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The Impact of the Sino-US Trade War on Chinese Trading Companies

par

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Résumé

Depuis le début de l'année 2018, le président des États-Unis a imposé une série de tarifs douaniers sur de nombreux produits chinois, et la Chine a réagi en faisant de même. Ces événements sembleraient avoir poussé les firmes chinoises d'import et d'export à ajuster leurs chaines d'approvisionnement et à trouver de nouveaux partenaires, mais les preuves supportant ces affirmations restent limitées. L'objectif de ce mémoire est de mieux comprendre l'influence des changements de tarifs douaniers sur la gestion de la chaine d'approvisionnement, et d'identifier les stratégies, outils ou pratiques utilisées pour contenir ces incertitudes. Une approche de recherche exploratoire a été privilégiée en conduisant des entrevues semi-structurées auprès de participants chinois provenant à la fois de firmes d'import et de firmes d'export affectées par les changements tarifaires, et de firmes qui ne le sont pas. Les firmes affectées par ces changements démontrent une augmentation de leurs coûts opérationnels. Par conséquence, il y a trois influences qui ont affecté les compagnies d'export : une réduction de compétitivité, une réduction de demande, ainsi qu'une réduction de la marge de profit. De leur côté, les compagnies d'importation ont souffert d'interruptions de leur chaine d'approvisionnement ainsi que d'une réduction de leur marge de profit. Les firmes ont alors adopté seize stratégies divisées entre réactive et proactive pour répondre à ce changement.

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Mots-clés: Commerce international, Tarif douaniers, Incertitudes, Chine, Les États-Unis, Guerre commerciale, Import-export

Abstract

Since early 2018, the president of the U.S. imposed a series of tariffs on Chinese products and China retaliated by also imposing such tariffs on many products. It has been conjectured that these events should encourage Chinese trading companies to adjust their supply chain or find new partners, but empirical evidence remains limited. The objective of this thesis is to better understand the influences of tariff changes on supply chain management and to identify the supply chain strategies, tools or practices used to manage these uncertainties. Exploratory research through semi-structured interviews has been performed with participants from Chinese trading companies which have both been influenced and not influenced by the tariff changes. Both importing and exporting companies being affected share one influence in common, which is an increase in costs. Consequently, there are three main influences that affected exporting companies: competitiveness reduction, demand reduction, and profit margin reduction. Also, the importing companies suffered from supply chain disruptions and profit margin reduction. The firms have adopted sixteen strategies, that were divided into reactive and proactive strategies.

Keywords: International Trade, Tariffs, Uncertainties, China, the U.S., Trade war, Import and export

Table of Contents

List of Tables and Figures

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Chapter 1 Introduction

On January 22nd, 2018, Donald Trump imposed a 30% tariff on solar panels which is a product mainly imported from Chinese companies (Tan 2018). About a month later, on March 1st, Trump put into place a 25% and 10% tariff on steel and aluminum imports, respectively (Tan 2018). Although only 6% of steel consumed in the U.S. originates from China, China announced that it would take retaliatory actions (Tan 2018). On March 22nd, Trump imposed tariffs on $60 billion worth of Chinese imports for alleged trade practices that involve stealing American companies' intellectual property. These goods being targeted were mainly retail and tech products (Kapadia 2018). Not long after, on April 2nd, China imposed retaliatory tariffs of between 15% to 20% on 128 products from the U.S. estimated to a total value of $3 billion (Kapadia 2018). On April 16th, the U.S. government penalized a Chinese telecom company, Zhongxing Telecommunication Equipment Corporation (ZTE), with a seven-year exporting ban (Tan 2018). The next day, China imposed 178.6% of antidumping tariffs on American produced sorghum (Wong and Koty 2019). In May, there was an unofficial pause in the tariff fluctuations since Trump promised to offer help to ZTE (Kapadia 2018).

However, on May 29th, the U.S. government suddenly imposed a series of 25% tariffs on Chinese products (Kapadia 2018). The total value of these tariffs is estimated to around $50 billion (Kapadia 2018). On June 7th, ZTE and the U.S. government reached an agreement to resume work (Wong and Koty 2019). Nonetheless, the U.S. and China imposed another $34 billion worth of tariffs to each other on July 6th, followed by the U.S. putting another $200 billion worth of tariffs on July 10th (Kapadia 2018). Trump imposed a series of 25% tariffs on August 7th and later imposed tariffs on $200 billion worth of Chinese products (Kapadia 2018). As shown in Figure 1.1.1., the tariffs between China and the U.S. fluctuated frequently during the past year.

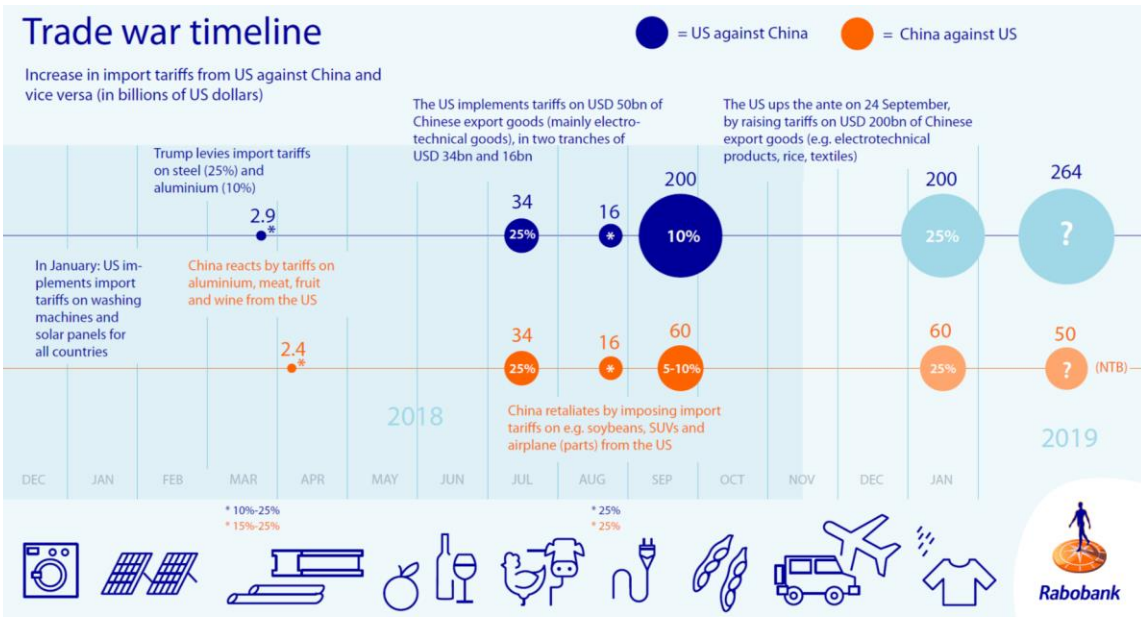

Figure 1.1.1. Trade War Timeline

Source: Rabobank ("Trade War Timeline" 2018).

On December 1st, China and the U.S. agreed on a truce for 90 days, which was until March 1st, 2019 (Kapadia 2018). Later on, China announced a temporary tariffs reduction on American automobiles (Wong and Koty 2019). The new policy removes 25% tariffs on automobiles and 5% tariffs on auto parts (Wong and Koty 2019). The reduction started on January 1st and would last three months (Wong and Koty 2019). Moreover, starting January 7th, China and the American delegations engaged in the discussion of trades in Beijing for three days (Wong and Koty 2019).

Looking at the tariff fluctuations in total, the U.S. imposed $250 billion worth of tariffs targeting specifically China (Wong and Koty 2019). In contrast, China applied $110 billion worth of tariffs exclusively to the U.S. (Wong and Koty 2019).

These tariff fluctuations have had many influences on Chinese trading companies, and in reaction, they adopted diverse supply chain strategies to counteract the issue and stay competitive. However, the influences and strategies implemented are not well understood in the current literature, especially from the perspective of Chinese trading companies. Therefore, this research aims to fill a gap in the literature.

This thesis will focus on “what are the influences of constantly changing tariffs on the supply chain of trading companies” and “what are the strategies companies adopt to handle these uncertainties”. Through semi-structured exploratory research method, we have interviewed two companies in each of the four categories: exporting companies directly influenced by tariff changes, exporting companies not directly influenced by tariff changes, importing companies directly influenced by tariff changes, and importing companies not directly influenced by the tariff changes. All participants were the owners or the top managers who were employed at least two years in the selected companies to ensure knowledge of strategic questions.

The remainder of the thesis is organized as follow. In Chapter 2, we provide an overview of the literature on tariffs’ direct effect and the uncertainties including tariff fluctuations and their implication for supply chain strategy. In Chapter 3, we present the methodology that will be used in this thesis In Chapter 4, a description of the interviewed companies and participants will be provided. In Chapter 5, the influences of tariff changes on both exporting companies and importing companies will be discussed. In Chapter 6, the strategies implemented by the companies are presented by two types: reactive strategies and proactive strategies. In chapter 7, limitation and conclusion of the thesis will be discussed.

Chapter 2 Literature Review

Both China and the United States have primarily relied on import tariffs to restrict trade during the Sino-U.S. trade war. Thus, the literature review focuses on the impact of tariffs on trading companies' behaviors.

According to Bhutta (2001), trade barriers are implemented by countries mainly to make foreign products appear: expensive, unavailable, and unattractive. By imposing tariffs as a barrier, the price of most imported products will be influenced. Customers may switch to local products with price advantages. Also, the implementation of trade quotas, which limit the quantity of imports, will reduce the availability of a product. Many other regulations encourage the purchase of local products, which decrease the attractiveness of imported products. Not only these policies will reduce the sales volume of imported products, but they are also uncertainties to international trading companies which will influence their decision making. Companies might consider producing in the exporting country instead, in order to avoid the uncertainty and the consequent costs (Bhutta 2001).

The current trade war affects exporting and importing companies in two distinct ways. On the one hand, tariffs may affect trading companies directly by increasing the price of imports and exports. On the other hand, tariffs may go hand-in-hand with uncertainty about future trade policy movements. The duration of the trade war is highly unpredictable, which increases the possibility of uncertainty occurrence. These uncertainties are not limited to tariff changes, other factors that are related to tariff changes, such as exchange rate uncertainty, may also influence trading companies. Therefore, exploring the studies on the influences of uncertainties is essential to this thesis, as well as understanding the source of uncertainty. As for trading companies, the focus also should not be only tariff changes. Paying more attention to the other uncertainties will improve the resilience level of the supply chain.

In this section, we provide an overview of the most relevant literature concerning these two effects. At the end of this chapter, the gap in the literature is also discussed.

1. The Direct Effect of Tariffs

In general, the direct influence of tariffs is the increased price of imported products. The price is higher for both new and existing products, and the possibility of products disappearance is also higher (Hejazi, Grant, and Peterson 2017). Moreover, the influence of tariffs is not only on the price of imports but also on the price of the domestic product.

The literature on the direct effects is mainly around the theory of tariff pass-through, which measures the extent of tariffs passed on to the domestic market price. In this section, we will discuss the mechanism of tariff pass-through in different situations in order to understand the extent of influences on the selling prices of international trading companies.

2.1. Tariff Pass-through

The basic mechanism of tariff changes can be explained based on the standard supply and demand model often used in international trade textbooks (Amiti, Redding, and Weinstein 2019). When a tariff is implemented, the price of the foreign product increases and therefore the price consumers pay increases (Amiti, Redding, and Weinstein 2019). However, the amount of increase in price is related to the theory of tariff pass-through, which could be either complete or incomplete depending on the elasticity of the products and the strategy implemented by international trading companies (Fajgelbaum et al. 2019).

Depending on the strategy implemented to counteract tariff changes, the pass-through from tariffs to price could be variable (Ludema and Yu 2016). When the foreign companies decided to alter their product quality and selling price after tariff changes, distortion was created in terms of tariff pass-through. Essentially, it is no longer the identical product on the market, along with the price difference, the measurement of tariffs pass-through is influenced (Ludema and Yu 2016). However, it is a case by case situation. In this section, we primarily focus on the elasticity of the product with respect to tariffs to explain this variation.

2.1.1. Complete Tariff Pass-through

International trade theory suggests that a firm completely passes the tariff to domestic prices when a product's supply is perfectly elastic. In this case, the product's supply curve is a horizontal line (see S in Figure 2.1.1.) (Amiti, Redding, and Weinstein 2019). Therefore, the implementation of tariffs does not lead affect foreign supply. It only causes domestic consumers to lose due to a distortion between the domestic and foreign price (Region B in Figure 2.1.1.) (Amiti, Redding, and Weinstein 2019).

In the case of a perfectly elastic product, the tariff pass-through is complete. After the implementation of tariff τ, the domestic prices increase by the same number as the tariff (see Figure 2.1.1.). Since there is no gap between the domestic price and imported price, the foreign company does not need to reduce its price. Therefore, the entire amount of tariff is passed onto

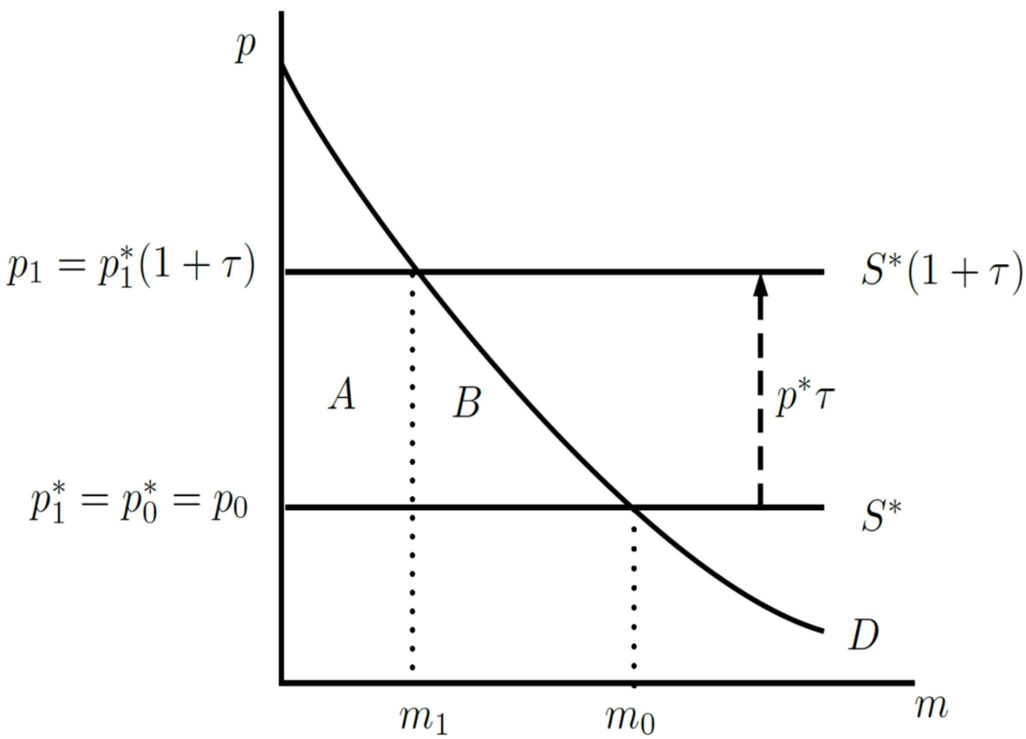

Figure 2.1.1. Tariff Influences of Perfectly Elastically Supplied Products

Source: The Impact of the 2018 Trade War on U.S. Prices and Welfare (Amiti, Redding, and Weinstein 2019) the price selling to domestic customers, which results in a complete tariff pass-through (Amiti, Redding, and Weinstein 2019).

2.1.2. Incomplete Tariff Pass-through

Nonetheless, in most cases, the extent of tariff pass-through is incomplete. For example, as shown in Figure 2.1.2., when the tariff τ is implemented, the price of imported products increases (from P^* to $P^*(1+\tau)$), but the domestic price increased less than the tariff. Thus, the government gains tariff revenue (region A and B in Figure 2.1.1.) and the foreign suppliers obtain an extra producer surplus (region C). Since tariffs also cause distortion in consumption, the customers who continue to purchase imported products not only pay extra for the tariff increases (region A), but also bear a deadweight welfare loss (region B) (Amiti, Redding, and Weinstein 2019).

As shown in Figure 2.1.2., there is a gap between the domestic price and the price of imported products. Consequently, the demand for an imported product decreases. Thus, in order to stay competitive in the domestic market, foreign firms may need to reduce their prices or implement other strategies. Therefore, the tariff is not entirely passed onto the domestic price paid by customers, which is an incomplete tariff pass-through (Amiti, Redding, and Weinstein 2019).

During a trade war, both imports and exports could be targeted by tariffs indeed. Similar mechanisms also occur on the exports' side, but the scholars tend to discuss the issue from the general perspective of trading companies instead of differentiating exporting companies from importing companies. For export products, the level of pass-through also depends on the elasticity and the strategy implemented. When the product is elastic enough, the level of tariff pass-through is high, which reduced the companies' possibility of necessary price reduction since most of the increases in tariff are passed onto the domestic price.

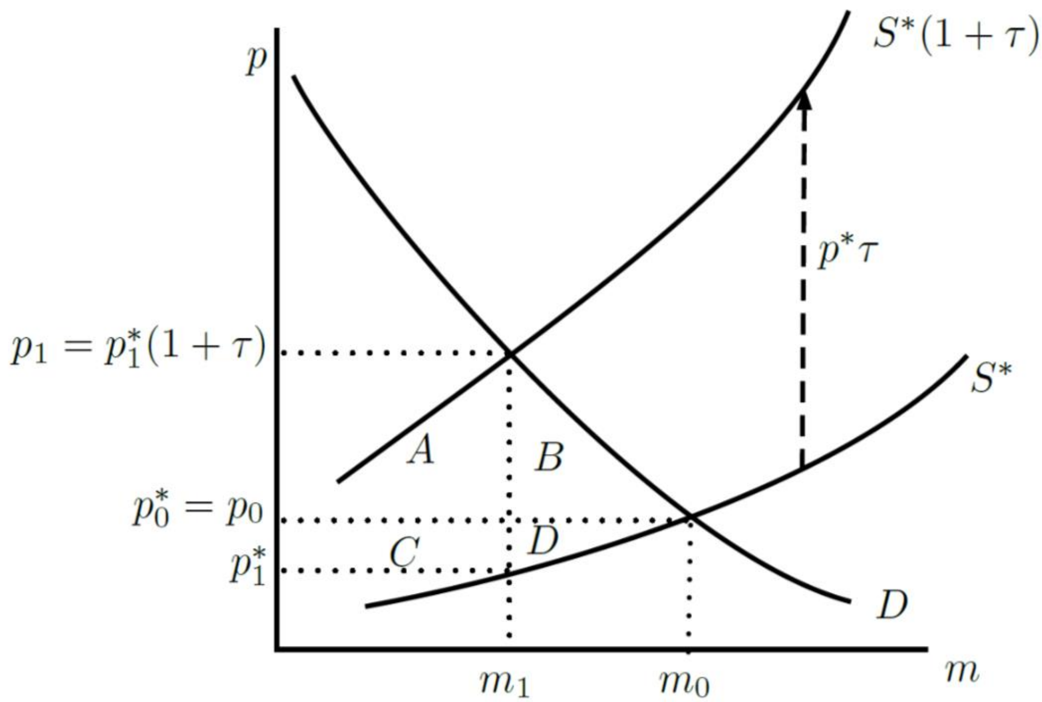

Figure 2.1.2. Tariff Mechanism

Source: The Impact of the 2018 Trade War on U.S. Prices and Welfare (Amiti, Redding, and Weinstein 2019)

In conclusion, understanding the degree of tariff pass-through is important for trading companies. When the companies are unable to pass the tariffs onto the market, they may need to reduce their prices since they are less competitive in the domestic market. However, even if with complete tariff pass-through, the trading companies still need to take cautious actions for uncertainties during a trade war.

2. The Uncertainties for Trading Companies

The current Sino-US trade war has not only increased tariffs but also uncertainties about the future relation. The trade war will continue to increase uncertainties because both the duration and the consequences cannot be predicted accurately. Furthermore, further uncertainties can include other trade policies more than tariffs. Therefore, for trading companies, the current tariffs should not be the only focus, especially in the long run. The uncertainty about future trade policies will largely influence companies' strategical decisions. In addition, the influences of uncertainties and the prevention methods of uncertainties are not always limited to a single type of uncertainty. Thus, understanding the source of uncertainty is essential to trading companies. Although this thesis is focusing on a specific type of uncertainty, which is the trade policy uncertainty, it can be useful to look at the other types of uncertainties and understand their impacts on the supply chain.

Uncertainty is related to many supply chain management terms including risk management and resilience. The range of uncertainty is wide, which includes incidents from weather change, an earthquake, or a terrorist attack (Sheffi 2015). This chapter includes a broad description of the common uncertainties faced by trading companies, a description of the methods to categorize uncertainties, the theories related to liability of foreignness, and an overview of tariff related disruptors.

2.1. The Sources of Uncertainties

The discussion of this section is based on the journal article "Supply-chain uncertainty: a review and theoretical foundation for future research", which identifies 14 sources of uncertainties, including product characteristics, manufacturing process, control/chaos, decision complexity, organization behaviors, IT/IS complexity, end-customer demand, demand amplification, supplier, parallel interaction, order forecast horizon, chain configuration and infrastructure and facilities, environment, and disaster that may create turbulence in a company (Simangunsong, Hendry, and Stevenson 2012). Most importantly, the article provides a summary of strategies to cope with such uncertainties such as lean operation, collaboration, and having multiple suppliers.

The first source of uncertainties is the unique characteristics of some products, which are specification, packaging, life-cycle, perishability, and variety (Simangunsong, Hendry, and Stevenson 2012). Product specification such as size and color are customized during production which targets specific customer base (Simangunsong, Hendry, and Stevenson 2012; van Donk and van der Vaart 2005). Companies handling products with a higher level of specification typically have a bigger lead-time gap (the gap between the lead time of logistics and order cycle of customers), so they are more likely to come up against uncertainties and require supply chain integration (van Donk and van der Vaart 2005). Similarly, unpredictable packaging requirements generate uncertainties of the product handling time, and the perishability creates uncertainties in terms of volume (Jack G. A. J. van der Vorst and Beulens 2002). Fisher discussed two sources of uncertainties that frequently appear in innovative companies, which are short product life cycle and high variety level (Fisher 1997). Although innovative products are lucrative, the threat of imitators shorten the product life cycle, and along with the difficulties in managing the variety of products, the possibility of uncertainties is largely increased (Fisher 1997).

There are four types of uncertainties that can happen during the manufacturing process: machine breakdowns, labor unrest, output volume, and employee safety (Simangunsong, Hendry, and Stevenson 2012; Miller 1992). Therefore, companies provide a safe working environment not only to reduces injuries risks but also to reduces lawsuits (Miller 1992). Also, the output volume and the process outcomes are uncertain because of scraps and “variable process yield” (J.G.A.J. van der Vorst et al. 1998).

In the production planning process, uncertainties are usually correlated to the inaccuracy of the information flow, which is the transfer of information from customer order to raw material supply (Geary 2002). Many uncertainties during order planning results from errors of either the algorithm or the planning system, which either amplify or diminish the demand quantity (Geary 2002). Even though many companies apply order batching and lot sizing that eased and obscured the problem, the mismatch between the customer order size and the production batch size could also influence the supply chain efficiency (Simangunsong, Hendry, and Stevenson 2012; Geary 2002).

Another source of uncertainty is decision complexity, which occurs when several mandates from different departments are not mutually supportive (Prater 2005; Simangunsong, Hendry, and Stevenson 2012). For example, conflict may occur when the customer service department plans on increasing delivery frequency and enhancing customer experience, whereas other departments, such as supply chain management intends to reduce the delivery costs (Prater 2005).

The general behavior of a company could increase the possibility of uncertainties (Simangunsong, Hendry, and Stevenson 2012; J.G.A.J. van der Vorst et al. 1998). When exposed to uncertainty, some companies may behave as risk-seeking or risk-taking, which results in turbulence in the supply chain (Simangunsong, Hendry, and Stevenson 2012).

As for the technology sector of a company, many uncertainties could appear due to production shut down when the system is not available; data security issues such as destruction of data; and general inefficient performance such as insufficient productivity (Simangunsong, Hendry, and Stevenson 2012; Bandyopadhyay, Mykytyn, and Mykytyn 1999). In other words, if a company is largely depending on its IT system, it is exposed to the risk of supply chain disruption ranging from minor defects to suspended production (Bandyopadhyay, Mykytyn, and Mykytyn 1999)

The demand for a product encompasses many uncertainties that vary with the influence of season, taste, and events (Simangunsong, Hendry, and Stevenson 2012). Many products follow a seasonal pattern, which is not only linked to the weather, but also other factors such as annual holidays (Simangunsong, Hendry, and Stevenson 2012; Jack G. A. J. van der Vorst and Beulens 2002). The changes in customer preferences are also uncertainties to companies, which influence the shelf space of each type of product (Jack G. A. J. van der Vorst and Beulens 2002). In addition, sporadic events are considered as uncertainty during demand forecasting because they could cause large errors (Bartezzaghi and Verganti 1995).

Another source of demand uncertainty is the demand amplification caused by information distortion in the supply chain, which is different from the demand changes caused by only by the end-customers (Simangunsong, Hendry, and Stevenson 2012). A theory closely related to this uncertainty is the bullwhip effect. The bullwhip effect was first conceptualized by Jay Wright Forrester in 1961, who illustrated the phenomenon of growing demand distortion that flows up in the supply chain (Lee, Padmanabhan, and Whang 1997). As shown in Figure

2.2.1., the more the company is upstream in the supply chain, the more there is an amplification of the demand changes (Chatfield and Pritchard 2013).

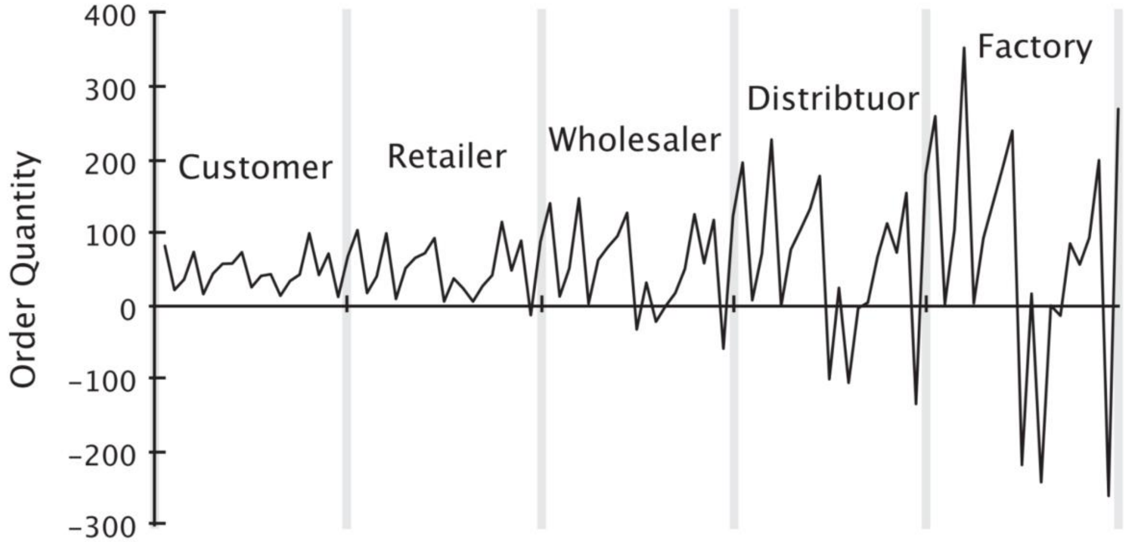

Figure 2.2.1. The Bullwhip Effect

Source: Transportation Research Part E: Logistics and Transportation Review, Chatfield and Pritchard (2013)

Many uncertainties could occur on the side of a company's suppliers, such as unstable delivery time, quantity supplied, and availability of input supply (Simangunsong, Hendry, and Stevenson 2012). Sometimes, the supply uncertainties are related to external environment uncertainties (i.e. weather), which are influenced by the quantity, timing, and quality of the supply (Jack G. A. J. van der Vorst and Beulens 2002). In addition, the availability of input supply refers to the situation of monopolistic suppliers that behave as opportunistic, which reduces the bargaining power and increases the likelihood of uncertainties occurrence (Miller 1992).

The parallel interaction is also a source of uncertainties, which refers to the complexity of supplying numerous products during operations such as cross docking (Simangunsong, Hendry, and Stevenson 2012).

Another source of uncertainties is the length of the order forecast horizon, which is the sum of the order lead time and the order sales period (Simangunsong, Hendry, and Stevenson

2012; Jack G. A. J. van der Vorst and Beulens 2002). The longer the order forecast horizon is, the more the difficulty of forecasting increases, therefore increasing the possibility of inaccurate inventory (costs of stock-out and overstock) and the number of redundant activities (Jack G. A. J. van der Vorst and Beulens 2002).

In the chain configuration, infrastructure, and facilities, the possibility of uncertainty occurrence is high on three dimensions (Simangunsong, Hendry, and Stevenson 2012). First, the long physical distance between suppliers and customers increase the likelihood of uncertainty occurrence (Jack G. A. J. van der Vorst and Beulens 2002). Second, when the business models involve two or more regions or countries with differences in culture, it could lead to uncertainty in partnerships with suppliers and customers (Simangunsong, Hendry, and Stevenson 2012; Jack G. A. J. van der Vorst and Beulens 2002). Third, the stability of public utility such as communication and transportation, which decrease productivity, could be considered as uncertainties for some countries usually due to political risks (Miller 1992).

In the general environment, there are five sources of uncertainties: political instability, government regulation, macroeconomy, societal issues, and competitors' behaviors (Simangunsong, Hendry, and Stevenson 2012). Political uncertainties usually refer to changes in political stability, such as war, revolution, turmoil, democratic changes, and coup d'état (Miller 1992). Governmental regulations, either implemented directly on trades or not, are uncertainties to companies which affect their supply chains (Miller 1992; Jack G. A. J. van der Vorst and Beulens 2002). For example, some regulations are targeting companies, including price control, trade restrictions, and barriers; and examples of other regulation are fiscal reform, nationalization, and barriers of earning repatriation (Miller 1992). Miller also introduced macroeconomic uncertainties, which are caused by economic fluctuations. Inflation, changes in the exchange rate, and changes in interest rates could influence a company's strategic decision in terms of the supply chain (Miller 1992). Moreover, social issues such as riots and terrorism are also uncertainties to companies (Miller 1992). In addition, competitor's movement is an exogenous uncertainty that influences other companies in the same industry (Jack G. A. J. van der Vorst and Beulens 2002; Simangunsong, Hendry, and Stevenson 2012).

One of the characteristics of natural disaster is the unpredictability, which could impede various supply chain activities and influence the company's general efficiency (Miller 1992). For instance, Florida hurricane in 2004 and Kobe earthquakes in 1995 both caused a delay in shipping and further disruptions in the supply chains (Kleindorfer and Saad 2005). More recently, in November 2018, Amazon was unable to fulfill two-day Prime shipping weeks after the warehouse in Baltimore was damaged by a tornado (Siegel 2018).

In conclusion, the majority of the uncertainties sources are multidimensional; they encompass several sub-sources (Simangunsong, Hendry, and Stevenson 2012). Moreover, many sources are correlated with others. For example, the supply uncertainties could be a result of the environment uncertainties; and uncertainties linked to the chain configuration, the infrastructure, and the facility type could be caused by political instability, which is also part of the environmental uncertainty (Jack G. A. J. van der Vorst and Beulens 2002; Miller 1992). The tariff fluctuations are governmental regulations from the source of the general environment. The study of uncertainties is extensive, but few articles discuss the uncertainty of tariffs alone, and especially their influences on the supply chain.

2.2. Categorizing the Uncertainties

As early as 1993, scholars have been contributing to the study of uncertainties in order to help businesses (Simangunsong, Hendry, and Stevenson 2012). Referring to Figure 2.2.2., there are five main models. The most simple "Early models" contains as little as three uncertainties, which are demand uncertainty, supply uncertainty, and manufacturing uncertainty (Simangunsong, Hendry, and Stevenson 2012). The uncertainty circle model added control uncertainty, which is a company's capability of planning in the supply chain (Simangunsong, Hendry, and Stevenson 2012). Next, the complexity model defines uncertainties with specific sources as micro uncertainties and unforeseeable uncertainties that can be broken down to the micro level as macro uncertainties (Simangunsong, Hendry, and Stevenson 2012). After that, the contingent model includes many later contributions such as uncertainties based on industries, IT complexity, and volume uncertainties (Simangunsong, Hendry, and Stevenson 2012). Lastly, the risk models are tailored specifically for companies dealing with international businesses, which faces uncertainties from the company itself, the industry of the company, and the general environment (Simangunsong, Hendry, and Stevenson 2012)

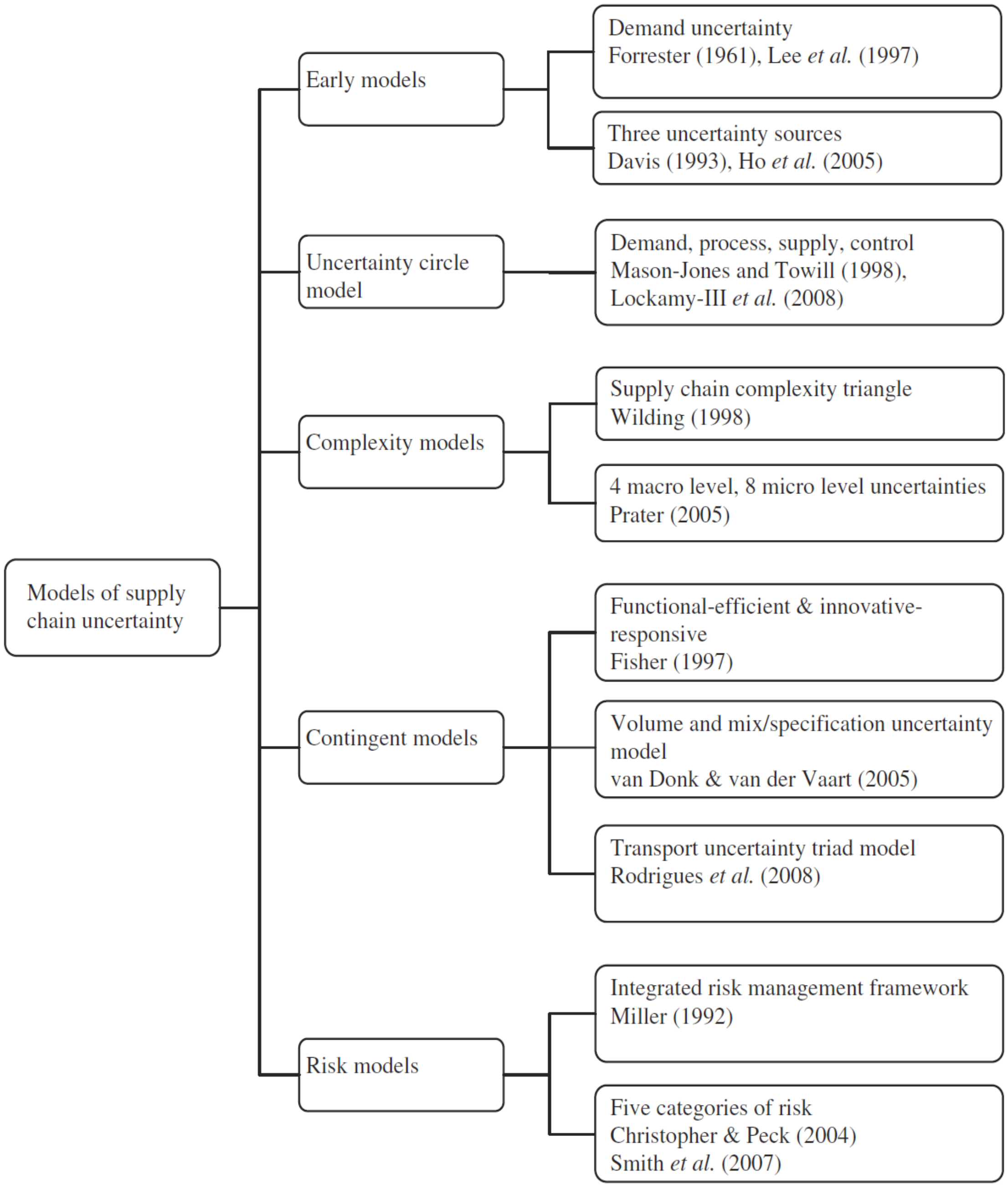

Figure 2.2.2. Models of Supply Chain Uncertainty

Source: Supply-chain uncertainty: a review and theoretical foundation for future research; Simangunsongy, Hendry and Stevenson (2012)

An alternative method to categorize uncertainties is recommended by the Queensland government to help local business owners (Business Queensland 2016b). According to the Queensland official website, there are two types of uncertainties: external uncertainties and internal uncertainties. The external uncertainties refer to uncontrollable situations, which occur on demand and supply, environment, business, and physical plant. For example, change in tariffs is a governmental and environmental risk as indicated on the website (Business Queensland 2016b). Such disruptor will influence the company's supply chain in many subtle ways. On the other hand, the internal uncertainties which consist of manufacturing, business, planning and control, mitigation and contingency, and cultural uncertainties are more controllable. As an illustration, personnel adjustment is one of the internal uncertainties. A change in the key management team will have unknown influences on coordinating the supply chain. In short, the fundamental difference between external and internal uncertainties is that the external ones occur in either the upstream or the downstream of the supply chain, but the internal ones are mainly within the company. Hence, businesses have less control over the external uncertainties (Business Queensland 2016b).

While trying to identify the uncertainties, the Queensland government (Business Queensland 2016a) also suggests to local business owners to ask themselves a couple of questions. These questions are when the uncertainty is most likely to happen, where will the uncertainties occur, why would it happen, who will be impacted, and how likely the uncertainty will happen in their business (probability). On top of these five questions, businesses should also ask themselves "what if", such as what if there is a natural disaster? By considering each scenario, even including the worst cases, businesses are able to mitigate the negative effects of uncertainties by reviewing each step in the supply chain and estimating the damages during the process (Business Queensland 2016a).

According to Sheffi (2015), risk management experts tend to measure uncertainties with two "dimensions": the probability that the disruption would happen and the magnitude of its consequences. As shown in Figure 2.2.3., the higher the probability, the larger the impacts and the more resilient strategies should be implemented (Sheffi 2015).

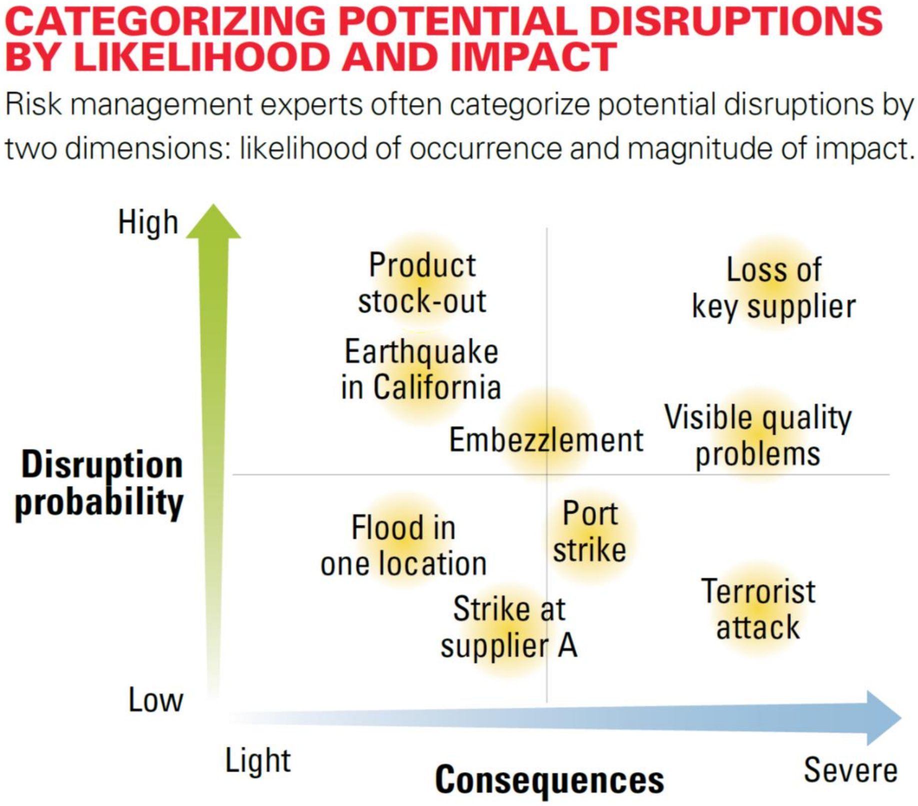

Figure 2.2.3. Categorizing Potential Disruptions by Likelihood and Impact

Source: Preparing for Disruptions Through Early Detection, Sheffi (2015)

Moreover, Sheffi (2015) brought up a third dimension that should also be taken into consideration, which is the detection lead time (see Figure 2.2.4.). The longer it takes to detect and react to disruption, the more negative effects there are. However, with proper forecasting and detecting approaches, the third dimension is positive (with no negative impacts on the company) (Sheffi 2015).

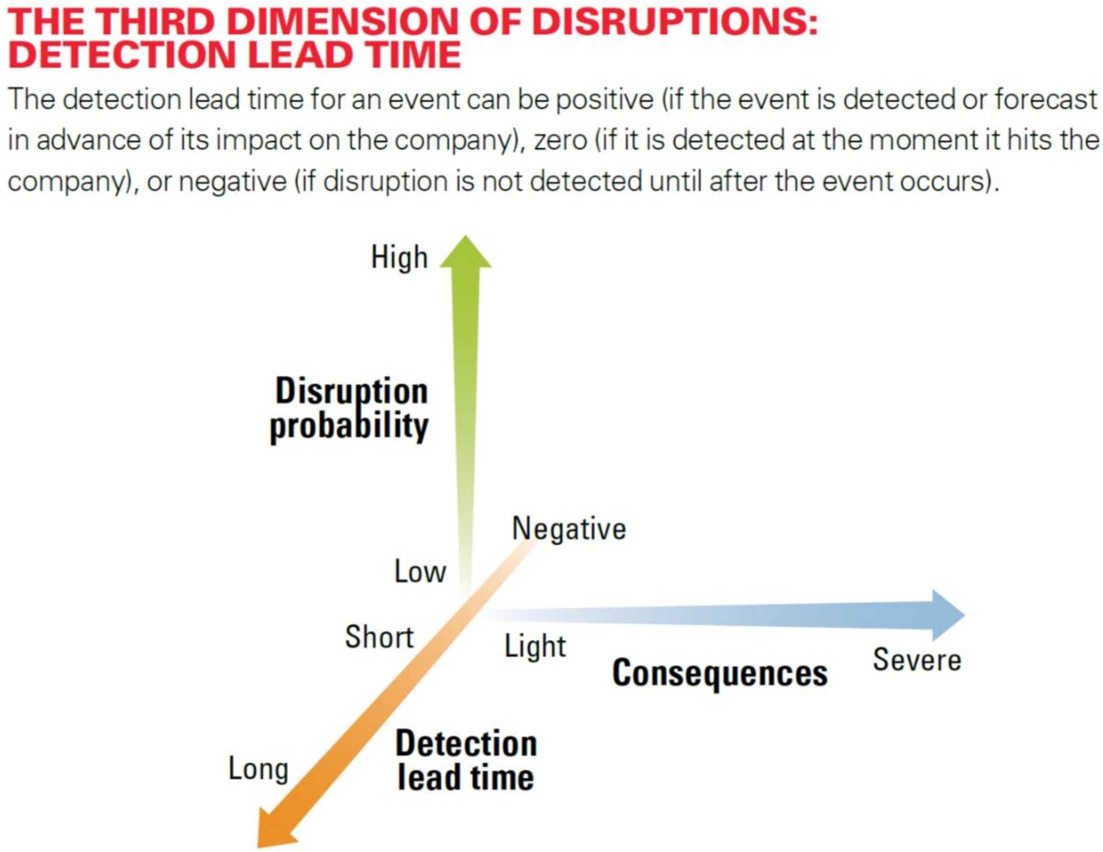

Figure 2.2.4. The Third Dimension of Disruptions: Detection Lead Time

Source: Preparing for Disruptions Through Early Detection, Sheffi (2015)

In conclusion, there are many ways to categorize uncertainties. Separating the internal uncertainties from the external uncertainties is also useful in practice. Another example is the three-dimension method, which is by disruption probability, consequence, and detection lead time (Sheffi 2015). In the case of this thesis, the uncertainty of tariff fluctuations is viewed as an external uncertainty which trading companies have limited control with the high possibility of disruption and consequences.

2.3. The costs of Doing Business Abroad and Liability of Foreignness

In the domain of international trade, companies must understand the inevitable costs of doing business abroad and the liability of foreignness because it is a huge risk but not always obvious to companies involving in cross-border activities. Tariff fluctuations are part of the risks that international trading companies should be concerned with. The disadvantages of operating in a foreign country were first conceptualized by Stephen Hymer, in 1960, as the costs of doing business abroad (CDBA) (Gaur, Kumar, and Sarathy 2011; Hymer 1960). Later on, Pankaj Ghemawat proposed his framework based on the Cultural, Administrative, Geographic and Economic (CAGE) distances, which explained the source of liability of foreignness (LOF) in detail (Ghemawat 2007).

Hymer argues that since in most cases communication between national economies is more costly than interregional economies, local businesses have more advantages than their foreign competitors (Hymer 1960). Part of the additional costs of foreign companies came from acquiring knowledge of “its [the host country’s] economy, its language, its law, its politics” (Hymer 1960). In addition, besides the costs of being unfamiliar with the country, there are also permanent costs such as governmental discrimination, customer preference, the exchange rate that companies should be aware of (Hymer 1960). For example, the high level of governmental barriers could be prohibiting foreign companies from performing certain activities, which increases the costs comparing to domestic production (Hymer 1960).

CDBA accounts for costs on both social and economic levels, whereas LOF focuses only on the social level of liabilities (Eden and Miller 2004). The more recent CAGE distance framework discusses the impact of LOF on countries’ bilateral trades (Ghemawat 2016). As shown in Table 2.2.5., four dimensions of distance are proposed: cultural, administrative, geographical, and economic (Ghemawat 2007).

The CAGE framework at the country level

	Cultural distance	Administrative distance	Geographic distance	Economic distance
Country-pairs (bilateral)	• Different languages • Different ethnicities; lack of connective ethnic or social networks • Different religions • Lack of trust • Different values, norms, and dispositions	• Lack of colonial ties • Lack of shared regional trading bloc • Lack of common currency • Political hostility	• Physical distance • Lack of land border • Differences in time zones • Differences in climates and disease environments	• Rich-poor differences • Other differences in cost or quality of ○ Natural resources ○ Financial resources ○ Human resources ○ Infrastructure ○ Information or knowledge
Countries (unilateral or multilateral)	• Insularity • Traditionalism	• Nonmarket or closed economy • Extent of home bias • Lack of membership in international organizations • Weak institutions; corruption	• Landlocked geography • Lack of internal navigability • Geographic size • Geographic remoteness • Weak transportation or communication links	• Economic size • Low per-capita income

Table 2.2.5. The CAGE Framework at the Country Level

Source: Differences Across Countries: The CAGE Distance Framework, Ghemawat (2007)

In the CAGE framework, the cultural distance refers to human interactions such as language, social norms, ethnicity, religion, level of trust and egalitarianism, and even preferences (Ghemawat 2007). For example, the difference in preference of color is a subtle cultural distance that might not be as straightforward as other cultural attributes, but the factor could influence the trade between two countries (Ghemawat 2007). On the contrary, the administrative distance is based on differences enforced by the state, such as law and policies (Ghemawat 2007). Moreover, the geographic distance is based on nature and landform with limited influences of human factors; Some examples are physical distance, accessibility to the ocean, and the existences of common land borders (Ghemawat 2007). Lastly, the dimension of economic distance includes national economical differences that influence cross-border activities, such as the gap of economic size and differences in per capita income (Ghemawat 2007).

There is no absolute segmentation between each of the four dimensions because many factors are correlated to others (Ghemawat 2016). Furthermore, as an example of the framework, Ghemawat illustrates the distance between the U.S. and China (see Table 2.2.6.). Some of the main attributes are the variety of language, enclaves, ports superiority, and large market (Ghemawat 2007).

	Cultural attractions	Administrative attractions	Geographic attractions	Economic attractions
China	• Linguistic and ethnic homogeneity • Diaspora	• Ease of doing business • Enclaves	• Closer to U.S. West Coast • Superior ports, other infra-structure • East Asian production network	• Larger markets • Higher income • Labor inputs and productivity • Capital availability • Supply chains • Foreign com-panies as export bridges

Table 2.2.6. The CAGE Distance between the U.S. and China

Source: Differences Across Countries: The CAGE Distance Framework, Ghemawat (2007)

2.4. Uncertainties Related to Tariff Fluctuations

This section introduces uncertainties correlated to tariff changes: currencies, exchange rate, and the price system. The influences of these uncertainties on the supply chain are also discussed.

2.4.1. The Currencies and Exchange Rate Volatility

The value of currencies and the exchange rates are closely related to cross-border activities, as well as the tariff changes. For example, the exchange rate is often used by the U.S. government as a countermeasure of trade barriers from countries such as Japan in the agriculture industry (Bhutta 2001). The measure is known as the exchange rate regime (ERR), which includes two main types: fixed exchange rate and flexible exchange rate (Santana-Gallego and Pérez-Rodríguezb 2019). Flexible exchange rates are well accepted as the necessity of maintaining unrestricted multilateral trade since the 1950s when criticism of the fixed exchange rate started to appear (Moosa 2005). However, the flexible exchange rate is uncertain to international trading companies, and the volatility of the exchange rate directly impacts the international companies' decision making on market investment (Bhutta 2001; Moosa 2005). Moreover, the exchange rate between two countries has both positive and negative influences on the bilateral trade (Bhutta 2001).

Undervaluation of the foreign exchange rate and import surge could trigger local companies to file antidumping petitions against foreign exporting companies (Jensen, Quinn, and Weymouth 2015). Moreover, the exchange rate influences the pricing of import and export commodities directly, and the level of influence can be explained by the theory of exchange rate pass-through (Bhutta 2001). The exchange rate pass-through is measured by percentage. The U.S. was at 60 to 65 percent of the actual appreciation in the 1980s (Clark, Kotabe, and Rajaratnam 1999). As shown in Figure 2.2.7., the extent of pass-through is rarely one hundred percent due to the various factors influencing the strategic responses. These can be generalized by the decision of whether or not to absorb the price increase (Clark, Kotabe, and Rajaratnam 1999).

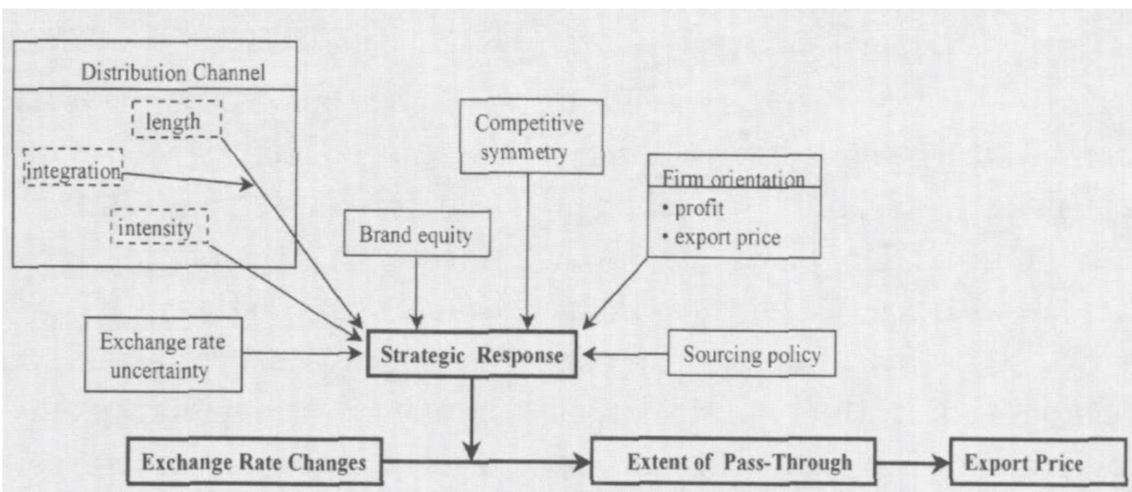

Figure 2.2.7. Import Pricing and Exchange Rate Pass-through

Source: Exchange rate pass-through and international pricing strategy: A conceptual framework and research propositions; Clark, Kotabe, and Rajaratnam (1999)

However, Amiti, Itskhoki, and Konings (2014) argue that there is an "exchange-rate-disconnect", which exchange rate pass-through has minor influences on large companies because they are usually both importers and exporters. Therefore, even with the influence of the big movement of currency value, the average pricing of products is not greatly disrupted (Amiti, Itskhoki, and Konings 2014).

On the positive side, exchange rate volatility could also benefit international trading companies. First of all, the trading companies from undervalued countries have advantages on the price of imported products in the overvalued country (Jensen, Quinn, and Weymouth 2015). Second, companies can utilize the differences in exchange rate by switching the payment currency to the more preferable one, which will reduce their costs (Bhutta 2001). Therefore, the exchanges rate uncertainty could enable companies to be more flexible and achieve optimization.

2.4.2. The Price System

As seen in Figure 2.1.1., the exchange rate changes will disrupt the export prices, but the value of currencies is not the sole factor that leads to supply chain uncertainty on the macroeconomic dimension (Clark, Kotabe, and Rajaratnam 1999). Therefore, it is important to understand the price system and its influences. In a market economy, the market is driven by the supply and demand, which are both uncertainties to international trading companies. (Amadeo 2018). However, the market is not fully spontaneous, which requires the intervention of institutions, and one of the governmental methods to control pricing for imported products is through tariffs (Polanyi 1957).

3. Gap in Literature

The literature in this field has four main gaps, which pointed the research direction of this thesis.

First, the majority of the journal articles in this field use a quantitative methodology. Many scholars quantify the uncertainty factors and measure them using mathematical models. The quantitative research provides a phenomenal contribution to this topic with easy to visualize results. However, some of the influences of tariffs are non-quantifiable and requires a qualitative approach.

Second, within the limited number of articles on the topic of tariffs' influences, the differentiation between exporting companies and importing companies have not been studied. Scholars tend to discuss the issue generally from the perspective of trading companies involved in cross-border activities. However, the impacts are probably not always the same for exporting and importing activities.

Third, the literature around uncertainties is mainly general, which analyze the source of uncertainties broadly through categorizing the different types of uncertainties. Many articles mentioned the macroeconomic uncertainties, but only some address tariff alone and specify its influences. Moreover, few articles discuss the influences of tariff uncertainties from the perspective of Chinese importing and exporting companies.

Fourth, the tariffs turbulence between the U.S. and China started in 2018. Therefore, not many articles cover this relatively new event (Amiti et al. 2019 is a notable exception).

Chapter 3 Methodology and Data Collection

In order to have an in-depth understanding of the effects of tariffs on the supply chain of importing and exporting companies, an exploratory research through semi-structured interviews will be performed. The objective of this chapter is to clarify the methodology used in this research, including the design, the data collection methods, and the way the findings of the interviews will be presented. The structure and the discussion of this chapter are based on the book “Qualitative Research from Start to Finish” (Yin 2011), which provides the fundamental basis of a qualitative methodology.

1. Methodological Design

In this section, the design of the methodology is described, including the foundations, the research design, and the company and participants selection criteria.

1.1. Foundations of the Methodology

According to Yin (2011), a well-structured qualitative study consists of three features: a topic, a methodology of collecting data, and a source of data.

In the case of this thesis, the topic of "the effect of tariffs on trading companies in terms of supply chain management" was selected prior to the other features. The topic became increasingly relevant due to the current trade war between China and the United States, which has significantly increased tariffs between the two countries. Mass media and critics are reporting the progress of this situation constantly. Some are even analyzing the potential outcomes, such as Bradsher (2018) from The New York Times who proposes a possible win-win situation (Bradsher 2018). Based on this topic, two research questions have been identified, "what are the influences of constantly changing tariffs on the supply chain of trading companies?" and "what are the strategies companies adopt to handle these influences and future uncertainties?".

The topic and research questions led to an exploratory research because of the need of unquantifiable information that has never been reported in the literature. The information on strategic decisions made by top managers or owners must be identified and understood in depth. Therefore, the preferable method to collect data for the topic of this thesis is through interviews with Chinese importing and exporting companies.

1.2. Company Research Design

This thesis follows a research protocol, which is based on a semi-structured interview guide (See Appendix A: Interview Guide). The protocol serves as a supporting tool for the interviews to ensure a smooth and organized process. Questions in the interview guide are based on the literature review. After refining the key points in literature, a set of questions were raised aiming at stimulating discussion and gathering relevant information. Therefore, instead of having an open conversation or a survey orientated interview, a semi-structured interview fits the demand of data the best. These open questions guide participants through the interview without going off topic. Meanwhile, as preparing the questions and researching about the company, it provides guidelines and mental frameworks for the interviewer.

1.3. Company and Participant Selection

To reduce the possibility of receiving invalid data, Yin (2011) recommends seven strategies. These strategies include interviewing participants who are involved in long-term intensive work, enriching the content in detail, obtaining validation from academic scholars and professionals in the same field of study, referring to literature in the opposite opinion, replacing vague adjectives by statistical numbers, collecting information from multi-source, and cross-compare results across different groups (Maxwell 2009). During the data collection this thesis, efforts were made to compare results from different groups and to select participants with long-term experiences.

The recent tariff hikes launched by the U.S. and the Chinese government raised the attention of many trading companies in China. However, considering the wide range of products being targeted by the tariffs, it is necessary to narrow down the company selection. More importantly, comparing both firms being affected and those that are not being affected by the tariff increases will help to deepen our understanding of the impact on supply chain management. There are four groups of exporting and importing companies between China and the U.S. that have been affected or not by the recent tariff changes. The categories of companies selected for the interview are as shown in Figure 3.1.3. Participants from two companies are interviewed in each group.

The selected participants worked for the companies at the top management level for at least two years or they own shares of the company. These selection criteria are to ensure that participants have the knowledge about strategic aspects of the company and that they are familiar with the company history and recent activities. Due to the recent tariff changes, whether the company is affected or not, the participants will have the most updated information and solutions within the realm of possibilities.

	Affected by Tariffs	Not Affected by Tariffs
Importing *(From the U.S. to China)*	Group A	Group B
Export *(From China to the U.S.)*	Group C	Group D

Figure 3.1.3. Categories of Selected Companies

2. Data Collection Methods

This section describes the preparation process and realization of the interviews.

2.1. Preparation

Prior to the interviews, it is required by HEC Montreal for data collection to be vetted by the Research Ethics Board (REB). Moreover, according to the book "Qualitative Research from start to finish", there are several matters that also need attention before interviewing participants (Yin 2011).

First, as mentioned in Section 1.2, preparing a protocol which consists of semi-structured questions and mental frameworks is advantageous. By flexibly incorporating the questions into a conversational interview while applying the company's activity, it increases the amount of confidence and professionalism of the interviewer. In detail, while preparing the interview guide (see Appendix A), closed-ended questions are avoided to promote data collection. In addition, possible responses are predicted to build up potential follow-up questions. The goal is to always ask follow-up questions after each topic.

Before the interview, it is also necessary to prepare conversational skills including controlling the amount of speaking, standing for a neutral opinion, being as nondirective as possible, and maintaining a rapport relationship (Yin, 2011). Each of these skills enhances the outcome, especially ensuring a neutral opinion. Providing or subconsciously referring to a biased view can influence the participants. Therefore, not only during the interviews but also while preparing the interview guide, efforts are made to ensure the neutral point. For example, the open-ended question "what do you think are the risks and opportunities affecting the supply chain for an importing and exporting company?" is from a neutral perspective. Whereas "how does the risk of tariff changes affect your company?" is biased because participants might not consider tariff changes as a risk. Furthermore, the interviewer's responses and tone are neutral in order to minimize the possibility of participants catering the answer to the interviewer (Yin, 2011).

2.2. Individual Interviews

Eight individual interviews will be conducted for the use of this thesis. The significance of this section is to address the importance of making the interviews both unified and customized at the same time. All the interviews contain mostly identical questions for subsequent analysis. Nonetheless, a customized individual interview is essential because of the distinct nature of each selected company. For example, at the beginning of the interviews, the first conversation will be always about the product and the company's history, which requires different preparation and approaches depending on the company (see Appendix A). Once the foundation is built, then the interview can proceed to general questions that apply to all the companies. In the latter part of each interview, more customized and detailed questions regarding the condition of the company will be asked.

3. Presenting Findings of Interviews

In this section, the discussion is focused on how the results will be presented.

3.1. Documentation

A form is provided to participants prior to the interview in order to acquire audio recording consent. Even though notes are taken no matter the interview is audio-recorded or not, the strategy of recording depends on the participant's consent.

For the interviews with audio recordings, notes are focused only on the key points. The audio recordings are completely transcribed after the interview to avoid biased memory. Combining the notes and transcriptions, a newer and more complete version is produced. These notes serve as a guideline for the latter analysis of the findings. In the case of this thesis, only one interview was recorded.

For the non-taped interviews, it is important to address the impossibility of noting down everything. Therefore, to ensure the balance in selecting what to write down, pre-setting up and selecting a transcribing language are necessary steps. Furthermore, the notes are enhanced after the interview by reviewing, adding comments, and cross-comparing with other interviews. Reviewing and adding comments requires immediate action after these interviews, whereas cross-comparing is done later. While reviewing and recalling the interview, comments are added to expand ideas (Yin, 2011).

3.2. Displaying Qualitative Data

The data collected from the interviews are presented in Chapter 4, 5, and 6. Chapter 4 presents general information about each company following the categories mentioned in section 1.3. In Chapter 5, the influences caused by tariff fluctuations mentioned by the participants are presented and discussed. In Chapter 6, the reactive strategies implemented by companies influenced by the tariffs and the proactive strategies implemented by companies not influenced by the tariffs are presented and analyzed.

In both Chapter 5 and Chapter 6, the analysis was done through Atlas.ti. The semi-structured interview guide has seven questions, which increase the difficulty of manual analysis, especially for longer interviews. The software enables the possibility to code all the influenced and strategies by groups, which provides a clear organization of data. The coding function of Atlas.ti not only presents repeating information as “density” but also helps to find links and differentiation between each influence and strategy.

Chapter 4 Description of Companies and Participants

In this section, the companies and participants will be briefly described. The companies interviewed are labeled as “Company” followed by a capital letter such as “Company A” in order to keep the confidentiality of companies and the participants. Hence, the participants’ names are also replaced by the corresponding capital letters. For example, “Participant A” is the interviewee from Company A’s top management team.

This section provides information on the industry of each company and the existence or not of a supply chain management department within each company. It is first important to describe the main product of each company because it reflects whether or not the company was influenced by the recent tariff changes between China and the U.S. Also, since one of the research questions is “what are the influences of constantly changing tariffs on the supply chain of trading companies”, it is relevant to determine whether or not each company has a supply chain management department. This information shows the level of centralization of the supply chain processes and can help to understand the practices and strategies used by the companies to handle the tariff increases

Table 4.1.1. is a summary of the highlights of the eight participating companies. The table positions each company based on two variables: whether they are an importing company from the U.S. or an exporting company to the U.S. and whether they are influenced or not by the tariffs. Table 4.1.1. also shows the main product of each company. Two companies from each quadrant were interviewed to enable cross-comparison and improve validity.

	Exporting Company	Importing Company
Influenced by Tariffs	Company A: Optical Product (D) Company B: Ring Gear (C)	Company E: Optical Instrument (D) Company F: Cable Harness (C)
Not Influenced by Tariffs	Company C: Garment (D) Company D: Optical Element (C)	Company G: Electronics (C) Company H: Chips (C)

Table 4.1.1. Summary of Companies Interviewed

Note: "C" stands for centralized supply chain, "D" for decentralized

Furthermore, Table 4.1.2. indicates the title of each participant.

Participant	Title
Participant A	General manager
Participant B	General manager
Participant C	Vice President
Participant D	Chief Executive Officer
Participant E	Legal representative
Participant F	Purchasing Manager
Participant G	Purchasing Manager
Participant H	Purchasing Manager

Table 4.1.2. Title of Participants

1. Exporting Companies Influenced by the Tariffs

The cases of exporting companies to the U.S., for example, which have customers in the U.S. and were influenced by the tariffs, are described in this section.

1.1. Company A: Optical Product

Company A is a large-sized exporting company mainly handling optical products. These products are used in medical equipment, research for science, modern industries, and pieces of machinery. Although the company exports its optical products worldwide, its main customer source is in the United States. Therefore, these products sold in the U.S. were recently affected by tariff increases. Company A has already built a good reputation in the American market and has developed long-term partnerships with many of its customers. The Participant from this company is the general manager who is familiar with the company's strategic decisions. Participant A is also well experienced in the trading business.

According to the interview, the company has no supply chain management (SCM) department, and so far, they are not planning on the establishment of such a department. Even though the company has no SCM department, the management of the supply chain is included in other departments and managed by professionals within the company. "Each of our company's department has its own responsibilities. The raw materials are mainly managed by the procurement department, and the sales are handled by the international and domestic business department" (Participant A, personal communication, translated from Chinese by the author, November 12, 2018). Therefore, it is still possible to affirm that their supply chain management is not centralized.

1.2. Company B: Ring Gear for Automobiles

Company B is also an exporting company that is directly influenced by the recent trade war. The company is only exporting one type of product, which is ring gears for automobiles.

However, the size of the company is relatively large among the eight companies interviewed. Since ring gears are not an end product, the buyers are companies that are either manufacturing automobiles or wholesaling to automobile manufacturers. Company B's customers are all over the world and include many of the well-known automobile brands. In the United States, they have long-term partnerships with many of the biggest manufacturers. Participant B (personal communication, translated from Chinese by the author, November 19, 2018) stated, "We are always looking forward to expanding the production capacity and market shares". Company B's main goal is to provide high-quality products to its customers with a competitive and reasonable price. At the same time, they are ready to dive in more in the internationalization process.

According to Participant B, who is an experienced general manager, Company B has a supply chain management department. The supply chain management department has eleven main responsibilities: (1) establishing and managing the planning and control system; (2) organizing meetings between sectors; (3) inspecting and making assessments of the completion of the production plan of all relevant units; (4) researching and analyzing production planning and scheduling systems; (5) managing on-site activities; (6) coordinating with sub-companies; (7) improving and upgrading the production system; (8) establishing a logistics management system; (9) managing and planning warehouses; (10) collecting and arranging the basic data of the production process; (11) assigning training activities of new products, new equipment, new techniques, and new production systems.

Company B's supply chain management utilizes TPS (Toyota Production System), TPM (Total Productive Management), QSB (Quality Systems Basics), six sigma, and lean manufacturing methods to reduce the production costs, improve quality control, and enhance market competitiveness.

2. Exporting Companies Not Influenced by the Tariffs

This section describes exporting companies which sell products to the U.S. but were not influenced by the tariffs.

2.1. Company C: Garment

Company C mainly exports ready-to-wear garments and clothes to the U.S. market. The company has maintained the same product line for a long time. The products themselves were not directly affected by the recent tariff changes. Company C's goal is to put the customers' needs and the product's quality at the center of their strategy. One of the strategies of the company is to gain quick paybacks with small margins. Therefore, the listing price of Company C's products are relatively low, and the company is not currently aiming to become a high-end brand. Since the company has been consistent with its goals and strategies, they gained trust from their customers and built up a good reputation in the United States. The participant from Company C is a vice president who has many years of experience in the industry. Participant C is familiar with not only the product and the raw materials but also the tariff fluctuations and procurement strategies.

According to Participant C (Personal communication, translated from Chinese by the author, October 19, 2018), "Temporarily, we do not have one [SCM department]. However, we have a procurement department. Their [Employees from the procurement department] responsibilities are searching for raw materials, asking for quotes of price, taking product samples, testing samples, and purchasing the raw materials." Since the end products were not influenced by the tariffs, understanding the influences on raw materials is important. Even though the raw materials are not directly imported from the U.S. by Company C, they are imported by their suppliers. Therefore, Company C still needs to bare a minor increase in cost. Considering the size of Company C, it is difficult for them to have a centralized supply chain management department.

2.2. Company D: Optical Element

Company D's business is similar to Company A's, which is exporting optic related products to the U.S. The company is also relatively large in size. However, it is not currently influenced by tariff changes. Company D's products include "lenses, prisms, windows, filters, beam-splitters, mirrors, and many other products. We [Company D] also export some of the lens and optical instruments. Currently, we [Company D] are not expanding the product line and adding other products" (Participant D, personal communication, translated from Chinese by the author, October 23, 2018). Participant D is the chief executive officer (CEO) of Company D. These products are used in many non-daily fields such as aerospace, military, public security, medical, and telecommunications, which means although Company D does sell its product to consumers, its clients are usually not individuals. Their clients are most likely importing companies, optical instrument manufacturers, and research institutions. Company D's clients are mainly located in the U.S. and in Europe. Since the company intended to develop its international market, its products are not customized for a specific market. Instead, its products are generalized facing the global market. Moreover, the company's corporate culture can be summarized in four keywords: "technology first", "quality-oriented", "seek excellence", and "integrity future" (Participant D, personal communication, translated from Chinese by the author, October 23, 2018).

Company D has a centralized supply chain management department managed by professionals. According to Participant D, the responsibilities of the SCM department are communicating with the companies' foreign suppliers for inquiries; verifying design requirements with suppliers; and getting the quote of prices from potential suppliers. The SCM department is also responsible for the orders, which includes making sure the delivery dates are respected, collecting tracking information, and ensuring product quality. When the products qualify Company D's requirement, it is also the SCM department's responsibility to contact the suppliers and submit payments after completing the transportation. For the suppliers, Company D has some long-term partners. Company D selected its suppliers by screening out some companies without "specialized advantages", which aims for the best ones but for good quality and price trade-offs (Participant D, personal communication, translated from Chinese by the author, October 23, 2018). Therefore, Company D formed long-term stabilized partnerships with these suppliers.

3. Importing Companies Influenced by the Tariffs

In this section, Chinese importing companies which were directly influenced by the tariff changes are described.

3.1. Company E: Optical Instrument

Company E is not only a trading company but also an agency which provides imports and exports consulting and logistics services. Moreover, Company E specializes in customs clearance and supplier sourcing. Company E's suppliers are based in the U.S., Russia, Europe, Japan, Korea, and Hongkong. The size of Company E is small compared to other interviewed companies. The main products imported from the U.S. by Company E are optical instruments, which have been affected by tariff increases. The type of Company E's product is an end-product, which can be purchased for direct usage. The products are usually purchased by research centers for the purpose of scientific research and experiments. "Comparing to products in other fields, we have more difficulties in switching suppliers", said by the legal representative of Company E (Participant E, personal communication, translated from Chinese by the author, October 12, 2018). The special position enables Participant E to be informed of key strategical decisions made by Company E.

As for the supply chain, Company E has no centralized management. However, according to Participant E, the reasoning is that Company E is small in size when compared to many large trading companies. Moreover, Company E provides more services than other participating companies. Consequently, Company E demands employees in a variety of domains. As the company will be growing, building a team specializing in supply chain management is one of Company E's considerations.

3.2. Company F: Cable harness for automobiles

Company F is an importing company in the automobile industry. Its main product is cable harness, which is a transmitting wire for automobiles. The cable is based on integrated circuit technology and is used to transmit signals to other parts of the automobile. Many products in the automobile industry, including finished cars, have been influenced by the tariffs. The suppliers of Company F are from the U.S. by the requirement of its clients. The participant of this company is the purchasing manager, who is very concerned about the influence on the imported components. "The purchasing cycle is long, and the handover time is unstable", said by Participant F (Personal communication, translated from Chinese by the author, December 17, 2018).

The largeness in size allows Company F to have a centralized supply chain. The supply chain management in Company F oversees the procurement department. Its responsibilities are selecting, auditing, and evaluating the suppliers. A centralized supply chain department ensures an efficient purchasing process, which also reduces costs. In order to further achieve optimization, Company F brought in the "6S" management and lean production systems. The company also implemented the Material Requirements Planning [MRP] and a computer network system. These systems not only help the company optimize the supply chain but also improve the management level.

4. Importing Companies Not Influenced by the Tariffs

This section describes companies which import products from the U.S. but were not influenced by the tariffs.

4.1. Company G: Electronics

Company G imports many electronic products. One category of the products is the in-vehicle infotainment system, which includes dashboards, control panels, displays, and electric clocks for automobiles. Other products are sound systems and control systems, such as control panels for air conditioners. These products are imported from global suppliers in the U.S., Europe, and Japan. The U.S. is Company G's major supplier source because many of the large manufacturers of the integrated circuit are located there. For example, Texas Instruments and NXP Semiconductors are both leading manufacturers in this industry. Even though NXP is originally a Dutch company, Company G imports in-vehicle infotainment systems from NXP's factory in the U.S. The purchasing manager of Company G said, "Our clients are automobile manufacturers in China. Currently, there is no added tariff on electronic products [of automobiles], but governmental strategies may encourage other companies to enter the market and form competition" (Participant G, personal communication, translated from Chinese by the author, December 18, 2018). Participant G, who is the purchasing manager, follows closely the government policies and its effects on Company G.

There is a supply chain management department in Company G, which has four main responsibilities. The department is responsible for searching for new suppliers, finding new materials and new projects, evaluating suppliers, and managing suppliers. The large volume of the sales forced the formation of a centralized supply chain.

4.2. Company H: Chips

Company H is a high-tech oriented company, whose headquarters are in China. It also has many corporate sites in other countries, and distribution centers and factories scattered across China. "We are certified for importing and exporting [from many countries] … [but] the chips we are using, some of them are produced in the U.S., and the suppliers are in a monopoly position", said Participant H, who is the purchasing manager (Participant H, personal communication, translated from Chinese by the author, January 20, 2019). These chips imported by Company H were not influenced by the recent tariffs.

The supply chain department in Company H has many responsibilities. Some of the responsibilities are conventional, such as researching for new suppliers, managing current suppliers, planning and controlling the production process, purchasing and selecting raw materials, warehousing, managing logistics, and managing data. However, Company H has a variety of types of products, and there are many auxiliary products. These products are related to one or more other products within the company, which share the same components or raw materials. Therefore, changes in tariffs could have larger effects on Company H. Consequently, the company's SCM department also has the responsibility of controlling and managing the costs of materials for auxiliary products.

Chapter 5 Interview Analysis – The Influences

In the previous chapter, a description of the eight participating companies and interviewees was provided. The discussion in this chapter is based on these eight interviews. A full analysis through Atlas.ti was performed on the interview transcripts and notes to take a deeper look at the influences caused by the recent tariff changes. The chapter is divided into five sections as follow.

The first section includes the most common factors for Chinese companies building up partnerships with American companies. The significance is closely related to the influences and the corresponding strategies. The second section discusses the increases in costs, which is the direct influence of tariff changes on the Chinese importing products from the U.S. As for exporting companies, although the tariffs are borne by the consumers, the Chinese companies are still facing unexpected pricing pressures.

Furthermore, in the third and fourth sections, two types of influences from the tariff changes are presented and described: one is the impact on the suppliers (Chinese Companies who are exporting to the U.S.), and the other is the impact on the customers (Chinese Companies who are importing from the U.S.). Following above, the impacts on the companies that are not involved in the recent tariff fluctuations are also discussed and a comparison between the companies is provided.

1. Why the U.S.?

There are many reasons mentioned by the respondents for choosing partners in the U.S. as suppliers or customers. However, the factors that have been taken into consideration are fundamentally different between importing companies and exporting companies. However, for all the importing companies, the reasoning behind their decision of choosing an American partner has a lot in common. The same is true for exporting companies.

1.1. The Exporting Companies

The exporting companies have four main reasons to choose the U.S. market: market development and expansion, size of market demand, good reputation and reliability of the customer base, and the level of advanced development of e-commerce in the industry.

The market development and expansion are a reason mentioned by three companies for choosing the American market. Indeed, the U.S. can be considered as one of the biggest markets in the world. The goal for the companies is to develop a strong overseas market. Company B has a competitive advantage in manufacturing compared to other companies in the same industry, and Participant B claimed that it will help the company increase its market share in the U.S. The strategical decision of choosing the overseas market is largely influenced by the demand within the market, according to participant B. Developing the U.S. market is not a goal only for Company B, Company D is also attracted by America's large population base and high market demand. Therefore, in the past years, Company D focused on developing the American market and established stable partnerships with its customers.

The choice of market development is correlated with the size of demand. All four interviewees mentioned the common factor of the large demand in the U.S. For Company A, its optical products are demanded in the U.S. market the most. Although, other countries demand its products as well, these only accounts for a very small portion of the sales. Therefore, focusing on countries other than the U.S. is not realistic for Company A. Moreover, the profit margin in the American market is relatively good. Likewise, Company C considers that a large number of orders and the relatively fair price obtained for their products as one of the reasons for partnering with American customers. Company B's situation is very similar to Company A since exporting to the U.S. market enable it to pursue a large customer base and much more.

A third reason mentioned by two companies to choose customers from the U.S. is their good reputation. Company C has many concerns while choosing international partners. Participant C described Company C's impression of the American customers as respecting the international trading rules and laws. For Company C, a good reputation of the customer base means that the orders are easier to manage and fewer issues are met at the time of payment. In fact, Participant C confirmed that American partner companies and individual buyers are relatively more reliable than companies from other countries in general. Similarly, company D also values the customer's reputation. In fact, according to participant D, there are two main risks in the exporting industry, one being bad credits. "Some foreign customers have bad credits. They default or even refuse to pay for the products", said Participant D (Personal Communication, translated from Chinese by the author, October 23, 2018).

Finally, the level of advanced development of e-commerce in the industry is another factor that many companies consider. For example, Company D attaches importance to the development of e-commerce. According to Participant D, the company participates in many exhibitions in the U.S. to promote the company as well as exploring the possibilities of e-commerce. For Company D, the level of completeness of the infrastructure and the level of advanced development of e-commerce in the American optoelectronic industry are also key reasons for choosing this country. Considering the further development and expansion of the company, Company D chose to export to the U.S. market to be able to achieve omnichannel sales strategy in the future.

1.2. The Importing Companies

While choosing suppliers, the interviewees from Chinese importing companies often have limited alternatives due to product particularities. To be more specific, there are three reasons mentioned by interviewees to choose American suppliers: customers preferences, lack of alternative suppliers, and clustered location of leading suppliers.

A common reason for choosing suppliers from the U.S. is based on the customer's requirements. For example, the optical instruments imported by Company E are not for daily use. These products are commonly purchased for research and experiment purposes. Usually, the customers already have a preferred brand or a preferred country of the manufacturers. Also, a large portion of the customers is used to the products from American companies. Therefore, forcing these customers to switch to alternative manufacturers from other countries is not ideal and might even lead to customer loss. Since the U.S. is already the world leader in this industry, Company E's rational decision is to choose American suppliers to satisfy their customers' need. For Company F, choosing companies in the U.S. as suppliers was rather simple. Their customers usually require for the specific product manufactured by the specific country, and some of the customers demand American products.

A second reason for choosing an American supplier is because this supplier is in a monopoly situation. This is the case for Company H. Since the chips Company H are importing are solely manufactured by an American company. These chips are not substitutable by any other manufacturers. Therefore, although the chips are not the sole product of Company H, they had no choice but to include the U.S. as one of their supplying countries.

Finally, a third reason for choosing an American partner is the clustered location of leading suppliers. Company G had many choices of suppliers. According to Participant G, the main players of the integrated circuit are from the U.S., Europe, Japan, and Taiwan. Among all these regions, American integrated circuit manufacturers are the biggest in both the size of the firm and the production volume. Therefore, it was obvious for Company G to choose American suppliers for long-term partnerships.

2. The Direct Influence – The Increases in Costs

The direct influence of tariff hikes on both importing and exporting companies is the increases in costs. However, in this section, the influences are described separately for importing and exporting companies, because the two types of companies bear the increased costs in different ways.

2.1. The Importing Companies

The direct influence of the added tariffs on the Chinese firms importing products from the U.S. is an increase in costs. Company E, which imports optical instruments from the US, has already witnessed retaliatory tariffs by the Chinese government. Participant E claimed that the management team is expecting more tariffs next year based on the current situation. However, they are not surprised by the tariff hike. Company F was influenced in a similar way, that is, an increase in the costs of importing American products. Company F's supplier did not bear any of the import tariffs, which as a result, "the same amount of the tariff increase was added to the supplier's quoted price" (Participant F, Personal communication, translated from Chinese by the author, December 17, 2018). In short, the situations of the two importing companies are similar, which is the American suppliers did not reduce their prices and the Chinese importers assumed the complete increases in costs by reducing their profit margins. The two companies were not planning on passing the tariffs on to the Chinese customers.

For Company G and Company H, the two participating import companies not being influenced by the tariffs, they did not have to bear the increased costs. "Currently, there is no tariff on our products, but if there is a tariff increase (in the future), it will increase the costs for us to purchase imported materials" (Participant G, Personal communication, translated from Chinese by the author, December 18, 2018).

2.2. The Exporting Companies

For the exporting companies, their costs also increased, but in a different way. According to Participant A, the U.S. government imposed tariffs on Company A's optical products. Even though it is not the exporter's responsibility to bear the cost of tariffs, in order to maintain competitiveness, Company A decided to reduce their prices. "Some existing customers will ask our company to cut the prices, so our company will only be able to retain customers by adopting a price reduction of about 20%", said by Participant A (Personal communication, translated from Chinese by the author, November 12, 2018). Moreover, Company A also has the salary burden of handling fees for materials and costs for operating. Therefore, there is not a lot of space for a price reduction. Participant A stated that it is possible that they may lose the price advantage which will directly lead to the loss of most of their customers from the U.S. in the long run. Company B was facing the same situation after the 25 percent tariff imposed on its products. However, Company B has more negotiation power on its products because it is one of the leading companies for ring gears in the world. In the end, Company B was able to make deals with its long-term customers such that Company B bore twenty percent of the tariff and the customers paid for the other five percent. According to Participant B, although the profit margin was squeezed, it is still manageable with the implementation of adaptive strategies considering the size of the company B.

Company D is a special case which is categorized in the "Not Influenced by Tariffs" (See Table 4.1). Participant D insists that the company was not influenced by the tariffs, "Although the tariffs increased, the Chinese product prices are far lower than the [Company D's competitors in the] U.S. market [in general] … Due to the changes in the exchange rate, we try to maintain a relatively reasonable price space to reduce the procurement costs of the U.S. customers" (Participant D, Personal communication, translated from Chinese by the author, October 23, 2018). Even though the costs of exporting optical products have increased in the industry, Company D's business was not badly influenced because of the large pricing gap between the U.S. and China.

For some companies that are not targeted by the tariffs, such as Company C, they still had to bear an increase in costs. According to Participant C, "The recent changes in tariffs have an impact on the imported dyeing auxiliaries for our raw materials. Dyeing auxiliaries is a chemical that helps to dye clothes. This resulted in an increase in the cost of raw materials" (Participant C, Personal communication, translated from Chinese by the author, October 19, 2018). Even though Company C is an exporting company for garments, the changes in the importing tariffs on other products in different industries can also influence a company by increasing costs of raw materials.

In conclusion, both importing and exporting companies are facing increased costs. Moreover, no matter if the company is targeted by tariffs or not, it is still possible for the company to suffer from increased costs. However, what worries these eight companies more are further direct or indirect influences caused by the tariffs and the increased costs. These other influences will be discussed in the next sections.

3. The Influences on Suppliers (Chinese Exporting Companies)

In this section, further discussion of the influences on the Chinese exporting companies is provided. These companies are in the role of suppliers, which complicate the issue since developing a new market is very time-consuming and resource-consuming. There are many results caused by tariffs, and these results appeared as chain reactions. The series of impacts started with the added tariffs by the U.S. government and increased costs as discussed in the previous section. However, the subsequent influences depend on the companies' decision of whether to adjust the selling price according to the increased costs or not.

As shown in Figure 5.3.1., adding the increased costs to the selling prices led to the Chinese exporting companies to lose their competitiveness in the U.S. market. As a result of being less competitive than global suppliers who were not targeted by the U.S. in the recent trade war, there was a demand reduction from the U.S. market. Consequently, the companies lost market share, affecting their revenue and profits.

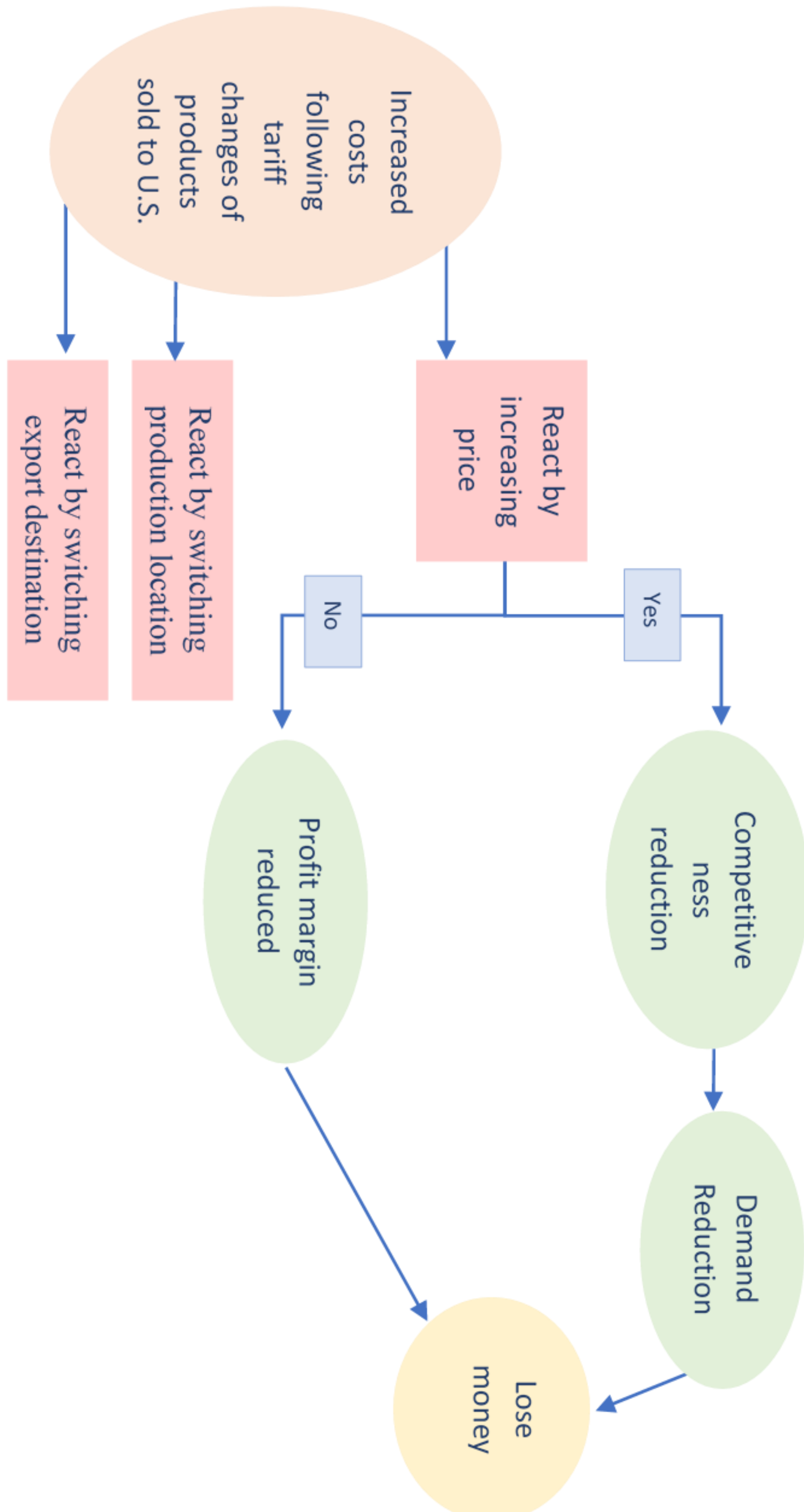

Figure 5.3.1. The Options for Exporting Companies

The other possible chain reaction started by the company bearing the increased costs by themselves which directly led to squeezed profit margin (See Figure 5.3.1.). This will be discussed later, in Section 5 "Companies Not Influenced and Conclusion". However, in this section, the focus is only on those exporting companies which increased their selling prices.

3.1. Competitiveness Reduction

One of the influences that concern the participants is the loss of competitiveness. According to the participants, such an impact is caused by two main factors: exporting companies forced to increase their quoted prices, and competitors grasp the recent tariff fluctuations as an opportunity to enter the U.S. market or increase their market share in the U.S.

Resulting from the increased costs, as stated in section 2, Company A and B who were targeted by the tariffs had to increase the quoted price by five percent while bearing the rest twenty percent of the tariffs by themselves. The price hikes put the companies in a disadvantageous position in the U.S. market. Although price competition is not the only consideration for American companies to choose their suppliers, a large increase in the purchasing price makes the Chinese exporting companies less competitive. Moreover, since Chinese companies are paying even more costs than customers from the U.S., it is not the ideal situation for both parties in the long run.

The other factor that causes Chinese exporting companies to lose competitiveness is increased competition, which is created by local competitors, global competitors, as well as new entrants. According to Participant G, many countries impose tariffs as a protection method for domestic companies. Therefore, with the help of the tariffs and government's strategical policies, domestic American companies might seize the opportunity to either enter the industry or expand their market shares. In addition, country-specific tariffs will also encourage companies from other countries to compete since they have more price advantage than before. Furthermore, both domestic and global companies who are currently not present in the U.S. market could also be interested in entering.

To summarize, losing competitiveness is an issue that worries the exporting companies after adjusting the selling prices. In fact, the keywords related to "competition" were mentioned several times in the interviews. The reasoning is that there are usually much more negative impacts following the loss of competitiveness.

3.2. Demand Reduction

Being less competitive means a decrease in the number of sales and potentially the loss of key customers. This results in the reduction of market shares. For example, according to Participant A, "Yes, we are influenced, mainly in the aspect of export sales. The United States imposed tariffs on some commodities. In the case of some customers that do not understand the specific tariff commodity codes, they will reduce the purchase of products from our company, which will cause our company to lose customers" (Participant A, Personal communication, translated from Chinese by the author, November 12, 2018).

In fact, not only those customers who are not familiar with the tariffs but also long-term partners will reduce their purchases under the pressure of tariffs. According to Participant B's answer to the question of what are the influences of the recent tariff changes between the U.S. and China, "Yes, the product is subject to a 25% tariff increase in the United States, and there is a possibility of losing existing customers" (Participant B, Personal communication, translated from Chinese by the author, November 19, 2018). As mentioned in the previous section, there are many manufacturers equipped to produce substitutes. The competition from the domestic and global suppliers facilitates the customers to reduce their demand for Chinese products.

3.3. Profit Margin Reduction

The indirect results from increased costs are losing competitiveness and demand reduction, and the direct result from increased costs while keeping the same price is a reduction in profit margin. Participant A said, “the changes in international economic and policies will cause the company's profits to fluctuate greatly” (Participant A, Personal communication, translated from Chinese by the author, November 12, 2018). Each of these negative influences added to the reduction in profit margins, which lead to the company to lose money. The increased costs directly squeezed the profit margin unless the company decides to increase the price equal or more than the cost increased. However, the increase in selling price can lead to the loss of competitiveness. The companies being less competitive in the U.S. market also led to fluctuations in the profit margins. More costs are associated with improving the competitiveness depending on the companies’ strategies, such as costs of negotiation and marketing. In addition, all four exporting companies interviewed claimed the importance of choosing a market with large demand. One of their reasoning of exporting to the U.S. market is the large volume of orders. Therefore, a demand reduction would also have a negative impact on their profit. In short, as an influence of the tariffs between the U.S. and China, the exporting companies in China tend to lose money.

4. The Influences on Customers (Chinese Importing Companies)

The structure of this section is similar to the previous section, which follows the chain reaction started by the implementation of tariffs between the U.S. and China. However, this section focuses on the influences on the role of customers who import from American companies. As shown in Figure 5.4.1., increased costs led to disruption in the supply chain, because the companies being influenced might need to seek for new suppliers. Therefore, companies suffered from squeezed profit margins and struggled with money losses. Before the discussion of this section, two notes must be mentioned.

First, switching suppliers was not the only option for Chinese importing companies during the trade war, but it was the only option mentioned by the interviewees of this research. An alternative option could be forcing American suppliers to drive down their selling prices. However, it largely depends on the American suppliers’ bargaining power, which includes switching costs, firm’s level of concentration compared to the industry average, product differentiation, and the availability of substitutes (Porter 2008).

Second, for the companies who had to bear with the increased buying prices by keeping importing from the U.S. and not changing suppliers, the influence is directly reflected on the profit margins (see the option “No” in Figure 5.4.1.). However, these importing companies had to make several adjustments to cover the increased costs, which also resulted in disruptions in the supply chain. Since these adjustments in the supply chain happened much later than the tariff implementations, it will be discussed more in Chapter 6. In this section, the focus is on the influences of tariff increases on the Chinese importing companies who had to switch for another supplier.

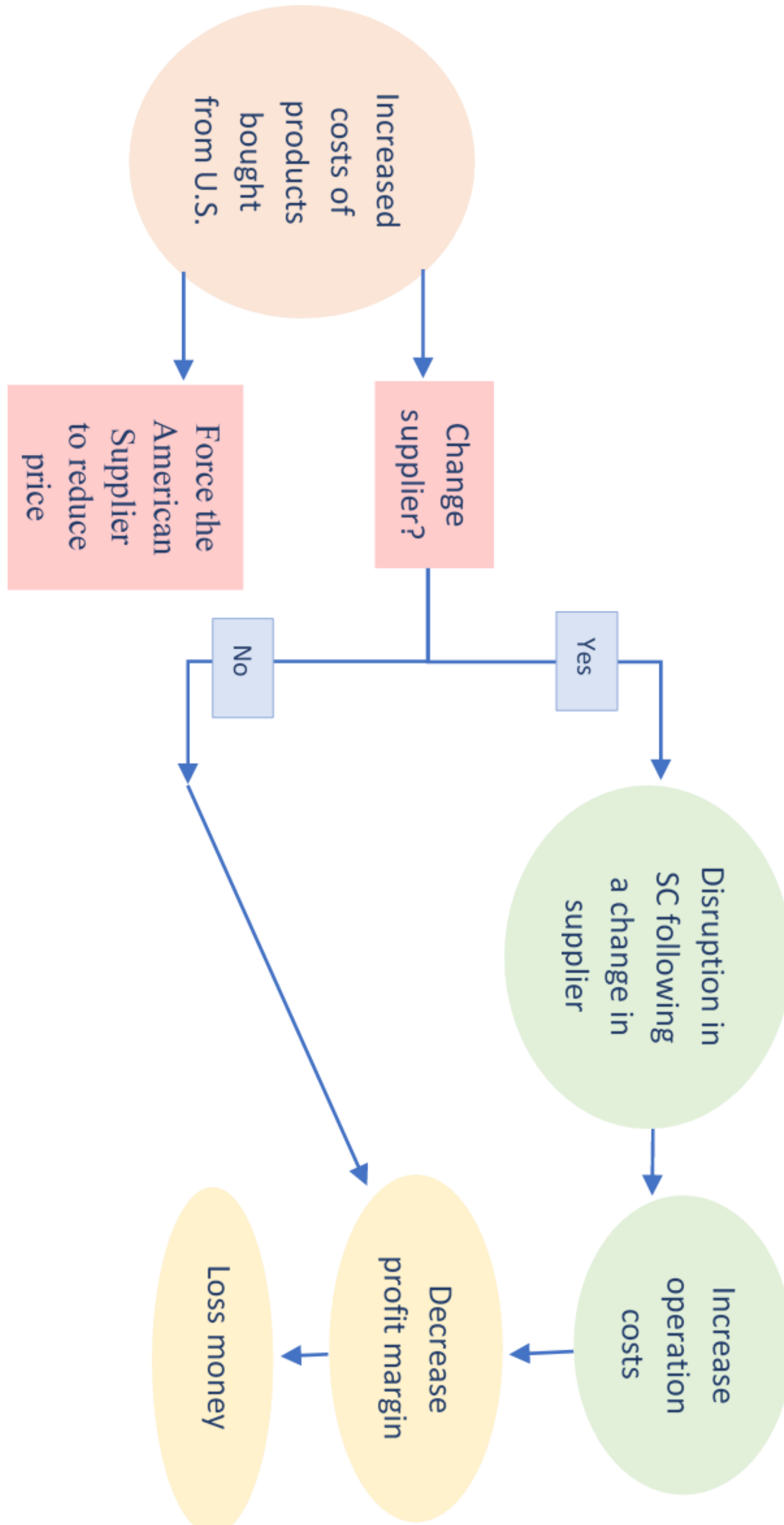

Figure 5.4.1. The Influences on Importing Companies

4.1. Disruptions in the Supply Chain

The recently imposed tariffs on American products resulted in the increased costs for the Chinese importing companies. Some of them had to face the changes in tariffs by switching to suppliers from other countries.

For the companies who had to find new suppliers, such as Company F, their supply chain was disrupted. In Chinese importing companies' supply chain, the suppliers are in an important position, which is the beginning of the whole supply chain. A change in the upstream will influence all later sections of the supply chain. The process of searching for a new supplier consumes time and resources. Moreover, during the switch, there might be a problem with the logistics as well. After switching to the new supplier, the companies will need to adjust the supply chain again to fit the new supplier in. These sequences of supply chain turbulences will increase the cost for the company. It is the company's responsibility to leverage between the costs of tariffs and the costs of changing suppliers, thus minimize the loss.

4.2. Profit Margin Reduction

The profit margin was squeezed due to the disruptions in the supply chain. Referring to Figure 5.4.2., which represents the Porter's Value Chain, changes in the supply chain influenced both primary activities and supportive activities. As seen in the "Primary Activities" on the bottom, inbound logistics were reset since the country of the supplier was switched for the Chinese importing companies. Moreover, as shown in Figure 5.4.2., the "Firm Infrastructure", "Technology Development", and "Procurement" were all influenced by the tariffs. In detail, the finance of the company was influenced. Also, the "integrated supply chain system", "sales information", and the activities related to procurement were all facing challenges due to tariff changes. In addition, the increased costs could even cause adjustments in the "Human Resource Management" (See Figure 5.4.2.). For example, losing money in the company could lead to adjustments in wages and positions. These changes contributed to reducing profit margins. Without a large increase in the sales volume, the companies could lose money.

Figure 5.4.2. Value Chain

Source: Smartsheet ("The Complete Guide to Value Chain Modeling" 2018)

5. The Influences on Companies Not Directly Affected by the Tariff Changes

In the eight interviews, there are four companies that were not influenced by the tariffs. However, the situation is not "all or none" because of the complexity of products. Many products are being processed or even reprocessed both before and after the imports and exports, which made it harder to separate the products during the tariff fluctuations. Take the example of Company C, which is an exporting company for garments. Their products were not targeted by the tariffs in the U.S., but the company still suffered from increased costs. The reasoning is that one of their raw materials to dye the clothes was influenced by the tariffs. Even though Company C was not directly influenced by the tariffs between the U.S. and China, it was still indirectly influenced. The case is not exclusive for Company C, and the influences of the tariffs are extensive.

Suppliers (Exporting)	*Customers (Importing)*
Tariffs	Tariffs
Increased Costs	Increased Costs
Competitiveness	Disruption in Supply Chain
Demand Reduction	
Profit Margin	**Profit Margin**
Money loss	**Money Losses**

Table 5.5.1. The conclusion of the Influences

In conclusion, for both importing companies and exporting companies, they all shared the same results of squeezed profit margins and losing money (See table 5.5.1.). The exporting companies were mainly facing marketing challenges, whereas the importing companies were having issues in their value chains. Both types of company's supply chain were influenced, which requires a certain level of coordination depending on the company's executive decision. The next important step for companies to survive is to implement effective strategies to minimize these negative influences, as well as proactive strategies to prepare for future tariff fluctuations. These will be described in the next chapter.

Chapter 6 Interview Analysis -Strategies: Reactions and Solutions

The discussion in this chapter is based on the eight interviews gathered for this thesis. The interviews were analyzed through Atlas.ti. The analysis shows that sixteen different strategies were mentioned in the interview transcripts and notes. The strategies are divided into two categories: reactive strategies and proactive strategies. The reactive strategies aimed to mitigate the direct effects of tariffs, whereas the proactive strategies aimed at future uncertainties. In each category, the strategies are sorted as either supply chain management related strategies or other strategies.

1. Reactive Strategies

The reactive strategies include countermeasures that were mainly proposed by participants from companies which were influenced by the recent tariffs. These measures have been used or have been considered by the companies in reaction to the increase in tariffs.

1.1. Supply Chain Management Strategies

The tariffs between the U.S. and China have many influences on Chinese trading companies. In fact, many of the influences were reflected in their supply chains, which correspondingly require the companies to make several adjustments in the supply chains to counterbalance the influences caused by the tariff changes. This section describes five strategies that fit into four categories: developing new oversea markets, reducing the selling price of products, searching for substituting suppliers, and optimizing the company's supply chain. Two strategies fit into the category of "Competitiveness Improvements through the Supply Chain" because of the similarity in the objective.

1.1.1. Accessing New Markets for Exporting Companies

Following the tariffs being implemented, there was a clear reduction in demand for exporting companies which were targeted. One of the strategies these companies adopted was to develop new markets. Although many participants brought up the option of giving up the U.S. market completely and moving their sales to new markets, none of the eight companies interviewed actually did.

Accessing new markets is not a simple decision, it requires complicated analysis done by professionals. According to the Cultural, Administrative, Geographical, and Economic [CAGE] distance framework, before engaging in cross-border businesses, there are many factors that should be identified on the each of the four levels (Ghemawat 2016). While choosing new markets, more differences in these categories usually represent more negative forces (Ghemawat 2016). Referring to Table 6.1.1., similarities such as colony links, common land border, and a common currency have strong positive effects on bilateral trades. In contrast, physical distances and differences in corruption are reducing trades.

Dimensions of Distance /Proximity	**Determinant**	*Change in Trade*
***C**ultural*	Common language	*+42%*
***A**dministrative*	Common regional trading bloc	*+47%*
	Colony/colonizer links	*+188%*
	Common currency	*+114%*
	Differences in corruption	*–11%*
***G**eographic*	Physical distance: 1% increase	*–1.1%*
	Physical size: 1% increase	*–0.2%*
	Landlockedness	*–48%*
	Common land border	*+125%*
***E**conomic*	Economic size: GDP (1% increase)	*+0.8%*
	Income level: GDP per capita (1% increase)	*+0.7%*

Table 6.1.1. Effects of Similarities Versus Differences on Bilateral Trade

Source: Differences and the CAGE Distance Framework, Ghemawat (2016)

However, even though none of the participating companies intended to give up the American market, some companies chose to partially exit the competition. For example, Participant A mentioned that “For now, we are not considering giving up customers in the United States. Most of our sales are export sales, and among that, most of them are American customers”, but Company A will put the focus more “on exploring the domestic market and the

European market" (Participant A, Personal Communication, translated from Chinese by the author, November 12, 2018). The fact that demand is high in the U.S. could increase the difficulty of exiting the market for trading companies like Company A.

1.1.2. Reducing Prices for Exporting Companies

Both Company B and Company C considered the price reduction strategy after the tariffs increased between China and the U.S. However, up to the date of the interviews, neither of the two companies reduced their selling prices for two main reasons. On one hand, these companies already suffered from increased costs. One or many components of their exporting products were imported from the U.S. and affected by the tariffs increases. The profit margin was already shrinking; thus, it was difficult to for exporting companies to reduce their prices. On the other hand, the situation was not stabilized yet, there might be further changes in the tariffs. Therefore, companies were waiting for trends to be settled, and then to decide on which strategy to implement. In addition, Participant B proposed another factor that is closely related to the strategy of price reduction. "We will also consider lowering the price to maintain the existing market whenever there is a good exchange rate", said Participant B (Personal Communication, translated from Chinese by the author, November 19, 2018). A more beneficial exchange rate for the Chinese company gives them more flexibility to adjust prices while keeping a satisfactory profit margin.

1.1.3. Changing Suppliers for Importing Companies

There are three possibilities when considering changing suppliers for importing companies. The first one is switching to domestic suppliers, which changes the nature of the trading company. The second option is importing from other American companies which quote at cheaper prices. The last possibility is switching to international suppliers from countries other than the U.S. However, the three options not necessarily have to be applied separately. In other words, the four importing companies interviewed each have more than one product, which means each company can implement different procurement strategies for depending on the product. The decision is based on each company's distinct situation and the level of impact of the tariff changes on the company.

A strategy adopted by Participant F was switching from American suppliers to Chinese suppliers. In this case, the imported products are mainly cable harnesses. Some of these products can be manufactured by domestic companies, but the rest cannot. Company F's management team decided to replace the substitutable products with domestic manufactured ones, and at the same time, kept importing the non-substitutable products from the U.S. The strategy was efficient: it immediately reduced the procurement costs of the company. In the case of Company F, it is still an importing company because some of the products are imported as usual. However, if a company changes to domestic purchases for all their products, the nature of the company is no longer international trading.

For the non-substitutable products imported by Company F, the second strategy mentioned above was implemented, which is switching to other brands of suppliers in the U.S. market. According to Participant F, "Some raw materials are only manufactured by the U.S., we cannot give up [the importation]", which means Chinese manufacturers are not equipped to produce these products (Participant F, Personal Communication, translated from Chinese by the author, December 17, 2018). Therefore, in order to control the increased costs and limit the influences of tariff changes, Company F had to suspend their partnership with their original American suppliers. Instead, the company switched to another supplier which is also located in the U.S. but quoted at cheaper prices.

Another strategy that an importing company can adopt is switching from an American supplier to another foreign supplier. According to Participant E, Company E anticipated that "30% of the customers might give up on the U.S. market or switch to German or Japanese [suppliers]" (Participant E, Personal Communication, translated from Chinese by the author, October 12, 2018). Even though Company E had not implemented the strategy up until the day of the interview, it is most likely the company will have to develop partnerships with new suppliers from Germany or Japan, because the products provided by Company E are customized based on their customer's needs.

1.1.4. Competitiveness Improvements through the Supply Chain

The previous three types of strategies aimed at the two ends of the supply chain, which are the customers and the suppliers. However, more strategies were applied within the companies interviewed in other parts of the supply chain. There are two main purposes of these strategies: reducing costs and increasing competitiveness.

Both importing and exporting companies had to deal with increased costs after the tariff changes, which urged the companies to take actions on reducing not only external costs such as switching suppliers but also internal costs of their supply chains.

The VA/VE is a method that helps companies to reduce costs, which was brought up by Participant H. VA/VE stands for Value Analysis/Value Engineering. According to HCL Technologies' explanation,

> *VA/VE "is a service that identifies areas of high costs and helps to eliminate them. The heart of the service is the VAVE framework with creative problem-solving that promotes the development of value-added cost-effective solutions by interdisciplinary teams. The ingrained approaches foster comparable functionality at a lower cost, thereby improving product profitability and increasing margins"* ("Value Analysis and Value Engineering (VAVE)" n.d.).

Using the VA/VE method will enable the company to locate the sections that create redundant costs, to optimize their supply chain, to increase profit margins, and thus to cover the costs caused by the tariffs between the U.S. and China.

A strategy similar to VA/VE is Kaizen, which is known as the continuous improvement system. This strategy could help the company to achieve the same goal as VA/VE, which is reducing internal costs. Kaizen not only happens when there is a major deflect but also happens on a fixed time interval to identify the "source of waste" and improve the supply chain (Medinilla 2014). The wastes are defined as bottlenecks such as "unnecessary transportation, inventory excess, overproduction, idle times, waiting or queuing times, handouts" (Medinilla 2014). A successful example is Toyota, which reduced lead times, improved capacity, shorten the delivery time, and lowered production cost (Medinilla 2014). Companies which implemented Kaizen could be as much as four times more productive, and in terms of quality, companies using Kaizen could be twelves time better (Medinilla 2014). Therefore, the Kaizen system could help companies to improve competitiveness.

Another influence discussed in the previous chapter is the loss of competitiveness. Under the pressure of increased tariffs, some companies are less competitive not only on the price but also on the level of long-term stability. Therefore, some companies with manufacturing capabilities decided to improve the quality of their products in order to improve their corporate competitiveness.

According to Participant B, Company B's products were targeted by the U.S. government with a 25% increase of tariffs. Although the company only asked the customers to bear 5% of the tariffs, the price increase put the company in a less competitive position than its competitors from other countries. In order to compete in the U.S. market, one of the many strategies Company B applied was to improve the quality of their products. However, the strategy required the company to balance the capital input and the profit margin. Improving product quality consumes resource, labor, time, and cash. Holding the selling price constant and offering products of higher quality reduces the profit, but it might increase the volume of sales. However, another option is to improve product quality and at the same time increase the selling price. Such a strategy can result in restructuration of the company's supply chain depending on the level of modification. Companies must be cautious of the changes, as the strategy may have an impact on the targeted customer base.

1.2. Marketing and Political Strategies

For the companies who were influenced by the tariffs, the participants mentioned more strategies that were not aimed at the supply chain. These strategies are categorized into two types: marketing strategies and political strategies.

1.2.1. Marketing Strategy

The increase in tariffs started since the beginning of 2018, and one of the influences was the reduction in demand (Tan 2018). Therefore, many trading companies used marketing strategies to boost sales or at least to reduce the negative influences of tariffs increases. The marketing strategies implemented after demand reduction is different for the business to customer (B2C) mode and the business to business (B2B) mode. Therefore, it is necessary to separate these marketing strategies based on the targeted customer base.

A. Targeting Consumers – Advertisement and Promotion

In the case of Company B and Company E, their products are sold to not only other businesses but also to consumers. According to Participant B, one of Company B's strategies was "actively responding to the adverse effects of China-U.S. trade frictions [by] vigorously implementing brand strategies" (Participant B, Personal Communication, translated from Chinese by the author, November 19, 2018). Examples of these brand strategies are advertising products and establishing promotions.

There are four steps in developing the advertising strategy: "positioning statement", "target customer", "communication media", and "implementation" ("Advertising Strategy" n.d.). It is important for the company to understand its strengths and weaknesses as well as its customers before implementing the advertisement strategy ("Advertising Strategy" n.d.). After the first two steps, the company needs to choose an advertising method to implement, such as online advertisements, newspaper ads, television ads, radio ads, public speaking, flyers and door hangers, sponsoring events, and social media marketing (Lovering 2018). However, it is the companies' responsibility to decide which method to implement. For example, social media marketing requires little input in terms of money but requires a significant amount of time and skills to manage (Lovering 2018). On the contrary, television marketing costs much more money depending on the programming. In short, under the influence of uncertainties such as tariff changes, implementing advertisement helps the company to reach its consumers, which promotes sales.

Promotional marketing is defined as a strategy which aims to stimulate customers to purchase the product or service ("52 Types of Marketing Strategies" n.d.). The main difference between promotion and simple price reduction is that promotional marketing does not necessarily reduce the profit of the company directly. Methods of promotional marketing include contests, coupons, and sampling ("52 Types of Marketing Strategies" n.d.). The form of promotional marketing is also diversified, such as mail, email, on-site, online real-time interactions ("Promotional Marketing - Explore the Strategy of Promotional Marketing" n.d.). These strategies are used in order to "raise awareness about a product or increase its appeal", and "offers new customers a reason to try the product for the first time, while building loyalty in existing customers" ("Promotional Marketing - Explore the Strategy of Promotional Marketing" n.d.). When a company is negatively influenced by exogenous factors such as tariffs, promotions can increase the demand to a certain extent.

B. Targeting Companies - Participating in Exhibits

According to Participant A, Company A's management team decided to participate in more exhibitions in the U.S. The strategy aimed at promoting the company's products and exploring more opportunities for partnerships. Furthermore, both importing and exporting companies can benefit from participating in exhibitions in both the U.S. and China. There are two roles for businesses in each exhibition: the exhibitor and the buyer. Therefore, companies can potentially find both suppliers and customers in exhibitions.

During the tariff fluctuations between the U.S. and China, from November 5th to 10th in 2018, China held the China International Import Expo [CIIE] ("China's CIIE Trade Expo Logs Deals Worth Billions: State Media" 2018). It is the largest import exposition in China up to now (Wong 2018). The exposition attracted more than 3600 companies from 172 countries and more than 400,000 buyers (Cheng 2018). Moreover, CIIE also organized 300 onsite events during the days (Wong 2018). Around 300 college students volunteered to lead the visitors around the showroom (Cheng 2018). By the end of the exposition, the total worth of deals signed was around $57.83 billion ("China's CIIE Trade Expo Logs Deals Worth Billions: State Media" 2018). Among the total agreements, there were $11.99 billion worth of automobile goods, $16.46 billion high-end worth of equipment, $4.33 billion worth of electronics, $3.37 billion worth of clothing and consumer goods, and $5.76 billion worth of medical goods ("China's CIIE Trade Expo Logs Deals Worth Billions: State Media" 2018). The theme of CIIE was "New Era, Shared Future", and the goal of the exposition was to strengthen "the economic cooperation and trade" and to promote "global trade and world economic growth" (Wong 2018). Participating expositions benefits the trading companies in many ways. First, it helps companies find partners, such as suppliers and customers. In addition, the exposition provides an opportunity for the trading companies to explore products in order to extend their product line. Moreover, there is a possibility for the trading companies to find future employees among all the volunteers.

1.2.2. Political Strategies

Although the decision of implementing tariffs is determined by the government, there are still many political strategies that trading companies can adopt in order to reduce the negative influences of tariffs. However, political strategies largely depend on the company's situation such as the size of the company, the company's social influences, the closeness with the government, and the industry that the company is in. In this section, only one strategy is discussed since it is the sole political method mentioned by the interviewees.

According to Participant B, "On April 4th, we immediately took action to contact lawyers in the United States for consultation, and then contacted customers from the U.S. We worked with our attorney to apply to the U.S. Department of Commerce to remove the flywheel products from the tax increase list" (Personal Communication, translated from Chinese by the author, November 19, 2018). Company B attempted to avoid the damage of tariff increases by imposing political measures. Among all the participating companies, Company B is relatively big in terms of sales volume and annual revenue. Therefore, Company B has the capital to implement political strategies such as negotiating with the U.S. government. Although in the end, Company B's products were still subject to increased tariffs, it is still a strategy that is worth trying as long as the company's resources allow it.

2. Proactive Strategies

The proactive strategies were brought up by the companies which were not influenced by the recently implemented tariffs. The interviewees intended to increase their resilience level of future tariff uncertainties by imposing these strategies. The strategies were sorted into two categories same as the section about reactive strategies: supply chain related strategies and other strategies. In this section, six strategies are described.

The goal of many strategies in this section is to achieve competitive advantages or to pursue sustained competitive advantages. There are four main factors that could help the company according to the resource-based view theory: rareness, value, substitutability, and imitability (Barney 1991). A company's resource is strengths such as assets, capability, information, knowledge, which helps the company to be more efficient (Barney 1991). The rareness attribute is achieved when the resource is possessed by a small number of companies (Barney 1991). The valuable resources enable companies to improve efficiency (Barney 1991). Reducing the substitutability also helps companies to pursue competitive advantage (Barney 1991). Lastly, Barney defined the imitability factor as imperfect, which requires the company to possess a strategy that other companies cannot "conceive of, or implement, or both" because of lacking the resources required (Barney 1991). Being imitable is the key to achieve sustained competitive advantage (Barney 1991).

2.1. Supply Chain Strategies

In the long run, many participants believed that improvements in the supply chain would help a company stay resilient from uncertainties. Three strategies were mentioned in the eight interviews: negotiating with other suppliers either as backups or alternatives, searching for alternative markets, building long-term stable partnerships with existing customers, and closely monitoring the tariffs and the exchange rate between the U.S. and China.

2.1.1. Finding Alternative Suppliers

Both Participant G and Participant H mentioned the intention of exploring alternative suppliers. Although Company G and Company H were not influenced by the tariffs, the two companies still implemented proactive strategies to overcome future challenges. There are two types of purposes in searching for alternative suppliers. Some companies will immediately substitute the previous supplier with the new supplier. The other companies which are searching for alternative suppliers will not switch their suppliers right away. Instead, these companies will maintain relationships with these companies and keep in touch with these new suppliers in order to have backup plans.

According to Participant G, if Company G is able to find alternative suppliers in the long run, the company would consider switching to more advantageous ones. Moreover, Company G will "adjust the whole supplier system within the company if necessary" (Participant G, Personal Communication, translated from Chinese by the author, December 18, 2018). The incentive of companies using this strategy may not be as strong as those companies which were directly influenced by the tariffs. Switching suppliers without an immediate cause could possibly lead to disruptions in the supply chain, as stated in Section 1.1.3. However, considering the frequent tariff fluctuations between the U.S. and China, companies such as Company G considered the strategy achievable and was ready to manage the aftermath.

Another option is to stay in touch with suitable suppliers in case there is an emergency, according to Participant H. The strategy is less straightforward than directly switching suppliers. In fact, many scholars believe that this strategy is beneficial for many companies. Doctor Hough, who is the founder of the American Purchasing Society, claimed that "If you wait until your single source supplier goes out of business before looking for a second source it is usually too late to prevent a costly problem" (Hough 2011). Moreover, even if the company is able to find an alternative supplier right after the uncertainty happened, there could be many issues such as delay in the shipment date, higher payment than the original price, insufficient number of products in stock (Hough 2011). In short, although maintaining a relationship with alternative suppliers requires resources, the strategy will improve the resilience of the company.

2.1.2. Finding Alternative Markets

Following the same logic, companies can also implement the proactive strategy of finding alternative markets. It is different from the reactive strategy of searching for new markets in nature. The strategy requires no immediate switch of the market because of the fact that companies are not currently influenced by tariff changes. However, being proactive requires the companies to research for alternative markets and to be ready to sell the product to these markets right away. Therefore, the products must qualify to be sold to alternative markets without reassembling and with minimal to none repackaging necessary whenever uncertainties occur.

For example, the barcodes are different in the U.S. and Europe. According to the Global Language of Business [GS1], there are four different types of barcodes that are "the longest-established and most widely-used": EAN-13, UPC-A, UPC-C, EAN-8 ("EAN/UPC Barcodes" 2014). However, the UPC-A barcode is a sub-group of the EAN-13 barcode, which has one less digit than the thirteen digits EAN-13 barcode ("Difference Between EAN and UPC Barcodes" n.d.). The UPC-A barcodes are used on products in the U.S. and Canada, whereas the EAN-13 barcodes are printed on products everywhere else in the world ("Retail Barcodes" n.d.). Even though the difference is big, for companies which are mainly exporting to the U.S., the option could be using EAN-13 barcodes starting with number "0" ("Difference Between EAN and UPC Barcodes" n.d.). By removing the "0" at the beginning of an EAN-13 barcode, it has the same numbers as a UPC-A barcode ("Difference Between EAN and UPC Barcodes" n.d.). The right choice of the barcodes type will help the company to sell products to various markets.

2.1.3. Developing Long-term Partnerships

Maintaining a long-term partnership with suppliers for importing companies and with customers for exporting companies is critical. There are many methods for the trading companies to maintain a stable and longstanding relationship with the suppliers and customers: signing long-term contracts, signing other contracts that enhance the partnerships, reducing the selling prices, encouraging high-level reciprocal visits, and increasing product quality. However, a long-term partnership involves mutual benefit, trust, respect, and many more factors. This strategy is unique because it could not be quantified and varies case by case. Following are some examples mentioned by the interviewees that might potentially help trading companies to achieve long-term partnerships with their suppliers and customers.

The most direct approach to maintain a long-term relationship is signing a contract. There are two types of contracts that help to strengthen this goal: legally assuring the partnership for a period of time and favoring at least one party by a specific rule. While singing a contract with either the buyers or suppliers, the selling price is only effective within a specific period of time depending on the agreement of both parties. If the companies intend to reach a long-term partnership, they will agree on a mutual contract which shows sincerity.

On the other hand, maintaining a long-term relationship could be achieved by subtly favoring partner businesses. For example, a buyback contract enables the buying company to sell back unsold products with a lower price (Cachon and Lariviere 2017). This type of contracts allows the supplying companies to be more appealing than their competitors, which helps the companies to have more potential for long-term partnerships. Other examples are quantity-flexibility and sales-rebate contracts, which limit the quantity of refund and reward extra sales (Cachon and Lariviere 2017).

According to Participant D, Company D was considering a price reduction in order to favor their existing customers as well as attracting new customers. The management team of Company D believed that the strategy would increase the company's overall competitiveness, even though the profit margin will be decreased. Indeed, it could help the company to obtain more opportunities for long-term partnerships.

Frequent reciprocal visit also helps companies to achieve long-term partnerships with their suppliers and customers in the B to B mode. The reciprocal visits should be between top managers in order to exchange decision making information. This strategy could reduce the possibility of asymmetric information, which is defined as when one party of the business knows more information than the other party (Lofgren, Persson, and Weibull 2008). When two companies are willing to exchange information, they could have more possibilities to establish a stable business relationship.

In order to increase competitiveness, Participant D also mentioned the strategy of improving product quality. However, there are both advantages and disadvantages. Company

D’s decision-makers were well aware that the trade-off of providing higher quality products without lifting the selling price is profit reduction. In addition, quality improvement might also require more inputs on product development. More details are discussed in Section 2.2.2.

2.1.4. Monitoring Tariffs and the Exchange Rate

According to Participant D as one of the proactive strategies, Company D decided to closely monitor the changes in tariffs and the exchange rates. Monitoring the tariffs allowed the company to react in time and to stay updated. Paying close attention to the exchange rates between the U.S. and China also enabled the company to be more flexible. To be more specific, Company D would possess the full potential to change the selling prices according to the exchange rate as Participant B proposed. Since Company B was already influenced by the tariffs, one of their strategies is to reduce the price when the exchange rate is more favorable to the Chinese currency. Therefore, if the Company D also suffer from a loss of money in the future, it will be able to compensate for the loss to a certain extent.

Staying tuned about tariffs and exchange rates can also be useful to better forecast the demand. Indeed, if there is an increase in tariffs or the exchange rate becomes unfavorable, the demand will probably decrease. This can be taken into consideration by various forecasting models. The purpose of better forecasting demand is to minimize redundant costs. There are many extra costs caused by unsold products, such as costs for perishable products, transportation costs, and warehousing costs. However, instead of removing the aforementioned costs, a relatively good demand forecast optimizes the product quantity in each part of the supply chain and minimizes unnecessary wastes. There are two main types of demand forecasting: quantitative method which is based on demand data; and qualitative method which is based on human judgment (Sharma 2015). In the quantitative category, one of the approaches is time series, which analyze the changes in historical demand data (Archer 1980). The other is the “causal method”, which identifies the factors that influence the demand (Archer 1980). Multi-variable regression analysis in the casual approach is frequently used. Tariff changes and exchange rates can be added into the regression function as coefficients so that forecasting the demand include their potential influences (Archer 1980). Moreover, it is also common for companies to combine both quantitative and qualitative methods for the purpose of limiting errors (Sharma 2015).

2.2. Marketing Strategies and R&D Strategies

Apart from focusing on the supply chain itself, many companies chose to use marketing strategies and R&D strategies.

2.2.1. Marketing Strategies

A total of three proactive marketing strategies were mentioned by the interviewees: increasing the market share, adjusting the market distribution, and building an internationalized brand image. The strategies in this section are not direct results of increased tariffs. Instead, these strategies aim to increase the customer base in the long run and improve the company's level of resilience.

A. Increasing the Market Share

During the interview with Participant C, the strategy of increasing its market share was brought up as a proactive measure. However, the strategy was still a concept for Company C. Participant C also mentioned that "grasping the trend of new products and trying to find the corresponding styles of substitutes with good quality and cheap price can expand the market and increase trade volume" (Personal Communication, translated from Chinese by the author, October 19, 2018). Implementing expansion increases the company's overall influence in the industry, thus its bargaining power.

Suppliers' and buyers' bargaining power are two of the five forces that determine a company's role in the industry (Porter 2008). No matter if the company is importing or exporting, they all deal with global suppliers and buyers. Moreover, the intensity of rivalry in the industry is related to the number of competitors, the distribution of resources, and the market share in the industry (Porter 2008). Therefore, expanding the market share allows the company to have less competition. Companies also have more bargaining power either as a supplier or a buyer with a larger market share and fewer substitutes. In fact, increasing the market share only as a countermeasure for tariff changes is risky because the level of adjustment is relatively high. However, if expansion is in accord with the company's long-term plan, it will also increase the company's level of resilience.

B. Adjusting the Market Distribution

Expanding the market share is not the only marketing strategy available for companies to be more resilient to tariff changes. Instead of increasing capacity and sales volume, adjusting the distribution of sales area also reduces the influence of uncertainties. In the long-run, gradually moving the companies' market focus to other countries is a proactive strategy mentioned by both Participant B and Participant D. The goal of this strategy is not developing new markets but adjusting the distribution of market among existing trading counties. By reducing the volume of sales in countries with more possibilities of turbulence, the company would have a more stable network.

C. Building the Brand Image

According to Participant H, promoting its internationalized supply chain is not only a supply chain strategy but also part of Company H's marketing strategy. In fact, branding is an essential step in the structure of the marketing strategy because it is highly correlated to the sales volume.

A brand is not a logo, it is an intangible asset that connects to the customers and distinguishes the company from mediocre ones (Stec 2018). There are four branding decisions according to Claessens: brand positioning, name selection, sponsorship, and brand decisions (Claessens 2015). For company H, building an internationalized brand image is part of the brand positioning process which can be achieved by sponsorships.

Positioning the brand can be taken on the product, benefit, and value level within a company (Claessens 2015). On all three levels, company H's re-positioning strategy will help the company become more resilient in the future when uncertainties such as tariff fluctuations happen. The approach of promoting is various, such as advertisement and social media marketing. However, the sponsorship here as a marketing strategy is not the same. Instead of investing money to create a new brand, a company can license well-known brands of other manufacturers (Claessens 2015). Another type of sponsorship is called co-brand, which put similar products from two different companies under one joint brand (Claessens 2015). Both approaches could help Company H to establish an internationalized brand image for their products. In the future, this strategy will help Company H become more resilient under the influences of uncertainties.

2.2.2. R&D Strategies

While discussing the proactive strategies during the interviews, many participants mentioned that strengthening research and development would benefit the company in the long-run. According to Participant D, the company was "planning on a transformation for our high-tech products, in order to improve the competitiveness and expand the profit margin" (Personal Communication, translated from Chinese by the author, October 23, 2018). Company D mainly exports optical elements, which are products that have strict technical requirements. Even though the company was not influenced by the recent tariff changes, Company D still considered to upgrade its products.

For Company B, which was already influenced by the tariffs, Participant B also proposed that "we are stepping up the upgrading process, increasing research and development, improving products' technology content" (Participant B, Personal Communication, translated from Chinese by the author, November 19, 2018). Even though the strategy is not effective immediately, it is a proactive strategy that increases the company's competitiveness and resilience. Participant A, who was discussing the tariff fluctuations without considering the fact that Company A was influenced, mentioned the strategy of strengthening the research and developing new products. Being innovative and continually upgrading its products is a way to facilitate the strengthening process of the company. In short, upgrading the R&D process is exclusive to companies who possess the capability of manufacturing. In the long-run, the company which invested in the R&D will be more resilient to uncertainties.

2.2.3. General Risk Management Tools

Company G's management team put special focuses on products in the "risky supply" category (Participant G, Personal Communication, translated from Chinese by the author, December 18, 2018). There are four main characteristics of this type of products imported from its suppliers: products that typically have a longer ordering cycle; products that have a higher demand than supply; products that face potential price increases; and products that have complexities during transportation. Long ordering cycle can be from three months and up to six months. Also, some products are highly demanded, which means whenever there is a shortage of supply, many importing companies will compete over it. Tariff increases fit in the category of facing a potential price increase, which means that the price of some products is easily influenced by external factors. Lastly, products that are highly controlled by customs and products that can only be transported by ocean freight also requires attention. Monitoring these products more carefully includes knowing the quantity in stock, the quantity on the way, and the quantity to be ordered. This enables Company G to react as fast as possible to limit negative influences when uncertainties happen.

There are no risk management tools used to monitor the importing process for Company E. However, its managers try to control risks during the selection process of suppliers. Participant E gave an example based on past cases, "We have some typical considerations that we apply on each company. For example, if we are doing importing, we will do research on the supplier. In the past, we have put some companies on the blacklist. This is also considered as one of our risk management tools" (Participant E, personal communication, translated from Chinese by the author, October 12, 2018). By avoiding suppliers with a bad reputation, Participant E believes it will effectively limit the potential negative influences in the future.

In conclusion, five out of eight companies interviewed chose to combine multiple strategies together (see Table 6.2.2.). For example, in order to limit the impact of tariff changes, Company A combined two countermeasures together which were accessing new market and enhancing the advertisement. For Company D, the proactive strategies implemented were monitoring tariffs and exchange rates, maintaining long-term relationships with its customers, adjusting its market distribution, and using general risk management tools. In addition, among all the companies interviewed, Company A, B, E, and F were influenced by the tariff fluctuations, and Company C, D, G, and H were not influenced or targeted by the tariffs. Participant B provided both details of strategies implemented by Company B and suggestions of proactive strategies for other companies, and Participant C mentioned proactive strategies for the future development of Company C.

	Strategy/Company	A	B	C	D	E	F	G	H
Reactive	Accessing new market for exporting companies	✓							
	Reducing prices for exporting companies		✓	✓					
	Changing suppliers for importing companies					✓	✓		
	Implementing VA/VE								✓
	Improving product quality		✓						
	Advertisement/promotion		✓						
	Participating in exhibits	✓							
	Political strategies		✓						
		A	B	C	D	E	F	G	H
Proactive	Finding alternative suppliers							✓	✓
	Developing long-term partnerships				✓				
	Monitoring tariffs and the exchange rate				✓				
	Increasing the market share			✓					
	Adjusting the market distribution		✓		✓				
	Building the brand image								✓
	R&D strategies								
	General risk management tools		✓		✓				
Total of Strategies Mentioned		**2**	**6**	**2**	**4**	**1**	**1**	**1**	**3**

Table 6.2.2. Checklist of Strategies by Company

Chapter 7 Conclusion

The tariff fluctuations that started in 2018 influenced Chinese trading companies in many aspects. The direct impact on both importing and exporting companies have been increased costs. Consequently, the exporting companies faced competitiveness reduction, demand reduction, and profit margin reduction. Also, the importing companies suffered from supply chain disruptions and profit margin reductions. The participants shared sixteen strategies in total that include reactive and proactive strategies.

In order to deal with the negative influences of tariff increases, companies could implement a set of supply chain management strategies: the exporting companies may access new markets and reduce selling prices; the importing companies may pressure its US supplier to reduce prices, switch suppliers, utilize VA/VE, and improve product quality. In addition, marketing strategies can also be adopted as a reactive strategy: putting advertisements and promotions targeting consumers and participating exhibits targeting companies. Moreover, participants also suggested implementing political strategies such as negotiating with governmental agencies to reduce tariffs.

For companies who were not influenced by the tariffs, it is also important to implement strategies to increase resilience for future uncertainties. On the supply chain side, importing companies could find alternative suppliers, exporting companies could search for alternative markets, both types of trading companies could stabilize their long-term partnerships and monitor future tariffs and exchange rate changes. Also, a company's marketing department could increase the company's market share, adjust its market distribution, and build a brand image. Moreover, enhancing the investment in R&D could help trading companies to improve competitiveness. In addition to the proactive strategies mention above, many companies also implemented risk management tools to stay resilient.

A key limitation of this thesis is the sample size. As seen in the methodology, eight participants from different companies were interviewed. Although the variety of sample is high because most of the companies are from distinct industries, only two companies represent each of the four categories (exporting companies influenced by tariff changes, exporting companies not influenced by tariff changes, importing companies influenced by tariff changes, and importing companies not influenced by the tariffs).

In conclusion, this thesis answered two research questions: (1) what are the influences of constantly changing tariffs on the supply chain of trading companies and (2) what are the strategies companies adopt to handle these influences and future uncertainties. The main contribution of this thesis is adding content to the literature on the trending topic of Sino-U.S. trade war. Since the trade war started not long ago, not many studies and research were done. Therefore, this thesis filled in the gap in the current literature. Moreover, the thesis added qualitative content to the literature contrasting from the various quantitative studies of tariffs. In detail, based on eight interviews, the thesis provided insights from the perspective of Chinses trading companies, which includes the influences on Chinese trading companies and the strategies proposed by the Chinese companies. The strategies can be applied to both trading companies intend to mitigate the influences and trading companies willing to improve resilience level of future tariff increases.

For future research, collecting data from a larger sample size will not only help to identify more influences and strategies but also to improve the categorization of strategies by the nature of the company (import/export) and by the type of product. Examples of new research questions could be: what are the strategies that help importing (or exporting) companies mitigate tariff influences; what are the product characteristics that help importing/exporting companies stay resilient during a trade war.

Appendix

Appendix A: Interview Guide

Q1: **I have done some research, I found out the company is mainly exporting/importing…, is there anything else? Have you extended the product line? Can you give a summary of the company history? (**Products & background information**)**

Q2: **Does the company have a supply chain management department? If so what are their responsibilities? If not, does the company plan on establishing one in the future? Why is it important?**

A2: Yes/No, they (/there are still people) manage the flow of the products, keep track of the products in each stage, and make sure the procedure is smooth.

Q3: **What is the main reason that your company chose the U.S. as a partner?**

A3: Because the (most recognized brand/expertise/) for the product we carry is an American company.

Q4: **What do you think are the risks and opportunities affecting the supply chain for an importing and exporting company?**

Follow up: Do you consider government policy as one of the risks or opportunities?

A4: Timing, the balance between demand and supply, tariffs…

Q5: **Does the company have any risk management tools or practices to counter potential uncertainties?**

A5: Yes. Software to calculate safety stock.

Q6: **Regarding the recent tariff changes between the U.S. and China, do you think it influenced the supply chain decisions in your company?**

- a. If yes, how did it influence the company exactly on the supply chain? Did you apply any specific strategies?
- b. If no, why do you think the company was not influenced.

A6: It influenced the price of the product itself a lot, but we have backup suppliers from different countries for situations like this. It increased some delay in terms of delivering the products, but no major loss.

It did not affect our company because we are not targeted by the tariffs, but uncertainties were taken into consideration while selecting suppliers and deciding strategies.

Q7: **What will you do to prepare for future tariff fluctuations? Do you consider abandoning the states?**

A7: Stocking at a reasonable amount, and at the same time researching different markets with less turbulence. Changing supplier is a major decision for the company. There are many other factors to consider other than costs, such as trademark/reputation, quality control, particularity (ex: a specific type of lens for microscopes), so we will not unless it is not profitable anymore.

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