively, using a two-tailed test.

Panel A

	Dependent Variable: Abnormal Volatility of SSE50															
	The Whole Trump Era		Stage I		Stage II		Stage III									
Intercept	1.219*** 34.269	1.219*** 34.177	1.211*** 33.969	1.220*** 34.087	0.844*** 27.491	0.841*** 26.935	0.843*** 27.505	0.834*** 26.740	1.107*** 11.660	1.144*** 11.907	1.098*** 12.040	1.141*** 11.908	1.338*** 23.268	1.324*** 22.356	1.317*** 22.112	1.344*** 22.663
State-controlled Media Tone_R	-0.020* -1.872	-0.020* -1.844	-0.019* -1.728	-0.020* -1.827	-0.002 -0.235	-0.001 -0.153	-0.002 -0.236	-0.020 -0.020	-0.039 -0.692	-0.055 -0.968	-0.041 -0.756	-0.055 -0.965	-0.049** -2.475	-0.044** -2.250	-0.045** -2.253	-0.048** -2.484
Good Trade Event	0.263*** 2.706	0.154 1.584			0.084 0.516	-0.045 -0.275			0.314 0.766	-0.035 -0.086			-0.031 -0.330	0.007 0.072		
Bad Trade Event			0.271*** 3.271	0.097 1.152	0.108 0.941	0.185 1.593			0.845*** 3.017	0.086 0.263			0.142 1.179	-0.172 -1.516		
Change of 10-year Bond Yield	-2.477 -0.911	-2.477 -0.911	-2.269 -0.833	-2.269 -0.833	0.829 0.517	0.876 0.552			-10.732 -1.375	-9.828 -1.161			11.157** 2.477	10.517** 2.382		
% Change of Exchange Rate	12.829* 1.915	12.829* 1.915	11.897* 1.766	11.897* 1.766	-1.634 -0.232	-2.852 -0.406			4.086 0.272	2.964 0.189			-8.379 -0.685	-9.107 -0.762		
Change of Economic Prospect	-0.259 -1.429	-0.259 -1.429	-0.246 -1.352	-0.246 -1.352	0.143 1.075	0.145 1.099			-1.720 -1.440	-1.742 -1.455			-0.223 -0.271	-0.141 -0.181		
Change of Consumer Confidence	-0.024 -0.657	-0.024 -0.657	-0.018 -0.501	-0.018 -0.501	0.019 0.577	0.019 0.593			0.005 0.076	0.004 0.060			-0.040 -0.685	-0.041 -0.748		
Adjusted R-squared	0.012	0.010	0.017	0.009	-0.010	-0.026	-0.007	-0.010	-0.008	-0.003	0.063	-0.003	0.078	0.144	0.100	0.183
n	669	668	668	668	164	164	164	164	115	115	115	115	55	55	55	55
Akaike info criterion	1.190	1.198	1.185	1.200	-0.783	-0.744	-0.786	-0.759	1.067	1.096	0.994	1.095	-0.326	-0.334	-0.350	-0.380

Panel B

Dependent Variable: Abnormal Volatility of SSE50

	Stage IV			Stage V			Stage VI					
Intercept	1.718***	1.743***	1.733***	1.777***	1.618***	1.626***	1.618***	1.629***	1.131***	1.135***	1.145***	1.159***
	18.192	17.806	17.656	17.588	15.512	15.133	14.735	15.294	13.702	13.918	13.871	14.234
<i>State-controlled</i>	-0.024	-0.036	-0.027	-0.041	-0.057*	-0.053	-0.051	-0.054*	-0.006	-0.006	-0.009	-0.009
<i>Media Tone_R</i>	-0.764	-1.118	-0.840	-1.279	-1.744	-1.623	-1.505	-1.651	-0.329	-0.351	-0.473	-0.467
<i>Good Trade Event</i>	-0.002	0.046			0.718**	0.020			0.241*	0.240*		
	-0.010	0.205			2.538	0.062			1.798	1.794		
<i>Bad Trade Event</i>			-0.082	-0.179			0.020	-0.046			0.147	-0.025
			-0.552	-1.229			0.068	-0.138			1.211	-0.197
Change of 10-year Bond Yield	-0.531	-0.060		-0.645	8.845		8.995		-7.073		-7.498	
				-0.074	1.442		1.464		-1.216		-1.276	
% Change of Exchange Rate	-9.944	-0.675		-9.809	23.664		23.846		33.935***		30.648***	
				-0.671	1.435		1.452		2.913		2.626	
Change of Economic Prospect	0.052	0.109		0.099	-1.831**		-1.896*		0.296		0.281	
				0.209	-1.993		-1.821		1.315		1.200	
Change of Consumer Confidence	0.285**	2.083		0.286**	-0.291**		-0.285**		-0.034		-0.023	
				2.109	-2.142		-2.342		-0.428		-0.279	
Adjusted R-squared	-0.015	0.012	-0.012	0.028	0.076	0.081	0.004	0.081	0.009	0.057	-0.003	0.037
n	98	98	98	98	85	85	85	85	151	151	151	151
Akaike info criterion	1.229	1.241	1.226	1.225	1.012	1.051	1.088	1.051	0.859	0.835	0.871	0.856

Note(s): This table reports the regressions on the dependent variable „Abnormal volatility of SSE50“, with the percentage sign omitted. T-values of the coefficients are listed below the coefficients. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, using a two-tailed test.