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The US-China Trade War

An Analysis with Daily Returns of Individual Firms of the United States and China

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ABSTRACT

In this research, the impact of the imposition of tariffs caused by the US-China trade war is studied, based on the daily returns of individual firms from both the United States and China. In addition, it focuses on the effect of tariff magnitude and the effect on domestic firms, implying the existence of a home effect. Although the effects differ across event dates, it is mainly found that the imposition of a tariff has significant impact on individual firms, but mostly on Chinese firms. However, there are no general conclusions to be made about the manner in which the returns are truly affected. These conclusions can be made based on both the event date study and the difference-in-difference regressions.

Keywords: US-China trade war; event study methodology; cumulated abnormal return; difference-in-difference regression; stock market

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CHAPTER 1 Introduction

"Why do we continue to sit idly by while China steals our national security and corporate secrets? China is an enemy, not a friend." – Donald J. Trump (October 21, 2011). This tweet is one of the first of many tweets Donald Trump has posted about China negatively over a period of 7 years. He began tweeting regularly about China in 2011 and has called the country an "enemy" of the United States several times (Shih, 2018).

The US-China trade war officially started on the 6th of July 2018, which is when the first official tariffs were imposed by both countries. Prior to this, there were already some events that led up to the trade war. Donald Trump has been targeting China for years, accusing them of illegally trying to obtain information from and about the United States and trying to weaken their national security. When Trump finally became President, the United States had a very large trade deficit, from which the majority was accounted for by their largest trading partner China. In order for the United States to decrease the deficit, they started with the imposition of tariffs on steel and aluminum imports (BBC News, 2018a). In addition, Trump had announced a tariff specifically aimed at Chinese imports. The specific tariff was imposed on the 6th of July, simultaneously with the tariff of China aimed at the United States, which was announced in retaliation to the imposition of the American tariff (Tan, 2018). The 6th of July is then followed by many event dates, where tariffs were exchanged between the United States and China.

This paper will consist of an analysis on the effect of the implementation of several tariffs resulting from the US-China trade war on individual firms from both countries based on daily returns. Each tariff will be analyzed through an event date study with the daily returns of the firms affected by the particular tariff according to their SIC codes. It will look at the effect on individual firms of the opposite country but also look at a potential home effect and therefore the effect on domestic firms. Furthermore, the tariffs will be analyzed according to their magnitude. Additionally, a difference-in-difference regression will be conducted per tariff with the affected firms as a treatment group and non-affected firms as a control group, according to their industry codes (SIC).

The main research question of this paper is: *"How are the daily returns of individual firms in both the United States and China affected by the imposition of a tariff within the US-China trade war?"*

Although it is still a very recent topic, there are quite a few empirical papers written about the US-China trade war. When the event study approach is used, most of the papers only include a small number of tariffs and are focusing on the effects on either the United States or China. Additionally, there is some literature about the effect of hypothetical tariffs, since these papers were written in the run-up to the trade war. Therefore, this paper could add to the existing literature by including more actual event dates and focusing on both China and the United States. Additionally, this paper focuses

on tariff magnitude and the possible existence of a home effect. And lastly, this paper attempts to study the effect on individual firms via two complementary approaches and thereby including a difference-in-difference approach besides the event date study methodology.

The remainder of this paper is organized as follows. Chapter 2 will describe related literature to the US-China trade war. Furthermore, it will elaborate on the event dates used in this study and it will discuss the hypotheses that are formulated. Chapter 3 and 4 will describe the data and methodology used for the analysis. Since the analysis consists out of two different parts, these sections will be subdivided into the event date study and the regression analysis. The empirical results will be presented in Chapter 5 and will also be discussed into two parts, which will be subdivided per country of origin. Lastly, the paper will end with a conclusion in Chapter 6, where the results will be further discussed and interpreted, and some concluding remarks will be made.

CHAPTER 2 Related Literature

This chapter will consist of further background information on the US-China trade war and the period prior to the trade war. Furthermore, it will briefly discuss previous research on trade wars in general, followed by additional papers specifically about the US-China trade war. This will then be followed by an overview and elaborate description of all the event dates and corresponding tariffs used in this study. The hypotheses will be formulated in the last section, which are going to be tested in Chapter 5.

2.1 What Led Up to the Trade War

In August 2017, President Trump started an official investigation on China's alleged theft of American intellectual property, which estimated the yearly loss for the United States (US) between 225 and 600 billion dollars due to such theft (Huang, Lin, Liu, & Tang, 2018). At this time the trade deficit of the United States was 579.9 billion dollars, which was mostly caused by consumer products imports. Their number one largest trading partner is China, which accounts for over half of the total amount of trade deficit (Amadeo, 2021). In 2018, President Trump initiated the trade war in an attempt to effectively reduce the US trade deficit. Reducing the deficit was part of Trump's strategy to create more jobs, as he had promised to be the greatest job-producing president in the American history. During his campaign, he pledged to create 25 million jobs in the next 10 years (Amadeo, 2020).

There were three major concerns that led up to the United States initiating the trade war. First, they were concerned about China's chronically large trade surplus that was depressing job creation in the United States. Second, according to President Donald Trump, China was using illegal and unfair methods to acquire American technology at an effectively discounted price. And third, the concern that China was trying to weaken the United States' national security and its international position (Liu & Woo, 2018).

The American trade deficit against China has been increasing since 1990 until 2018, which is when the trade war was initiated. In 2018, the trade deficit with China reached a record high and was valued at 419 billion dollars (Office of the United States Trade Representative, sd). The high trade deficit led to President Trump conducting an official investigation that eventually led to the decision to increase import tariffs on Chinese products on the 22nd of March 2018, that took effect on the 6th of July (Setiawan, 2019). The US hoped that by raising the prices of imported Chinese goods, the tariffs could weaken the competitiveness of Chinese firms. This way, it could potentially create a more favorable environment for American firms operating and selling in China and therefore create more jobs. However, this could also potentially backfire, since it raises the costs of imported inputs for domestic firms (Huang et al., 2018).

During Trump's campaign, he repeatedly mentioned his plan to revive the American economy, by bringing back manufacturing jobs from overseas. This could be partly done by raising import tariffs on foreign goods, specifically from China, to protect domestic firms. Overall, Trump wanted the United States to be more self-sufficient with the help of his policies, which could create more jobs, where China was being the main target of these policies (Huang et al., 2018). The first import tariff that was imposed on the 23rd of March 2018, was aimed at steel and aluminum import products in general. The United States believed that global oversupply of steel and aluminum, mostly driven by China, threatened American steel and aluminum producers and therefore hurts America's interest (BBC News, 2018a). So, this tariff was not specifically aimed at China, and therefore not studied in this paper. However, Trump granted almost every country exemption if they agreed to not exceed the import limit that was put into place, this did not apply to China.

At this point, the United States had already announced an additional tariff specifically aimed at Chinese imports on the 22nd of March. The additional tariff of the US became effective on the 6th of July. However, in retaliation to the announcement, China imposed a tariff specifically aimed at the United States on the 2nd of April 2018. Since this is the first specifically aimed tariff that was imposed, this is also the first event date that is studied in this paper. All the event dates that are included in this study are discussed further in Section 2.3.

2.2 Previous Empirical Research

Since the US-China trade war is still a very recent topic and therefore still studied, it could be useful to first look at more general literature about previous trade wars. For example, when looking at the Softwood Lumber Trade Dispute between Canada and the United States in 1982. In 1996, the Softwood Lumber Agreement was signed by both countries, which consisted of agreements about the import of Canadian softwood lumber into the United States, including the voluntarily imposition of certain tariffs. Here, it is generally found that the Canadian industries that are using softwood lumber do experience a negative impact on their stock returns due to the tariffs following the Softwood Lumber Agreement (Malhotra & Gulati, 2003, 2010; Zhang & Hussain, 2004).

Additionally, there are some papers about the effects of the imposition of certain tariffs by the United States. Since they are one of the largest world economies, it is likely that the US could cause relatively more impact by using protectionist tariffs. Overall, it is found that the imposition of an import tariff could lead to improvement in welfare (Li, He & Lin, 2018; Porter, 1984). In addition, Gardner and Kimbrough (1989) study the behavior of US tariff rates and their relation to reducing a trade balance deficit. However, they find, for the United States specific, that only temporary increases in tariffs are likely to improve the trade balance. Indeed, when the imposition or increase of a tariff is not temporary, it tends to worsen the trade balance.

When looking at literature specifically about the US-China trade war, it is generally found that both countries suffer losses due to the imposition of tariffs back and forth. Huang et al. (2018) find negative stock returns for both American and Chinese firms following the proposition of Trump to impose tariffs on the 22nd of March 2018. They additionally find that these returns are negatively related with the dependency on imports and exports from the opposite country. Wang, Wang, Zhong and Yao (2020) extend this research by studying more event dates, while only looking at the effect on Chinese firms. They base their research merely on announcement dates on which the tariffs and their corresponding product lists were released in 2018 and 2019. They find that the stock market reactions are very large and negative and that this effect is stronger in firms with prior export exposures to the US. Further evidence shows that the negative impact is largely caused by firms being directly exposed to tariff increase. Sabala and Devadoss (2019) study the effect of the imposition of the Chinese tariff on world soybean markets. They find that both the United States and China experience welfare losses as a result of the tariff. They conclude that both China and the US endure billions of dollars in losses and therefore clearly show the self-destructive economic consequences of protectionists policies. However, a different study finds that the US could potentially improve in welfare as it substitutes expenditures into own goods, while only China may be adversely and therefore negatively affected by the trade war (Dong & Whalley, 2012).

There is also some existing literature about the effect on third party countries. Dong and Whalley (2012), for example, additionally find that when tariffs are very high, mostly third parties benefit while both China and the US incur losses. On the other hand, when looking at Southeast Asia via the ASEAN stock market, it is found that the US-China trade war has a negative impact on capital market performance of these third party countries (Setiawan, 2019).

Furthermore, there are also a number of studies that study the trade war according to simulation results with hypothetical tariffs. In this case it is generally found that both countries experience losses due to the trade war, but China will hurt relatively more than the United States (Li, 2017). Additionally, it is found that the impact of the imposition of tariffs is positively related to tariff magnitude (Li et al., 2018). However, there are also papers that find that protectionist tariffs do the opposite of what was intended, meaning that both countries mostly hurt due to the imposition of their own tariffs. In this case, the negative impact on domestic firms of an acting country is even more severe in the United States than in China (Egger & Zhu, 2019).

This paper adds to the existing literature by including more (recent) event dates and focusing on both Chinese and American firms. Furthermore, this paper focuses on the dates on which the tariffs were actually imposed, instead of the dates that the tariffs were just announced. In addition, this paper also studies the possible existence of a home effect.

2.3 Event Date Description

First a short overview will be given of the event dates, followed by more a detailed description of the tariffs and event dates. For the official lists of products affected by each tariff and a more elaborate overview, see Table 2.1. The short overview is presented below:

Year 2018: April 2, July 6, August 23 and September 24

Year 2019: May 10, June 1 and September 1

Year 2020: February 14

In retaliation to the announcement of an additional tariff on Chinese products and the aluminum and steel conflict, China decided to impose additional tariffs on American products, which corresponds with the 2nd of April 2018. The tariffs were aimed at 128 types of US products with a total worth of 3 billion dollars (Koty, 2018). The tariffs varied between 15% and 25% tax on top of the regular tariff rates. The products targeted mostly are fruits, pork, wine, steel and scrap aluminum products. This date is actually seen as one of events that led up to the US-China trade war. However, since it is also the first event with a tariff that was specifically aimed at the United States, it is included as one of the event dates in this study.

All the event dates that are discussed below are officially part of the US-China trade war. Both countries imposed varying tariffs on four different product lists (List 1, 2, 3 and 4A). The first event date that is discussed is the 6th of July 2018. This date corresponds with the first official day of the trade war. Both China and the US imposed tariffs on products of the opposite country (List 1). The US implements the first China-specific tariffs of 25% on 818 imported Chinese products with a total worth of 34 billion dollars. The actual list of products was already issued on the 15th of June, while the tariff was already announced on the 22nd of March. China immediately retaliates with tariffs on a list of goods also worth 34 billion dollars, which was already issued on the 16th of June. The Chinese tariffs of 25% were mostly aimed at US soybeans, pork and electrical vehicles (Tan, 2018).

The second round of tariffs (List 2) was imposed almost two months later, on the 23rd of August 2018. Again, both countries imposed tariffs of 25% on products from the opposite country, with a total value of 16 billion dollars. The official product lists were already revised and issued on the 7th of August. The Chinese products that were targeted included semiconductors, chemicals, plastics, motorbikes and electric scooters. The US goods that were targeted consisted mostly of commodities such as coal, copper, fuel and medical equipment (Bryan, 2018).

On the 24th of September 2018, the imposition of tariffs on List 3 took place in both countries. The United States issued a list on the 10th of July with a total value of 200 billion dollars and an initial tariff level of 10%. China issued their List 3 on the 3rd of August with a total value of 60 billion dollars and an initial tariff level of 10% and 5% (Chandran, 2018). However, both countries already announced their decision to increase the initial tariff rates on List 3 by the end of the year. On the 2nd of December

2018, the US and China agreed to a temporary truce to de-escalate trade tensions (BBC News, 2018b). The agreement included that both countries would refrain from increasing tariffs and imposing new tariffs for 90 days, which corresponds with the 1st of March 2019. This tariff deadline even gets extended, after a number of trade talks. Then, on the 5th of May Trump suddenly announces to increase the initial tariff on List 3 to 25% and threatens to come up with new tariffs of 25%, which would cover essentially all remaining Chinese products (BBC News, 2019b). The increase from 10% to 25% on all the products on List 3 eventually took place on the 10th of May 2019 (Picone & Solomon, 2019), which corresponds with the fifth event date that is studied in this paper. Subsequently, China reacts with a similar increase of tariff, which takes place on the 1st of June 2019. The increase was already announced on the 13th of May and consisted of multiple tariff levels ranging from 25% to 5% (Pramuk, 2019).

Finally, the last list of products (List 4A) that is affected by a tariff took place on the 1st of September 2019. The fourth list originally would take place into two parts, however List 4B was cancelled or suspended until further notice and therefore excluded from this study. This also means that the value of imports affected of List 4 is now only partially affected by a tariff. Again, both countries imposed tariffs on the same date. The US began implementing tariffs on more than 112 billion dollars' worth of Chinese import. The tariff of 15% was already announced on the 13th of August. China announced their tariff on American products on the 23rd of August. The tariff varies between 5% and 10% and affects only some of the goods on the 75-billion-dollar list (Picone & Li, 2019). The final event date is the 14th of February 2020. This event date corresponds with the day that the tariffs on List 4A was halved by both countries. Lowering the tariffs was part of the Phase One trade agreement that was signed by both the United States and China on the 15th of January 2020 in an attempt to resolve trade tensions (Pramuk, 2020). The US tariff is now 7.5% and the Chinese tariff varies between 5% and 2.5% (Tan & Cheng, 2020).

An overview of all the event dates that are studied in this paper and their corresponding tariff lists are represented in Table 2.1. The footnotes present the official (and/or unofficial translation) lists with all the products that are affected by the corresponding tariff categorized by their Harmonized System codes.

Table 2.1. Overview of retaliation tariffs from both China and the US in US dollars
This table presents an overview of all the retaliation tariffs within the US-China trade war. The first half presents the tariffs imposed by the United States and the second half presents the tariffs imposed by China. The first column states which list of products it involves. The second and third columns present the value of imports affected and the date the tariffs were imposed. The last column presents the tariff magnitude with footnotes presenting the official and detailed tariff lists with all the products affected by it.

US-China Tariff Schedules			
US Additional Tariffs on Chinese Products			
List	Value of imports affected	Date of commencement	Tariff rate
List 1	34 billion	July 6, 2018	25%[1]
List 2	16 billion	August 23, 2018	25%[2]
List 3	200 billion	September 24, 2018	10%[3]
		May 10, 2019	25%[3]
List 4A		September 1, 2019	15%[4]
	300 billion	February 14, 2020	7.5%[4]
List 4B		December 15, 2019	Canceled
China's Retaliatory Tariffs on US Products			
List	Value of imports affected	Date of commencement	Tariff rate
List X	3 billion	April 2, 2018	15% and 25%[5]
List 1	34 billion	July 6, 2018	25%[6]
List 2	16 billion	August 23, 2018	25%[7]
List 3	60 billion	September 24, 2018	10%[8,9] and 5%[10,11]
		June 1, 2019	25%[8], 20%[9], 10%[10] and 5%[11]
List 4A		September 1, 2019	10% and 5%[12]
	75 billion	February 14, 2020	5% and 2.5%[13]
List 4B		December 15, 2019	Suspended

Source: https://www.china-briefing.com/news/us-tariff-exclusion-china-imports-eligibility-application-process/

2.4 Hypothesis Testing

This paper attempts to analyze the effect a tariff has within the US-China trade war on the daily returns of individual firms in both the United States and China. Therefore, the main research

[1] See https://ustr.gov/sites/default/files/enforcement/301Investigations/List%201.pdf
[2] See https://ustr.gov/sites/default/files/enforcement/301Investigations/Final%20Second%20Tranche.pdf
[3] See https://ustr.gov/sites/default/files/enforcement/301Investigations/Tariff%20List-09.17.18.pdf
[4] See https://www.govinfo.gov/content/pkg/FR-2019-08-20/pdf/2019-17865.pdf
[5] See https://www.china-briefing.com/news/us-china-trade-war-us-products-affected/
[6] See http://images.mofcom.gov.cn/www/201806/20180616015345014.pdf
[7] See http://images.mofcom.gov.cn/www/201808/20180808201049842.pdf
[8] See https://www.crowell.com/files/20180803-China-301-Retaliation-List-25-Percent-Tariffs-Unofficial.pdf
[9] See https://www.crowell.com/files/20180803-China-301-Retaliation-List-20-Percent-Tariffs-Unofficial.pdf
[10] See https://www.crowell.com/files/20180803-China-301-Retaliation-List-10-Percent-Tariffs-Unofficial.pdf
[11] See https://www.crowell.com/files/20180803-China-301-Retaliation-List-5-Percent-Tariffs-Unofficial.pdf
[12] See https://www.whitecase.com/sites/default/files/2019-08/annex-i.pdf

question is: *"How are the daily returns of individual firms in both the United States and China affected by the imposition of a tariff within the US-China trade war?"* To answer this question, multiple hypotheses are formulated for this study.

The first hypothesis is meant to establish the base of this study. Studies based on prior trade wars generally find that events have a negative impact on the stock prices of industries affected by the trade war. Zhang and Hussain (2004), for example, study the Softwood Lumber Trade Dispute between Canada and the United States in 1982. They find that most events, including the Softwood Lumber Agreement, affect Canadian firms within the lumber industry negatively. Literature about the US-China trade war is somewhat limited, however, there are quite a few empirical papers that study the effects of the US-China trade war in hypothetical scenarios with hypothetical tariffs. These simulation results generally show that a tariff could have a negative impact on the opposite country (Li, 2017; Li et al., 2018). Therefore, the first hypothesis is formulated as follows:

Hypothesis 1: *The imposition of a tariff has a negative impact on the daily returns of individual firms from the opposite country.*

The second hypothesis is about the differences in reaction between the United States and China. Prior research finds that both countries could experience a negative impact, but China will hurt more from a tariff. Li (2017), studies the effects of bilateral trade retaliation on China, and finds that the impact depends on which countries are involved. The paper finds that China will experience more impact, if large countries are involved in the trade retaliation, for instance the United States. Dong and Whalley (2012), study the bilateral retaliation between the US and China with two approaches and find that the US could actually improve in welfare from the trade war, since it substitutes expenditures into own goods, while China could experience adverse effects. Both models find that, when tariffs are very high, mostly third parties benefit, while China and the US both experience losses. In addition, Li et al. (2018) find in their simulation that China will be significantly hurt, although affordable, meaning it will not hurt China's economy severely. For the US, it is shown that it will gain on welfare, but it will hurt trade and employment, while increasing the latter was the whole purpose of this trade war. Overall, they find that both countries will experience losses, but China will lose more than the US. This then results in the following hypothesis:

Hypothesis 2: *The imposition of a tariff has more (negative) impact on the daily returns of firms in China relative to firms in the United States.*

This paper also attempts to study the impact on daily returns for different levels of tariffs. Since the tariffs that are used in this study differ in magnitude, it could be interesting to look at the differences in reactions between these event dates. Li et al. (2018) find that the level of a tariff measure does have a different impact on both the US and China. They find that when the tariff increases, the negative impact on China also increases. For the US, they find somewhat similar results; overall the

impact does increase negatively when the level of a tariff increases, however for some variables they find positive results. As the import tariff rates increase, trade war effects to the US will positively increase in the beginning but decrease later on. To study the relation between tariff magnitude and its impact on daily returns, the third hypothesis is formulated as follows:

Hypothesis 3: *The level of a tariff matters; the higher the tariff is, the more (negative) impact it has on firms in the opposite country.*

The last hypothesis concerns the possibility of the existence of a home effect. This implies that the acting country could also be affected by the imposition of their own tariffs. This effect could be either positive or negative. Prior research on this topic finds that the imposition of the protectionist tariffs in the US-China Trade War did to a large extent the opposite of what was intended. Their results show that the trade-war tariffs directly hurt firms in the opposite country, but also hurt domestic firms in the same sector. In addition, they find that this effect is even larger in the United States than in China (Egger & Zhu, 2019). It would be interesting to see whether this effect is also found in this study. Therefore, the fourth hypothesis is formulated as follows:

Hypothesis 4: *The imposition of protectionist tariffs by the United States or China could additionally have a negative impact on domestic firms, meaning the existence of a home effect.*

CHAPTER 3 Data

3.1 Event Date Study

The dataset that is used in this research consists of daily data of individual firms of both the United Stated and China. It is important that the dataset incorporates as many American and Chinese firms as possible. Therefore, all the individual firms of every Industry Classification Benchmark (ICB) category of both countries, available through *Bloomberg*, is retrieved first and then filtered based on their Standard Industrial Classification (SIC) code to make them aligned with each individual tariff. The dataset starts at 220 trading days before the first event, which is the 2nd of April 2018, up until 5 trading days after the last event, which corresponds with the 14th of February 2020. The data has been mainly retrieved from *Datastream*, *Thomson Reuters Eikon* and *Bloomberg*.

The actual tariffs are studied through the official American and Chinese tariff lists (see Table 2.1). These include all the products that were affected by each tariff and their corresponding Harmonized System (HS) code to specify the nature of the product. The HS codes allow for me to rewrite each product into SIC codes, which makes it possible to match individual firms with the products affected by the tariffs. It is possible that some firms are studied for multiple event dates. This is due to the fact that there is sometimes an overlap, meaning that firms that produce multiple products could therefore be included in multiple event dates, since the tariffs are product specific and not firm specific. However, this will not affect the results of this study, since it only studies the imposition of a tariff and what this means. So, even though some firms may be included more than once; all the different event dates with different tariff lists, and therefore different products affected by it, study a different set of individual firms. The effects that are studied are also separated for the United States and China. The main focus of this study is to analyze whether a firm's daily returns are affected by the imposition of a tariff. This paper additionally attempts to study the possibility of a home effect. Therefore, all the event dates are studied twice, once with domestic firms and once with the firms of the opposite country.

For the event study, the event window consists of [-5, 5] trading days surrounding each event. To accurately assess whether the actual event has had an impact on the individual firms represented in the database, an estimation window is used prior to each event with a margin of [-220, -21] trading days. This will establish the control period for each event study conducted in this paper. This study uses the five-factor model of Fama and French (2015). The five factors that are used in this model are retrieved from the website of Kenneth R. French[13], which contains daily data to be used for the application of this model. When studying American firms, the five factors of the United States are used,

[13] See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html

and when studying Chinese firms, the five factors of Asia Pacific excluding Japan are used, which incorporates Australia, Hong Kong, New Zealand and Singapore.

The gathered data is filtered to make sure there are no missing values in the dataset. Some firms lacked a value for the price around some event dates, which is why these firms are eliminated from the dataset. It could be that those firms were not yet active around the actual event. This also explains why some of the event dates differ in number of observations, even when it concerns two event dates with the exact same tariff list and therefore should have the exact same subset of firms.

The descriptive statistics for the event date study per interval and per country are presented below. The first four rows present the statistics of American firms; the first two rows present the CAARs of American firms after the imposition of a Chinese tariff, and the third and fourth row present the CAARs of American firms after the imposition of an American tariff (home effect). The descriptive statistics of the Chinese firms are presented in the same order; first after the imposition of an American tariff followed by the CAARs after the imposition of a Chinese tariff (home effect).

Table 3.1. Descriptive statistics of cumulated average abnormal returns per interval per country
This table presents the descriptive statistics of the event date study. The first column denotes the country of origin of the individual firms. The second and third columns denote which country imposed the tariffs and the different intervals. The remainder of this table presents the descriptive statistics of each interval for both countries.

Firms	Tariff	Interval	Obs.	Mean	Std. Dev.	Min	Max
US	CH	CAAR(-1,1)	11744	-0.004	0.142	-2.881	2.264
		CAAR(-5,5)	11744	-0.003	0.222	-2.864	4.031
	US	CAAR(-1,1)	6093	-0.008	0.147	-2.640	2.264
		CAAR(-5,5)	6093	-0.018	0.245	-3.212	4.028
CH	US	CAAR(-1,1)	7073	0.004	0.452	-0.347	0.300
		CAAR(-5,5)	7073	-0.009	0.103	-0.680	0.762
	CH	CAAR(-1,1)	12890	-0.003	0.041	-0.347	0.314
		CAAR(-5,5)	12890	-0.031	0.093	-0.680	0.763

3.2 Difference-in-Difference Regression

For the difference-in-difference regression, some additional data was gathered. Since the event study used firms according to their SIC codes, the control group for the difference-in-difference regression is formed with the remainder of the firms within all the categories of the ICB. The treatment group consists of all the firms that were at least once affected by a tariff according to the event date study. The regression will be conducted with three additional control variables, namely size, leverage and profitability. The variables are represented by total market cap, total debt and market to book ratio, respectively. The regressions will be conducted per country and per event date. Furthermore, it will only study the effects on the opposite country, the home effect will be excluded from this part of research.

The descriptive statistics for the difference-in-difference regressions per country of origin per group (treatment or control) are presented below in Table 3.2. The first ten rows present the statistics for American firms; the first five present the statistics of the treatment group and the other five

present those of the control group. The descriptive statistics of the Chinese firms are presented in the same order; the first five rows present the treatment group and the remaining five present the control group.

Table 3.2. Descriptive statistics of treatment and control groups used in the difference-in-difference regressions

This table presents the descriptive statistics of the difference-in-difference regressions. The first column denotes the country of origin of the individual firms. The second and third columns denote whether it concerns the treatment group or the control group, and the variables of interest. The remainder of this table presents the descriptive statistics of each variable for both the treatment and control groups for both countries.

Firms	Group	Variable	Obs.	Mean	Std. Dev.	Min	Max
US	Treatment	Return (t = -5)	9149	-0.012	0.085	-0.724	3.507
		Return (t = 5)	9149	0.001	0.072	-0.884	0.979
		Size	9149	2.13e+9	1.05e+10	0.085	2.80e+11
		Leverage	9149	1.49e+6	6.84e+6	0	1.55e+8
		Profitability	9149	25.68	987.37	-1.23e+4	3.35e+4
	Control	Return (t = -5)	18212	-0.007	0.099	-3.970	2.613
		Return (t = 5)	18212	-0.001	0.100	-4.864	4.605
		Size	18212	4.34e+9	3.82e+10	5.14	1.57e+12
		Leverage	18212	4.29e+6	7.69e+7	0	3.47e+9
		Profitability	18212	3456.15	1.68e+5	-1.33e+5	8.54e+6
CH	Treatment	Return (t = -5)	6893	-0.001	0.032	-0.150	0.104
		Return (t = 5)	6893	-0.008	0.033	-0.124	0.103
		Size	6893	2.49e+9	9.91e+9	1.79e+7	3.11e+11
		Leverage	6893	5.40e+5	3.38e+6	0	1.01e+8
		Profitability	6893	3.58	13.05	-109.15	337.65
	Control	Return (t = -5)	5342	0.004	0.025	-0.107	0.104
		Return (t = 5)	5342	-0.001	0.026	-0.107	0.107
		Size	5342	4.62e+9	1.73e+10	2.29e+7	2.45e+11
		Leverage	5342	7.90e+6	4.88e+7	0	6.40e+8
		Profitability	5342	11.29	162.44	-10.92	4789.27

CHAPTER 4 Methodology

This paper aims to study the effects of the imposition of each tariff with two major approaches. Firstly, a short-term event study will be done with an event window and an estimation window for each firm within the dataset that corresponds with the relevant tariff. In addition, a difference-in-difference regression will be conducted for each event date and for both countries.

4.1 Event Date Study

The first part of this analysis consists of an event date study to assess whether the events have an actual impact on the returns of individual firms. For the event window, this paper will use the daily returns of American and Chinese companies of 5 trading days before and after the event occurred [-5, 5], where the day of the event is t = 0. Following the traditional event study methodology (MacKinlay, 1997), an estimation window is used to establish the firm specific market model parameters relative to the event date. The estimation window has a margin of -220 and -21 trading days before the event [-220, -21], which is in line with another study on the US-China trade war (Huang et al., 2018). The event date study will be done for each firm of both the US and China for all the relevant event dates. Since this paper also aims to analyze the possible existence of a home effect, all firms will be studied at least twice. Once following the imposition of a tariff by the opposite country and once following the imposition of a tariff by the home country. Additionally, some firms may be included more than twice, since there could be an overlap in affected firms by tariffs.

This paper will use the five-factor model of Fama and French (2015) to estimate the abnormal returns. This decision was made in consideration of multiple studies that find that incorporating more factors into the model used for the event study does have an important additive value. Brown and Weinstein (1985) find that a multi-factor model does as well and even slightly better than the market model in the event study context. They find that, ignoring estimation problems, tests with multifactor models will be more powerful than those with market model abnormal return estimates. Brown and Warner (1985), however, find that in their study the market model does better. The difference between the results of these studies could be due to the fact that Brown and Warner only use positive abnormal performance (Brown & Weinstein, 1985). Since this paper includes both positive and negative returns, the decision was made to incorporate a multi-factor model into the event study. This will allow for me to determine whether the calculated abnormal returns are truly abnormal. The formula for the Fama and French (2015) five-factor model is presented below:

$$R_{it} - r_{ft} = \alpha_i + \beta_1\left(R_{mt} - r_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 RMW_t + \beta_5 CMA_t + \varepsilon_{it} \qquad (1)$$

where $R_{it} - r_{ft}$ is similar to the returns of each firm in the estimation window [-220, -21] minus the risk-free rate and R_{mt} consists of the returns of the market index. The factors SMB (Small minus Big) and HML (High minus Low) are incorporated in the three-factor model of Fama and French to control

for atypical returns from investing in firms with high book-to-market ratios and small stocks (Fama & French, 1993). The SMB factor represents the size premium and therefore the risk factors related to company size. The HML factor represents the value premium and therefore includes the fundamental risk in firm value. The five-factor model then adds the two other factors RMW and CMA, which represents profitability and investment, respectively. Profitability refers to the variation of stock returns of diversified portfolios with robust and weak profitability, while investment refers to the variation of returns on diversified portfolios from low and high investment corporations (Fama & French, 2015). The estimated $\hat{\alpha}_i$ and $\hat{\beta}_i$ coefficients are determined with the average returns of the dataset for the corresponding tariff.

The estimated $\hat{\alpha}_i$ and $\hat{\beta}_i$ coefficients are then used to calculate the abnormal returns AR_{it} per firm using the equation stated below, where it captures the difference between the realized return of each individual firm and the expected return determined by the market.

$$AR_{it} = (R_{it} - r_{ft}) - (\hat{\alpha}_i + \hat{\beta}_1(R_{mt} - r_{ft}) + \hat{\beta}_2 SMB_t + \hat{\beta}_3 HML_t + \hat{\beta}_4 RMW_t + \hat{\beta}_5 CMA_t) \quad (2)$$

In addition, the cumulative abnormal returns are calculated (CARs) for each event. The returns of each individual firm on each day in the event window [-5, 5] are added up using the formula presented below:

$$CAR_{ij} = \sum_{i=t-5}^{i=t+5} AR_{it} \quad (3)$$

This will also be done for a test period of [-1,1] to determine whether the margin of the event window has a substantial effect on whether the CAR is significant or not.

For the third hypothesis, some additional tests were conducted to further determine the effect of tariff magnitude on the cumulated average abnormal returns. For the first tests, a mean comparison test was executed with a categorial variable for each level of a tariff. This was done for all the individual firms for both China and the US to determine whether the differences in CARs between level of tariffs significantly differed from zero. Furthermore, the effect of tariff magnitude was tested on the CARs for both time frames [-1,1] and [-5,5]. The formula for this regression is presented below:

$$CAR_{ij} = \alpha_i + \beta_1 TariffMagnitude + \varepsilon_{it} \quad (4)$$

4.2 Difference-in-Difference Regression

To determine whether the individual firms studied in this paper truly experience impact from the imposition of the tariffs, some additional regressions will be conducted. The difference-in-difference regression is an appropriate test, since it aims to compare a treatment group and control group with one another pre- and post-treatment. This will allow for me to determine whether the individual firms that were directly impacted by a tariff experience a significantly different effect than firms that were not directly impacted by a tariff. The treatment group consists of all the firms that fall

into the targeted industries, according to their SIC codes. The control group consists of firms that do not fall into these targeted industries and are therefore not directly impacted by the imposition of a tariff. The pre- and post-treatment will be 5 days before and after the imposition of a tariff. The regression will be conducted for each event date and will merely look at the effect on the opposite country, the home effect is hereby excluded.

The rationale behind conducting a difference-in-difference approach, is that it allows for studying the impact of some 'treatment', by comparing the performance of the treatment group pre- and post-treatment relative to the performance of a control group pre- and post-treatment. The control group then shows what would have happened to the treatment group in the case of treatment being absent (Slaughter, 2001).

Following the paper of Meyer (1995), the typical difference-in-difference approach starts with the comparison of one group before and after design. The equation is stated below:

$$y_{it} = \alpha + \beta d_t + \varepsilon_{it} \tag{5}$$

where y_{it} is the dependent variable, in this case the daily return of the individual firm i on time t. The variable d_t is a dummy variable for time and implies having received the treatment according to the value of t; when $t = 1$, $d_t = 1$. For this study specific, $t = 0$ represents the period before the imposition of a tariff, and $t = 1$ the period after the imposition of a tariff, which will be 5 days before and after.

The difference-in-difference approach is then extended with an untreated comparison group, or a so-called control group. Adding a comparison group over the same period as the before and after groups, leads to the following equation:

$$y_{it}^{j} = \alpha + \alpha_1 d_t + \alpha^1 d^j + \beta d_t^j + \varepsilon_{it}^{j} \tag{6}$$

where the dependent variable is also indexed by j for the group. The dummy variable for groups d^j, represents being in the treatment group. In this study, it takes on the value of 1 when the firm is directly impacted by a tariff, and otherwise 0, representing the control group. The dummy variable d_t^j is an interaction term of d_t and d^j, and only takes on the value of 1 when $t = 1$ and $j = 1$. The coefficient β is then the true causal effect of the treatment on the outcome for this group (Myer, 1995).

In order for the equation to be applied to this research, some additional control variables are included to control for individual characteristics between firms. The formula is presented below:

$$y_{it}^{j} = \alpha + \alpha_1 d_t + \alpha^1 d^j + \beta d_t^j + \delta_1 SIZE_t + \delta_2 LEV_t + \delta_3 PROF_t + \varepsilon_{it}^{j} \tag{7}$$

where $SIZE_t$ is a control variable for size and is represented by total market cap. The variables LEV_t and $PROF_t$ are control variables for leverage and profitability and are represented by total debt and market-to-book ratio, respectively.

CHAPTER 5 Empirical Results

5.1 Event Date Study

The first step was calculating the abnormal returns for each firm and for each event date. Per event date, and therefore per tariff, the average abnormal returns were determined and then tested. The empirical results will be discussed below per country of origin.

5.1.1 American Firms

Firstly, the abnormal returns were calculated for each individual firm per event date that was affected by the tariff. Then, the cumulated average abnormal returns for period [-1,1] and [-5,5] were determined and tested in order for me to study the effects of the relevant tariff. The results of the affected American firms by a Chinese tariff are represented below.

Table 5.1. Cumulated average abnormal returns and t-values per event date of American firms following the imposition of Chinese tariffs (US-CH)

In this table the cumulated average abnormal returns and their t-values are presented for each event date. The first column denotes the date of the imposition of a tariff. The second and third columns present the tariff magnitude and the number of observations, meaning the number of firms tested for that particular event date. The last two columns show the cumulated average abnormal returns and their corresponding t-value for the time frames [-1,1] and [-5,5]. The last row presents the event date study conducted for all the event dates in total and therefore all the affected firms used in this dataset.

Event date	Tariff	Obs.	CAAR(-1,1)	CAAR(-5,5)
02-04-2018	15%	50	-0.002	0.001
			(-0.115)	(-0.020)
06-07-2018	25%	148	0.001	-0.019
			(-0.060)	(-1.888)
23-08-2018	25%	529	0.000	0.004
			(0.024)	(-0.389)
24-09-2018	10%	1745	-0.018***	-0.034***
			(-4.867)	(-5.224)
	5%	1318	-0.015***	-0.031***
			(-4.032)	(-5.470)
01-06-2019	25%	1612	-0.004	-0.006
			(-1.211)	(-1.079)
	20%	1322	-0.006	-0.002
			(-1.543)	(-0.378)
	10%	1240	-0.005	-0.000
			(-1.309)	(-0.038)
	5%	874	-0.006	0.001
			(-1.418)	(0.085)
01-09-2019	10%	664	0.016***	0.029***
			(3.471)	(4.075)
	5%	799	0.011*	0.017**
			(1.862)	(2.012)
14-02-2020	5%	661	0.006	0.043***
			(0.970)	(5.136)
	2.5%	783	0.001	0.032***
			(0.204)	(3.357)
All		11744	-0.004***	-0.003
			(-3.393)	(-1.310)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

It can be seen that not a lot of the results are found to be significant. It seems that firms in the US were not that affected by the imposition of Chinese tariffs. The first event date that has some significant effect is the 24th of September 2018. It can be seen that the results are negative and significant at a 1% level. This is in line with the first hypothesis, since it is expected that the returns of a firm decrease after the imposition of a certain tariff. The other event dates that present significant results are all positive, which is not in line with the first hypothesis.

The fact that a lot of event dates are not significant, could be due to the number of observations being too low. However, looking at the 1st of June 2019, this does not seem to be the explanation. Another potential explanation could be tariff magnitude, since it seems to be that only the event dates with relatively low tariff levels find significant results. However, it should be noted that the tariffs of the 24th of September and the 1st of June are aimed at the exact same tariff lists and therefore the exact same products, which would rule out this explanation. The same holds for the 1st of September and the 14th of February, but this time both find significant results on the [-5,5] time frame. Therefore, for these two event dates only, it could be that these tariffs were placed on more important goods or goods with relatively bigger markets. Additionally, the lack of significance could be due to the fact that the affected industries in the United States are simply not that affected by the Chinese tariffs, which would be in line with the second hypothesis. One of the reasons why Trump started with the imposition of tariffs is because he wanted the US to be more self-sufficient. Thus, the US started imposing their tariffs with the aim to create higher demand for domestic goods by increasing the price of foreign, in this case Chinese, goods, to cut back the American trade deficit (BBC News, 2019a). So, when China imposed a tariff, the US was already prepared to be more self-sufficient, which could be part of an explanation for these findings.

The last event study that was conducted, represents the possibility of a country effect solely meaning an effect on all the affected industries studied in this paper. The CAARs of all the individual firms that were at least once affected by the imposition of one of the tariffs were jointly tested. The results show that only the CAAR(-1,1) is found to be significant. Therefore, on a timeframe of [-1,1], this could be an indication of the presence of a country effect, meaning in this case that individual firms in the affected industries in the United Stated did suffer from the protectionist tariffs from China. In conclusion, on this particular time frame, it seems that the negative and significant coefficient of -0.004 is in line with the first hypothesis.

When looking at the third hypothesis, it was necessary to conduct some additional tests. The firms were categorized according to the tariff magnitude and then a mean comparison test was executed. The results of this test can be found in Table 5.2. It can be seen that almost all differences are not found to be significant, which implies that the mean between two levels of tariffs do not

significantly differ from each other. A significant effect is only found between 2.5%-5% and 5%-10%, however this is not enough to be fully in line with the third hypothesis.

Table 5.2. Mean comparison test of cumulated average abnormal returns with tariff magnitude of American firms following the imposition of Chinese tariffs (US-CH)

This table presents the results from the mean comparison test based on tariff magnitude. The first column denotes the tariff magnitude. The second column presents the number of observations, meaning the number of firms tested for that particular level of tariff. The remaining columns show the results of the mean comparison tests for the time frames [-1,1] and [-5,5]. The third and fifth columns show the mean of the CAARs, while the fourth and sixth columns present the differences between the means and their corresponding t-values.

Tariff magnitude	Obs.	CAAR(-1,1)		CAAR(-5,5)	
		Mean	Difference	Mean	Difference
2.5%	782	0.001		0.032	
5%	3652	-0.003	0.004	0.000	0.031***
			(0.752)		(3.577)
10%	3649	-0.007	0.004	-0.011	0.012**
			(1.283)		(2.212)
15%	50	-0.002	-0.007	-0.001	-0.010
			(-0.280)		(-0.313)
20%	1322	-0.006	0.004	-0.002	0.001
			(0.200)		(0.043)
25%	2289	-0.003	-0.003	-0.006	0.004
			(-0.547)		(0.586)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

Additionally, a regression was conducted with the CAARs and tariff magnitude to further study the possibility of the (negative) impact increasing with the level of a tariff. These results can be found in the table below. As can be seen, the coefficient of tariff magnitude is negatively and significantly related to the CAAR(-5,5). This is, however, a bit surprising since the results from Table 5.1 suggested that only the lower tariffs had significant impact on the daily returns. But, as was stated before, tariff magnitude is in that case probably not the determining factor since it does not necessarily imply that the goods affected are more important or have relatively bigger markets. So, according to Table 5.3, the negative impact does increase significantly with tariff magnitude as was stated in the third hypothesis, but this only holds when looking at the timeframe of [-5,5]. The fact that Table 5.2 and 5.3 relatively show more insignificant results is not very surprising, since significant effects found in the event study (Table 5.1) were also very limited.

Table 5.3. Regression of cumulated average abnormal returns and tariff magnitude of American firms following the imposition of Chinese tariffs (US-CH)

This table shows the results of the regression with the cumulated average abnormal returns as independent variable and tariff magnitude as dependent variable. The first column denotes the variables, observations and adjusted R^2. The remaining columns show the coefficients found for the time frames [-1,1] and [-5,5] and their corresponding t-values.

	CAAR(-1,1)	CAAR(-5,5)
Tariff magnitude	-0.000	-0.003**
	(-0.27)	(-2.24)
Constant	-0.004	0.007
	(-1.23)	(1.44)
Observations	11744	11744
Adjusted R^2	0.000	0.000

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

When looking at the fourth hypothesis, the average CAARs of American firms were determined following their own imposition of tariffs regarding China. The results of these tests can be found in Table 5.4. It can be seen that almost all event dates are found to be significant. This implies that there could be an actual home effect. However, it should be taken into consideration that some tariffs are imposed by both China and the US on the exact same date. Therefore, this table does not only represent the home effect.

Table 5.4. Cumulated average abnormal returns and t-values per event date of American firms following the imposition of American tariffs (US-US)

In this table the cumulated average abnormal returns and their t-values are presented for each event date regarding a potential home effect. The first column denotes the date of the imposition of a tariff. The second and third columns present the tariff magnitude and the number of observations, meaning the number of firms tested for that particular event date. The last two columns show the cumulated average abnormal returns and their corresponding t-value for the time frames [-1,1] and [-5,5]. The last row presents the event date study conducted for all the event dates in total and therefore all the affected firms used in this dataset.

Event date	Tariff	Obs.	CAAR(-1,1)	CAAR(-5,5)
06-07-2018	25%	799	-0.012***	-0.026***
			(-3.064)	(-4.271)
23-08-2018	25%	464	-0.015**	-0.014
			(-2.413)	(-1.475)
24-09-2018	10%	1634	-0.017***	-0.038***
			(-4.052)	(-5.492)
10-05-2019	25%	1678	-0.008**	-0.034***
			(-2.423)	(-5.335)
01-09-2019	15%	760	0.009***	0.020***
			(2.682)	(2.776)
14-02-2020	7.5%	758	0.002	0.024**
			(0.263)	(2.546)
All		6093	-0.008***	-0.018***
			(-4.354)	(-5.872)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

When comparing Table 5.1 and 5.4, it can be seen that the 10th of May 2019, which is the only date that does not overlap with the Chinese imposition of tariffs, has a significant negative CAAR on both time frames. This could be an indication for a home effect to be present and therefore be aligned with the fourth hypothesis. Furthermore, it stands out that the 6th of July 2018 and the 23rd of August 2018 show different results. These event dates were not significant in the prior event study; however, they do have a significant and negative impact when looking at the home effect, which could be an indication for the presence of a home effect. Since the 24th of September 2018, the 1st of September 2019 and the 14th of February 2020 overlap with Table 5.1, there are no interpretations to be made regarding the effect on domestic firms. While the coefficients differ from each other, there are no clear conclusions to be made based on these three event dates. Finally, when looking at the last row in the table, it can be seen that there is a significant average effect of all the tariffs on all the individual American firms in the dataset. On both time periods the CAAR is negative and significant, which could point to the presence of an average home effect. Comparing these to the last row in Table 5.1, it stands out that the coefficients of the home effect are larger and therefore more negative. This implies that

domestic firms also hurt, and perhaps even more, following their own country's retaliation tariffs, and would therefore imply the existence of a possible home effect, which would be in line with the fourth hypothesis.

5.1.2 Chinese Firms

Again, the abnormal returns were calculated first for each individual firm per event date that was affected by a certain tariff. Then the cumulated average abnormal returns for period [-1,1] and [-5,5] were determined and tested to obtain their significance. The results of the affected Chinese firms by American tariffs are presented in the table below.

Table 5.5. Cumulated average abnormal returns and t-values per event date of Chinese firms following the imposition of American tariffs (CH-US)

In this table the cumulated average abnormal returns and their t-values are presented for each event date. The first column denotes the date of the imposition of a tariff. The second and third columns present the tariff magnitude and the number of observations, meaning the number of firms tested for that particular event date. The last two columns show the cumulated average abnormal returns and their corresponding t-value for the time frames [-1,1] and [-5,5]. The last row presents the event date study conducted for all the event dates in total and therefore all the affected firms used in this dataset.

Event date	Tariff	Obs.	CAAR(-1,1)	CAAR(-5,5)
06-07-2018	25%	865	-0.014***	-0.027***
			(-11.100)	(-9.945)
23-08-2018	25%	624	-0.012***	-0.038***
			(-9.133)	(-14.080)
24-09-2018	10%	1763	-0.019***	-0.080***
			(-25.539)	(-48.092)
10-05-2019	25%	1844	0.030***	0.003
			(27.393)	(1.304)
01-09-2019	15%	982	0.002*	0.007***
			(1.886)	(3.133)
14-02-2020	7.5%	995	0.025***	0.108***
			(16.324)	(31.770)
All		7073	0.004***	-0.009***
			(7.696)	(-7.723)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

The first thing that immediately stands out, is that almost all event dates find significant results at a 1% level, which is in contrast to Table 5.1. This is not very surprising, since it is in line with what was expected with the second hypothesis. There seems to be some evidence that Chinese firms indeed experience more impact from the American tariffs, than American firms experience from the Chinese tariffs. According to the first hypothesis, it is expected that individual firms experience a negative impact following the imposition of a tariff by the opposite country. This means that it is expected that the CAAR would be negative and significant as well. Although almost all event dates have significant CAAR values, it seems that half of the time the values are positive instead of negative. This is therefore not fully aligned with the first hypothesis. Merely the first three event dates find negative and significant impact on Chinese firms. This could be partially due to the fact that some tariffs overlap in date of imposition by both China and the US.

For the second hypothesis, an additional event study was conducted, which is presented in the last row of Table 5.5. It represents the possibility of a country effect, meaning in this context an effect on all the affected industries and firms studied in this paper. The CAARs of all the individual firms that were at least once affected by the imposition of one of the tariffs were jointly tested. The results show that both CAARs are found to be significant, which could imply the presence of a country effect. However, the CAAR(-1,1) is positive, which is not aligned with the first hypothesis and therefore also not aligned with the second hypothesis, since it was expected that this value would be (more) negative than the -0.004 that was found in Table 5.1. When looking at the CAAR(-5,5) of -0.009, it seems that the Chinese firms did experience a more negative impact than the American firms, but this holds only on the [-5,5] time frame.

For the third hypothesis, a set of additional tests were conducted. The firms were categorized according to the tariff magnitude and then a mean comparison test was executed. The results of this test can be found in Table 5.6. It can be seen that all means are found to significantly differ from each other. However, some means and/or differences are positive and some are negative, so this is still not enough to fully support the third hypothesis. From this table only, it cannot be said that the tariff magnitude is negatively related to the abnormal returns of individual firms in the affected industries.

Table 5.6. Mean comparison test of cumulated average abnormal returns with tariff magnitude of Chinese firms following the imposition of American tariffs (CH-US)

This table presents the results from the mean comparison test based on tariff magnitude. The first column denotes the tariff magnitude. The second column presents the number of observations, meaning the number of firms tested for that particular level of tariff. The remaining columns show the results of the mean comparison tests for the time frames [-1,1] and [-5,5]. The third and fifth columns show the mean of the CAARs, while the fourth and sixth columns present the differences between the means and their corresponding t-values.

Tariff magnitude	Obs.	CAAR(-1,1)		CAAR(-5,5)	
		Mean	Difference	Mean	Difference
7.5%	995	0.025		0.108	
10%	1763	-0.019	0.044***	-0.080	0.188***
			(28.985)		(55.622)
15%	982	0.002	-0.021***	0.007	-0.087***
			(-15.756)		(-31.101)
25%	3333	0.011	-0.008***	-0.012	-0.008***
			(-5.064)		(6.173)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

Therefore, an additional regression was conducted with the CAARs as dependent variables and tariff magnitude as independent variable to further study the possibility of the (negative) impact increasing with the level of a tariff. The results of this regression can be found in the table below. As can be seen, the coefficient of tariff magnitude is significant for both CAARs. However, when looking at the time frame [-1,1], it can be seen that the relation with tariff magnitude is positive. So, when looking at the CAAR(-5,5) only, the negative impact does increase significantly with tariff magnitude as was stated in the third hypothesis.

Table 5.7. Regression of cumulated average abnormal returns and tariff magnitude of Chinese firms following the imposition of American tariffs (CH-US)

This table shows the results of the regression with the cumulated average abnormal returns as independent variable and tariff magnitude as dependent variable. The first column denotes the variables, observations and adjusted R^2. The remaining columns show the coefficients found for the time frames [-1,1] and [-5,5] and their corresponding t-values.

	CAAR(-1,1)	CAAR(-5,5)
Tariff magnitude	0.002***	-0.013***
	(4.79)	(-12.34)
Constant	-0.003*	0.029***
	(-1.70)	(8.71)
Observations	7073	7073
Adjusted R^2	0.003	0.021

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

When looking at the home effect, the average CAARs of Chinese firms were determined following their own imposition of tariffs regarding the United States. The results of these tests can be found in Table 5.8. It can be seen that almost all event dates are found to be significant. This implies that there could be an actual home effect present. However, it should be taken into consideration that some tariffs are imposed by both China and the US on the exact same date. Therefore, this table does not only represent the home effect. When comparing Table 5.5 and 5.8, it can be seen that both show a fair amount of significant CAARs. When looking at the 2nd of April 2018, which is one of the two event dates that do not overlap with Table 5.5, it can be seen that the CAARs are both negative and significant on both time frames, which could imply the existence of a home effect. This means that when China imposed the 15% retaliation tariff aimed at the US, the domestic firms experience a negative impact as well. The second event date that does not overlap is the 1st of June 2019, it seems that domestic firms did experience some impact, however the CAARs are only negative on the [-5,5] time period. Furthermore, it stands out that the 1st of September 2019 shows different results. In Table 5.5 it can be seen that the coefficients are positive and significant, but when looking at the home effect, the coefficients are negative and significant. Therefore, this could also be an indication for the presence of a home effect. Since the other event dates overlap with Table 5.5, there are no interpretations to be made regarding the effect on domestic firms. While the coefficients differ from each other, there are no clear conclusions to be made based on these event dates. Finally, when looking at the last row in the table, it shows that there is a significant average effect of all the tariffs on all the individual Chinese firms in the dataset. On both time periods the CAAR is negative, which could imply the presence of an average home effect. Comparing these to the last row in Table 5.5, it can be seen that on the [-1,1] time frame the coefficient changed in sign (from positive to negative), and on the [-5,5] time frame the coefficient is quite larger and therefore more negative. Both imply that domestic firms hurt as well, and perhaps even more than the firms the retaliation tariffs were aimed at. This would then imply the presence of a home effect, which would be in line with the fourth hypothesis.

Table 5.8. Cumulated average abnormal returns and t-values per event date of Chinese firms following the imposition of Chinese tariffs (CH-CH)

In this table the cumulated average abnormal returns and their t-values are presented for each event date regarding a potential home effect. The first column denotes the date of the imposition of a tariff. The second and third columns present the tariff magnitude and the number of observations, meaning the number of firms tested for that particular event date. The last two columns show the cumulated average abnormal returns and their corresponding t-value for the time frames [-1,1] and [-5,5]. The last row presents the event date study conducted for all the event dates in total and therefore all the affected firms used in this dataset.

Event date	Tariff	Obs.	CAAR(-1,1)	CAAR(-5,5)
02-04-2018	15%	76	-0.017***	-0.047***
			(-3.666)	(-4.457)
06-07-2018	25%	240	-0.018***	-0.044***
			(-7.125)	(-9.989)
23-08-2018	25%	336	-0.012***	-0.039***
			(-6.598)	(-11.108)
24-09-2018	10%	1867	-0.019***	-0.081***
			(-25.602)	(-51.084)
	5%	1636	-0.019***	-0.084***
			(-23.190)	(-49.357)
01-06-2019	25%	1846	0.003***	-0.024***
			(3.452)	(-12.313)
	20%	1589	0.002**	-0.025***
			(2.096)	(-11.500)
	10%	1565	0.003**	-0.023***
			(2.441)	(-10.692)
	5%	1044	0.001	-0.024***
			(0.798)	(-9.027)
01-09-2019	10%	712	-0.002*	-0.020***
			(-1.922)	(-9.690)
	5%	627	-0.004***	-0.018***
			(-3.734)	(-8.435)
14-02-2020	5%	719	0.015***	0.076***
			(8.838)	(16.381)
	2.5%	633	0.016***	0.053***
			(7.999)	(10.558)
All		12890	-0.003***	-0.031***
			(-9.452)	(-37.708)

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

5.2 Difference-in-Difference Regression

To further analyze the true effect on individual firms by the imposition of tariffs caused by the US-China trade war, several difference-in-difference regressions were conducted. The regressions were done for both countries after the imposition of a tariff by the opposite country. The individual firms directly affected by a tariff were compared to a control group consisting of firms that are not in the targeted industries. The results of American firms after the imposition of Chinese tariffs are presented in Table 5.9. The more detailed results including the control variables used in the regressions can be found in the Appendix as Table 1.

Table 5.9. Results and t-values of the difference-in-difference regressions with American firms and Chinese tariffs per event date (US-CH)

In this table the results from the difference-in-difference regressions are presented for each event date. The first column denotes the variables used in the regression, the observations and the adjusted R^2. The *Daily return* rows show the date of the imposition of a tariff and their corresponding tariff magnitude. The remainder of this table presents the coefficients found in each regression and their corresponding t-value. The time dummy takes on the value of 0 when t = -5, and the value of 1 when t = 5. The treatment dummy takes on the value of 1 when the firm is directly affected by a tariff, and the value of 0 otherwise. The interaction dummy is an interaction term between the time and treatment dummy. It takes on the value of 1 when both the time and treatment dummy have a value of 1, in any other case it is equal to 0.

Daily return	02-04-2018	06-07-2018	23-08-2018	24-09-2018	24-09-2018
	15%	25%	25%	10%	5%
Time (D)	0.003	0.002	-0.005**	0.008**	0.008**
	(1.09)	(0.70)	(-2.41)	(2.34)	(2.45)
Treatment (D)	0.012	-0.002	0.002	0.003	0.002
	(0.86)	(-0.27)	(0.46)	(0.75)	(0.39)
Interaction (D)	-0.010	0.004	-0.003	-0.009	-0.005
	(-0.49)	(0.37)	(-0.54)	(-1.48)	(-0.80)
Constant	-0.006***	-0.001	0.003**	-0.006**	-0.006***
	(-3.72)	(-0.83)	(2.05)	(-2.52)	(-2.62)
Observations	5168	5324	5968	7864	7232
Adjusted R^2	0.002	-0.001	0.005	0.001	0.001
Daily return	01-06-2019	01-06-2019	01-06-2019	01-06-2019	01-09-2019
	25%	20%	10%	5%	10%
Time (D)	0.019***	0.019***	0.019***	0.019***	0.025***
	(7.52)	(7.45)	(7.46)	(7.28)	(11.12)
Treatment (D)	-0.001	-0.002	-0.002	-0.003	-0.007*
	(-0.41)	(-0.72)	(-0.71)	(-0.63)	(-1.72)
Interaction (D)	0.007	0.009*	0.009*	0.010	0.002
	(1.57)	(1.86)	(1.89)	(1.70)	(0.36)
Constant	-0.015***	-0.015***	-0.015***	-0.015***	-0.016***
	(-8.52)	(-8.43)	(-8.44)	(-8.24)	(-10.21)
Observations	7726	7316	7200	6684	6346
Adjusted R^2	0.013	0.013	0.013	0.012	0.023
Daily return	01-09-2019	14-02-2020	14-02-2020		
	5%	5%	2.5%		
Time (D)	0.025***	-0.013***	-0.013***		
	(10.84)	(-4.38)	(-4.36)		
Treatment (D)	-0.007*	0.003	-0.004		
	(-1.84)	(0.64)	(-0.78)		
Interaction (D)	0.004	-0.004	-0.005		
	(0.83)	(-0.50)	(-0.66)		
Constant	-0.016	-0.005	-0.005**		
	(-9.96)	(-2.48)	(-2.46)		
Observations	6486	6382	6524		
Adjusted R^2	0.023	0.003	0.004		

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

When looking at Table 5.9, it can be seen that only the constant and the dummy variable for time are found to be significant for most of the event dates. Both coefficients vary in being positive or negative depending on the event date. The dummy variable for time equals 1 when it is 5 days after the imposition of a tariff and equals 0 when it is 5 days before the imposition. The coefficient can be interpreted as increasing or decreasing the daily returns of individual firms after the imposition of a tariff relative to before the imposition. For example, when looking at the 23rd of August 2018, being

after the imposition decreases the daily return of individual firms by 0.005 relative to being 5 days before the event occurred. However, the variable of interest is the interaction dummy, which is a combination of the time and treatment dummy. Since the interaction dummy is not significant for each event date, there are no clear conclusions to be made about the true effect on individual firms within the targeted industries relative to those who are not, based on this difference-in-difference regression.

The same regressions are conducted for Chinese companies following the imposition of tariffs by the United States. The results of these difference-in-difference regressions are presented in Table 5.10. The more detailed results, including the control variables size, leverage and profitability, can be found in the Appendix as Table 2.

Table 5.10. Results and t-values of the difference-in-difference regressions with Chinese firms and American tariffs per event date (CH-US)

In this table the results from the difference-in-difference regressions are presented for each event date. The first column denotes the variables used in the regression, the observations and the adjusted R^2. The *Daily return* rows show the date of the imposition of a tariff and their corresponding tariff magnitude. The remainder of this table presents the coefficients found in each regression and their corresponding t-value. The time dummy takes on the value of 0 when t = -5, and the value of 1 when t = 5. The treatment dummy takes on the value of 1 when the firm is directly affected by a tariff, and the value of 0 otherwise. The interaction dummy is an interaction term between the time and treatment dummy. It takes on the value of 1 when both the time and treatment dummy have a value of 1, in any other case it is equal to 0.

Daily return	06-07-2018	23-08-2018	24-09-2018	10-05-2019
	25%	25%	10%	25%
Time (D)	0.016***	-0.024***	-0.009***	0.002*
	(14.23)	(-20.47)	(-7.47)	(1.74)
Treatment (D)	0.036***	-0.006***	-0.031***	0.011***
	(32.06)	(-4.77)	(-30.82)	(9.51)
Interaction (D)	-0.051***	0.012***	0.033***	-0.053***
	(-32.22)	(6.59)	(23.55)	(-33.30)
Constant	-0.003***	-0.002**	0.009***	-0.001
	(-4.16)	(-2.19)	(10.98)	(-1.12)
Observations	3526	3042	5242	5296
Adjusted R^2	0.277	0.139	0.205	0.392
Daily return	01-09-2019	14-02-2020		
	15%	7.5%		
Time (D)	-0.007***	-0.009***		
	(-6.41)	(-7.94)		
Treatment (D)	-0.024***	-0.004***		
	(-23.28)	(-2.99)		
Interaction (D)	0.045***	0.006***		
	(30.60)	(3.78)		
Constant	0.007***	0.013***		
	(9.29)	(15.71)		
Observations	3666	3698		
Adjusted R^2	0.282	0.018		

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

When looking at Table 5.10, it can be seen that there are several more significant coefficients found for Chinese firms relative to American firms. Even the variable of interest, which is the interaction dummy of the dummy variables time and treatment, is found to be significant for all event dates. As said before, the time dummy can be interpreted as increasing or decreasing the daily returns

of individual firms after the imposition of a tariff relative to before the imposition. So, when looking at the 6th of July 2018, being after the imposition increases the daily return of individual firms by 0.016 relative to being 5 days before the event occurred. The dummy variable for treatment equals 1 when the firm falls within the by tariff targeted industries and equals 0 when it does not. It can be interpreted as increasing or decreasing the daily returns of individual firms when being in the treatment group, and therefore directly targeted by a tariff, relative to being in the control group, and therefore not directly targeted. For example, when looking at the 6th of July again, being directly targeted by a tariff based on the industry you are in, increases the daily return of individual firms by 0.036. The interaction dummy, which is the variable of interest, represents the true effect of the imposition of tariffs caused by the US-China trade war on individual firms within the targeted industries relative to those who are not. The interaction term takes on the value of 1 when the time and treatment dummy are both equal to 1, in any other case it takes on the value of 0. It can be interpreted as increasing or decreasing the daily returns of individual firms when being after the imposition of a tariff and directly targeted by it. For example, when looking at the 6th of July 2018, being in the treatment group after the imposition of a tariff decreases the daily return of an individual firm by 0.051. So, for this event date specific, being directly targeted by a tariff significantly decreases the daily return of an individual firm after the tariff was imposed. This would be in line with the first hypothesis, since the tariff that was imposed on the 6th of July has direct influence on the daily returns of the affected firms. As can be seen in Table 5.10, for each event date the interaction term is found to be significant. However, it stands out that it is found to be negative as well as positive. The positive coefficients that are found imply that the daily returns of affected firms have significantly increased after the imposition of a tariff, which is not in line with the first hypothesis. This could be partially due to the overlap in event dates for both countries, which should be taken into consideration. The negative impact of a tariff is only found for the 6th of July 2018 and the 10th of May 2019, which is in accordance with the first hypothesis. When looking at the second hypothesis, it stands out that the interaction term is more often found to be significant for Chinese firms relative to American firms. This could be an indication for Chinese firms to be hurt more by the imposition of a tariff relative to firms from the United States, which would be in line with the second hypothesis. However, there is not enough empirical evidence to make this conclusion.

CHAPTER 6 Conclusion

In this last chapter, conclusions are made about the effect of the imposition of tariffs caused by the US-China trade war on individual firms from the United States and China. The main results will be discussed in the first section. Additionally, the limitations of this research are considered and recommendations for future research are presented.

6.1 Conclusion

To conclude, the aim of this paper was to analyze the effect of the imposition of a tariff resulting from the US-China trade war on individual firms from both the United States and China. When looking at the first hypothesis, it is found that the imposition of a tariff does have a negative impact on the daily returns of individual firms from the opposite country in some cases. However, this negative effect is not found for all event dates studied in this paper. Especially the results of American firms were mostly insignificant, and even when the results were found to be significant, the coefficient varied in sign across the event dates. When looking at Chinese firms, the effect of the imposition of a tariff seemed to be more often significant, but also varied in being positive or negative across event dates. Therefore, the negative impact of the imposition of a tariff on individual firms from the opposite country is only found for some event dates. These conclusions can be made based on both the event date study and the difference-in-difference regression.

When looking at the second hypothesis, there is not enough empirical evidence to conclude that Chinese firms experience more negative impact relative to American firms after the imposition of a tariff. The fact that the number of significant results in both the event date study and the difference-in-difference regressions is higher for Chinese firms, can only be used as an indication. Furthermore, the event date study with all firms from all event dates combined, showed that the coefficient found for Chinese firms was more negative relative to the one found for American firms, but this only holds for the [-5,5] time frame.

With the third hypothesis this paper aimed to analyze whether the level of a tariff mattered for the impact it had on the daily returns of individual firms. It is found that according to the regression with tariff magnitude as independent variable, the negative impact on daily returns does increase with the level of a tariff for both American and Chinese firms. This, however, only holds for the [-5,5] time frame, which is not fully aligned with the hypothesis. According to the mean comparison tests, only some of the differences are found to be significant, and these differ in being positive or negative. The same holds for the [-1,1] time frame in the tariff magnitude regressions. These conclusions can be made based on both countries.

The fourth and last hypothesis was about the existence of a possible home effect, meaning that domestic firms could hurt as well from the imposition of their own country's tariffs. The results

show that for both countries there seems to be a significant effect of the imposition of tariffs on domestic firms for at least some of the event dates. However, it should be taken into consideration that some of the tariffs were imposed on the exact same date by both the United States and China, and therefore the coefficients do not always show a pure home effect. In addition, some significant results are also found to be positive, which implies the exact opposite of the hypothesis, namely that the daily returns of domestic firms improve after the imposition of their own country's tariffs. When looking at the total effect on domestic firms for which all the event dates are combined, it can be seen that for both countries the effect is significant and negative. This could point to the existence of a home effect, but there is not enough empirical evidence to make this conclusion.

The main research question can be answered as follows. Although the effects on the daily returns of individual firms differ across event dates, it can be seen that mostly Chinese firms are affected by the imposition of a tariff, based on the event date study. The results of American firms tend to show less significant coefficients. Furthermore, with the hypotheses it was expected that the imposition of a tariff would have a negative impact on the daily returns. However, since the results show negative as well as positive coefficients, there is not enough empirical evidence to make clear conclusions about the impact itself and whether it affects daily returns more negative or positive in general. The additional difference-in-difference regressions somewhat confirmed the outcomes of the event date study. The interaction term was mostly insignificant for American firms, but significant for Chinese firms. This implies that the daily returns of the directly affected Chinese firms were impacted by the imposition of tariffs by the United States, relative to the non-affected Chinese control group that was included. However, again, the results differed in being negative or positive, which is why there is not enough empirical evidence to make general conclusions regarding the manner in which the daily returns were truly affected.

6.2 Limitations

Since there are quite a few event dates on which both countries imposed tariffs, some of the effects that are found in this study are not entirely clean and therefore do not purely represent the effect of the imposed tariff. This implies that some of the results could possibly be slightly biased. Furthermore, this study used a subset of firms that were available through their ICB classification. This however only partially represents the affected firms, since not all of the affected firms were available via this method. Additionally, since the affected products of the tariffs were indicated with HS codes, all the used firms had to be re-categorized to make sure they fitted the SIC codes. This was mainly done manually, since there is no clear way to rewrite HS codes into SIC codes, which could indicate some small categorization errors. Finally, for the difference-in-difference regression it could have been useful to match firms from the treatment group with firms from the control group individually. This was not done for this research, since it controlled for size, leverage and profitability within the

regressions. However, perhaps individually matching these firms could present a somewhat different outcome.

6.3 Recommendations

For future research, it could be interesting to include more and different firms into the research. The number of firms is not necessarily a useful addition but selecting firms in a different way and therefore not only include the ones available through the ICB classification system could lead to different results. Furthermore, this research could be extended by looking more specifically into products instead of sub-industries using the four-digit SIC codes. This could then lead to conclusions about the way certain producers are hit, instead of entire sub-sectors. In addition, it could be interesting to extend this study by also including the announcement dates of the tariffs, instead of just the impositions of tariffs.

When looking at the methodology, individually matching firms based on control variables for the difference-in-difference regressions could be more useful. This would perhaps lead to more pure results in comparing the treatment group to the control group.

Lastly, this research does not aim to study the more general financial and economic impact resulting from the US-China trade war. Further research could therefore focus more on the overall impact on a country's society, and not just the reaction of the market in terms of daily returns.

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APPENDIX

Table 1. Detailed results and t-values of the difference-in-difference regressions with American firms and Chinese tariffs per event date (US-CH)

In this table the detailed results from the difference-in-difference regressions are presented for each event date. The first column denotes the variables used in the regression, the observations and the adjusted R^2. The *Daily return* rows show the date of the imposition of a tariff and their corresponding tariff magnitude. The remainder of this table presents the coefficients found in each regression and their corresponding t-value. The time dummy takes on the value of 0 when t = -5, and the value of 1 when t = 5. The treatment dummy takes on the value of 1 when the firm is directly affected by a tariff, and the value of 0 otherwise. The interaction dummy is an interaction term between the time and treatment dummy. It takes on the value of 1 when both the time and treatment dummy have a value of 1, in any other case it is equal to 0.

Daily return	02-04-2018	06-07-2018	23-08-2018	24-09-2018	24-09-2018
	15%	25%	25%	10%	5%
Time (D)	0.003	0.002	-0.005**	0.008**	0.008**
	(1.09)	(0.70)	(-2.41)	(2.34)	(2.45)
Treatment (D)	0.012	-0.002	0.002	0.003	0.002
	(0.86)	(-0.27)	(0.46)	(0.75)	(0.39)
Interaction (D)	-0.010	0.004	-0.003	-0.009	-0.005
	(-0.49)	(0.37)	(-0.54)	(-1.48)	(-0.80)
Size	-0.000	0.000	0.000	0.000	-0.000
	(-0.58)	(0.58)	(0.25)	(0.24)	(0.15)
Leverage	0.000***	0.000	0.000***	-0.000**	-0.000**
	(3.98)	(1.41)	(5.36)	(-2.04)	(-2.11)
Profitability	0.000	-0.000	-0.000	0.000	0.000
	(0.17)	(-0.25)	(-0.06)	(0.42)	(0.44)
Constant	-0.006***	-0.001	0.003**	-0.006**	-0.006***
	(-3.72)	(-0.83)	(2.05)	(-2.52)	(-2.62)
Observations	5168	5324	5968	7864	7232
Adjusted R^2	0.002	-0.001	0.005	0.001	0.001
Daily return	01-06-2019	01-06-2019	01-06-2019	01-06-2019	01-09-2019
	25%	20%	10%	5%	10%
Time (D)	0.019***	0.019***	0.019***	0.019***	0.025***
	(7.52)	(7.45)	(7.46)	(7.28)	(11.12)
Treatment (D)	-0.001	-0.002	-0.002	-0.003	-0.007*
	(-0.41)	(-0.72)	(-0.71)	(-0.63)	(-1.72)
Interaction (D)	0.007	0.009*	0.009*	0.010	0.002
	(1.57)	(1.86)	(1.89)	(1.70)	(0.36)
Size	0.000	0.000	0.000	0.000	-0.000
	(0.45)	(0.36)	(0.36)	(0.38)	(-0.59)
Leverage	-0.000	-0.000	-0.000	-0.000	-0.000
	(-1.10)	(-1.09)	(-1.10)	(-1.08)	(-0.27)
Profitability	-0.000	-0.000	-0.000	-0.000	0.000
	(-0.04)	(-0.04)	(-0.04)	(-0.03)	(0.02)
Constant	-0.015***	-0.015***	-0.015***	-0.015***	-0.016***
	(-8.52)	(-8.43)	(-8.44)	(-8.24)	(-10.21)
Observations	7726	7316	7200	6684	6346
Adjusted R^2	0.013	0.013	0.013	0.012	0.023
Daily return	01-09-2019	14-02-2020	14-02-2020		
	5%	5%	2.5%		
Time (D)	0.025***	-0.013***	-0.013***		
	(10.84)	(-4.38)	(-4.36)		
Treatment (D)	-0.007*	0.003	-0.004		
	(-1.84)	(0.64)	(-0.78)		
Interaction (D)	0.004	-0.004	-0.005		
	(0.83)	(-0.50)	(-0.66)		
Size	-0.000	-0.000	-0.000		

	(-0.58)	(-0.57)	(-0.54)
Leverage	-0.000	-0.000	-0.000
	(-0.26)	(-0.06)	(-0.06)
Profitability	0.000	-0.000	-0.000
	(0.02)	(-0.78)	(-0.78)
Constant	-0.016	-0.005	-0.005**
	(-9.96)	(-2.48)	(-2.46)
Observations	6486	6382	6524
Adjusted R^2	0.023	0.003	0.004

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*

Table 2. Detailed results and t-values of the difference-in-difference regressions with Chinese firms and American tariffs per event date (CH-US)

In this table the detailed results from the difference-in-difference regressions are presented for each event date. The first column denotes the variables used in the regression, the observations and the adjusted R^2. The *Daily return* rows show the date of the imposition of a tariff and their corresponding tariff magnitude. The remainder of this table presents the coefficients found in each regression and their corresponding t-value. The time dummy takes on the value of 0 when t = -5, and the value of 1 when t = 5. The treatment dummy takes on the value of 1 when the firm is directly affected by a tariff, and the value of 0 otherwise. The interaction dummy is an interaction term between the time and treatment dummy. It takes on the value of 1 when both the time and treatment dummy have a value of 1, in any other case it is equal to 0.

Daily return	06-07-2018	23-08-2018	24-09-2018	10-05-2019
	25%	25%	10%	25%
Time (D)	0.016***	-0.024***	-0.009***	0.002*
	(14.23)	(-20.47)	(-7.47)	(1.74)
Treatment (D)	0.036***	-0.006***	-0.031***	0.011***
	(32.06)	(-4.77)	(-30.82)	(9.51)
Interaction (D)	-0.051***	0.012***	0.033***	-0.053***
	(-32.22)	(6.59)	(23.55)	(-33.30)
Size	0.000	-0.000	-0.000	0.000
	(1.53)	(-0.20)	(-0.15)	(0.56)
Leverage	0.000	0.000	-0.000	-0.000
	(0.76)	(1.43)	(-1.14)	(-1.06)
Profitability	-0.000	0.000	0.000	0.000
	(-0.79)	(0.21)	(0.23)	(0.41)
Constant	-0.003***	-0.002**	0.009***	-0.001
	(-4.16)	(-2.19)	(10.98)	(-1.12)
Observations	3526	3042	5242	5296
Adjusted R^2	0.277	0.139	0.205	0.392
Daily return	01-09-2019	14-02-2020		
	15%	7.5%		
Time (D)	-0.007***	-0.009***		
	(-6.41)	(-7.94)		
Treatment (D)	-0.024***	-0.004***		
	(-23.28)	(-2.99)		
Interaction (D)	0.045***	0.006***		
	(30.60)	(3.78)		
Size	-0.000*	-0.000		
	(-1.90)	(-1.06)		
Leverage	0.000	0.000		
	(0.62)	(0.92)		
Profitability	0.000	-0.000		
	(0.52)	(-1.09)		
Constant	0.007***	0.013***		
	(9.29)	(15.71)		
Observations	3666	3698		
Adjusted R^2	0.282	0.018		

**** is consistent with p < 0.01, ** is consistent with p < 0.05 and * is consistent with p < 0.10.*