

The role of risk management and a preferred customer status during major disruptions like COVID-19

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ABSTRACT

During the COVID-19 pandemic, companies all over the world have faced major disruptions of their supply chains. These circumstances challenged the relationships between buying firms and their suppliers as well as other network partners within supply chains. As of now, little research has been focused towards investigating the potential of risk management and a preferred customer status to mitigate the negative impact of major disruptions such as COVID-19. Therefore, this single case study focuses on a strategic buyer-supplier relationship between a German company, here called “Company X”, and its Chinese supplier. It has been found that the preferred customer status of the case company has not been useful to access scarce resources due to the dependence on transportation from China. Instead, Company X has largely profited from risk management measures that have been in place prior to COVID-19. Ten interviews with thirteen participants have been conducted to investigate how COVID-19 affected the long-distance buyer-supplier relationship. The research is aimed towards providing the case company with useful advice on risk mitigation tactics for future disruptions.

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Keywords

Risk management, preferred customer status, COVID-19, disruption, scarcity, supplier satisfaction, transportation

1. INTRODUCTION – PROBLEM STATEMENT AND MOTIVATION

The COVID-19 pandemic has challenged companies all over the world by disrupting supply chains. Especially due to the global interconnectedness of supply chains, the flow of materials was heavily restricted, possibly resulting in long-term damage and long recovery processes. Therefore, actions beyond short-term solutions are needed to achieve resilient supply chain procedures (Glas, Meyer, & Eßig, 2021). Due to the rising risk exposure, companies are in need of risk management to handle the uncertainty of dynamic developments (Hoffmann, Schiele, & Krabbendam, 2013). The COVID-19 pandemic has shown that there is a need to understand the impact of major disruptions on supply chain relationships. To mitigate these disruption risks, the concepts of risk management and preferred customer status shall be examined.

Research in the field of supply chain management is often focused on routine disruptions with a less significant impact than COVID-19. The key knowledge gap therefore is an investigation of a low-frequency-high-impact (LFHI) disruption to provide useful measures that can mitigate the negative effects of major disruptions (Glas et al., 2021). The aim is to investigate the potential of a preferred customer status and risk management measures to find out their usefulness during COVID-19. In the specific case of this thesis, a single case study on a strategic buyer-supplier relationship of a German company, which will be referred to as “Company X”, and its Chinese supplier will be evaluated. The key problem that is addressed is the negative impact of COVID-19 on the specific supply chain relationship. Therefore, the purpose is to gain an in-depth understanding of the relationship and provide useful measures that support the company in successfully mitigating the risks of disruptions and strengthening the buyer-supplier relationship. In this case, the Chinese supplier is a strategically important supplier for containers. These containers are used for storing raw materials as well as products that are shipped to a variety of countries all over the world. Due to the high influence of transportation between China and Germany, there also will be a focus on the disruptions in the field of logistics and transportation. In that way, it can be seen whether logistical issues have affected the relationship between buyer and supplier.

Disruptions in material flow processes can be classified as damaging events that do not occur frequently. Historic events show that the impact of natural disasters can be cross-continental like in 1994, when an earthquake in Japan disrupted material flows which led to a shortage of parts for California-based companies (Chopra & Sodhi, 2004). Global pandemics can be characterized as a special type of supply chain risks. Although the frequency is low, there is an extensive potential of large negative impacts on industries and humankind. Important characteristics are the time frame and unpredictability, how the disruption spreads within supply chains, and how general supply, demand, and infrastructure are affected. As it can be found for the COVID-19 virus, epidemic outbreaks grow exponentially (Ivanov, 2020). Research in the field of purchasing and supply management has targeted various risks that are to be mitigated.

In the case of a pandemic, it can be classified as a low-frequency-high-impact (LFHI) with an external and environmental nature (Glas et al., 2021). As the pandemic was unpredictable, companies struggled to strengthen supply chains and estimate possible future developments as the virus continued to spread in several variations. Simultaneously, the implementation of restrictive measures decelerated the spread of the virus as well as the process of recovering towards conditions that existed before the pandemic. Companies of all sizes have been affected by COVID-19. It is argued that small- and medium-sized enterprises (SMEs) have experienced more vulnerability during the pandemic compared to larger ones (Melnyk, Schoenherr, Verter, Evans, & Shanley, 2021). In contrast to that, 94% of the Fortune1000 companies have suffered supply chain disruptions, showing that larger corporations have experienced severe complications as well (Ivanov, 2020).

Regarding the avoidance of uncertainty due to supply shortages, companies may target a preferred customer status. To enable access to scarce resources, companies can improve their relationship with chosen suppliers, resulting in a preferential treatment among competitors. Research has shown that supplier satisfaction can result in improved resource allocation decisions by the supplier as well as companies being treated better than their competitors (Weller, Pulles, & Zunk, 2021). An understanding of the ongoing COVID-19 pandemic and general crisis management are crucial for companies to prepare for possible future uncertainties, especially the influence of natural hazards which are not human-made. Therefore, a preferred customer status can be the key to receive preferential treatment of suppliers to achieve a competitive advantage.

Consequently, before describing the chosen approach to perform research on the given research question, it is important to highlight the academic and business relevance of the topic: Current research on the pandemic is based on data that was collected during times with the highest uncertainty without being able to draw precise conclusions due to the unpredictability of further developments. As the impact of restrictive measures has been decreased, experiences have developed towards measurable assets that are useful for further investigation (Ibn-Mohammed et al., 2021). Therefore, the case study will focus on evaluating the experiences of employees with different responsibilities within supply chain management. In addition, existing research has been focused on understanding how to handle routine disruptions of supply chains as there was no comparable impact to the COVID-19 pandemic (Christopher & Peck, 2004). The pandemic revealed the vulnerability of supply chains during times of major disruptions. Therefore, the case study will add upon existing research by adding the view on low-frequency-high-impact events (Glas et al., 2021). Company X is a well-suited example as the relationship with the Chinese supplier was heavily affected by COVID-19.

The previously determined circumstances lead to the research question: *“How can risk management and a preferred customer status be used to strengthen a strategic buyer-supplier relationship and reduce the impact of disruptions like COVID-19?”*

To answer the research question, the following part of the thesis will provide a general understanding of underlying concepts in the field of disruptions, risk management and preferred customer status. Consequently, the methodology section will explain the qualitative research approach in the form of interviews which will be used to draw conclusions on the underlying concepts for Company X. This will contain descriptions on how the interviews are conducted, evaluated, and analyzed. Based on the literature and methodology, the final two parts will present the key findings of the research and discuss academic and managerial contributions. As an answer to the research question, it has been found that the case company did not profit from its preferred customer status during COVID-19. Instead, risk management measures that have been used for several years, were a key factor to mitigate the negative impact of COVID-19. Next to that, it has been found that the dependence on transportation from China was the key issue. It can be said that the investigated buyer-supplier relationship did not strengthen during COVID-19. These findings contribute to existing literature as they prove that a preferred customer status does not necessarily contribute towards risk mitigation during major disruptions as the relationship was largely dependent on transportation. Due to the scarcity of transportation, the flow of materials was heavily restricted. If the case company would not have had sufficient stock in place, it may have suffered severe financial damage because of an inability to produce.

2. LITERATURE REVIEW

The given research question contains three concepts that will be examined in the following part. First, there will be a focus on disruptions and their effects on supply chain relationships. Moreover, supply chain risk management and a preferred customer status will be explained as tools to improve the relationship with strategically important suppliers and mitigate the impact of disruptions.

2.1 Disruptions and their effects on supply chain relationships

Disruptions can be described as disturbed material flows within supply chains that occur rarely. Nevertheless, these rare disruptive events often cause severe damages to companies (Chopra & Sodhi, 2004). There are several types of disruptions that can be divided into operational risks and environmental influences. Operational risks include damaged parts, unforeseen supplier unavailability, and labor strikes. On the other hand, environmental influences can be natural hazards, war and terrorism, or politically instable structures. Disruptions are unforeseen events that can potentially lead to operational and economic problems (Craighead, Blackhurst, Rungtusanatham, & Handfield, 2007). From an operational perspective, a disruption can impact supply chains by resulting in a lack of material that can potentially make companies unable to manufacture and sell goods. This may be caused by several factors such as the inability

of suppliers to deliver goods or failed transportation to the company as well as within internal processes (Kleindorfer & Saad, 2005). The tendency towards global sourcing has increased the opportunities for disruptions as supply chains are depending on transportation and coordination of more complex relationships (Kleindorfer & Saad, 2005). During COVID-19, the transport and mobility sector was hit most significantly (Ibn-Mohammed et al., 2021). The field of supply chain management is facing increased opportunities for disruptions of more complex supply chains which shows the importance of risk mitigation and preventing disruptions.

Historic events have shown that supply chain disruptions can cause extensive financial damages. In the case of Ericsson, which is a Swedish telecommunication company, a fire that was caused by a lightning strike led to a semiconductor shortage which resulted in a financial loss of \$400 million (Craighead et al., 2007). In the case of COVID-19, the disruptive impact on the global economy was enormous. Different types of industries have struggled as borders were closed and millions of people have been isolated. Transports of goods as well as people were heavily restricted. The pandemic has revealed the lack of resilience of global supply chains. According to research, companies have suffered disruptions based on missing supply chain flexibility and non-diversified sourcing strategies (Ibn-Mohammed et al., 2021). COVID-19 has shown that resilience of interconnected supply chains is crucial to provide goods and services to global markets. The pandemic has highlighted the need to consider special cases of supply chain disruptions that may have stronger effects than ever known before (Ivanov & Dolgui, 2020).

There are many contributions that deal with the impact of disruptive events on supply chains which regard operational effects as well as the impact of environmental events that have an impact on companies and economies. Examples of external influences are lightning strikes that led to fires as well as epidemic outbreaks (Craighead et al., 2007; Ivanov, 2020). Regarding the COVID-19 pandemic, existing research mainly focuses on explaining how the pandemic affected and disturbed supply chains without putting focus on mitigation tactics that can be used to decrease the impact of disruptive events. As there are no comparable events that impacted the entire world economy, there is a need to perform research on how supplier relationship management can be used to avoid scarcity in uncertain times of disruptions. The focus on mitigation tactics for major disruptions adds upon given literature on small-scale disruptions that occur more frequently. In the methodology part, it will be examined how COVID-19 has changed the perception of the impact of disruptive events.

2.2 Supply chain risk management and resilience

In recent times, the globalization of markets has increased the complexity of supply chains. The term “global supply chain” implies that the interrelated processes of manufacturing and transportation within supply chains are spread across multiple

nations or continents (Beamon, 1998). One outcome of globalization is that companies make use of “global sourcing” which refers to the ability of organizations to purchase goods from international suppliers (Steinle & Schiele, 2008). These developments towards international operations have made supply chains longer and more complex as it can be seen in the long-distance relationship between Company X and its Chinese supplier. Often, measures against smaller and more frequent supply chain disturbances are not sufficient for large disruptions (Christopher & Peck, 2004). The COVID-19 pandemic was an example for this as it resulted in a major disruption of global economic structures. From that, it can be concluded that the key challenge is to mitigate risk by implementing resilient supply chains (Christopher & Peck, 2004).

The importance of supply chain risk management and building resilience is shown by the fact that companies can experience severe financial effects of disrupted supply chains. The term “resilience” refers to the ability and speed of restoration of initial structures after certain disruptive events (Ponomarov & Holcomb, 2009). According to research, companies that are affected by supply chain disruptions can lead to 33-40% lower stock return compared to peer companies (Tang, 2006). A factor which is crucial for achieving resilience is to understand the supply chain network that ranges from suppliers to customers. This emphasizes the effects that relationships with suppliers can have. A supplier network can be negatively influenced by factors such as bad communication with suppliers as it results in a lack of reciprocal information (Christopher & Peck, 2004). Supply chains require strong partners to be successful as the resilience is largely affected by weak links among participants. This raises the importance of evaluating entire supply chains and mitigating risk by identifying weak partners (Kleindorfer & Saad, 2005). Increasing uncertainty leads to a disability to find the sources of risk within supply chains (Hoffmann et al., 2013). In the case of COVID-19, the dynamics of the outbreak resulted in an uncontrolled and hectic reaction of companies. From this, it can be concluded that supply chains were not prepared for the impact of COVID-19 (Glas et al., 2021). The term “intertwined supply network” describes the interrelatedness of several complex supply networks, highlighting the impact of changing buyer-supplier relationships (Ivanov & Dolgui, 2020). COVID-19 has revealed that flexibility is an important factor in successfully dealing with disruptions. As a customer, companies will have to focus on supplier relationship management to improve existing relationships and retain the status of being an attractive business partner to the suppliers (Melnyk et al., 2021).

The field of supply chain risk management has been extensively investigated in the past years. Literature has been focused on managing routine disruptions that arose from operational issues. Examples are production issues caused by disturbed material flows or unanticipated purchasing risks resulting in higher costs (Chopra & Sodhi, 2004). More serious disturbances such as natural disasters have often been disregarded (Christopher & Peck, 2004). The COVID-19 pandemic therefore has shifted the focus to building more resilient supply chains that can handle major disruptions. Therefore, it is to be investigated how companies handle strategic supplier relationships during times of scarcity which is caused by disruptions. Means of traditional risk

management shall be evaluated and potentially adapted to handle major disruptions. The methodology section will include research on the success of traditionally used risk management tactics during COVID-19.

2.3 Preferred customer status and supplier satisfaction

Companies can achieve the status of being a preferred customer by actively engaging in the buyer-supplier relationships with their suppliers. The target is to achieve preferential treatment by suppliers and benefit from access to their resources and capacities (Schiele, Calvi, & Gibbert, 2012). Striving for preferential treatment can be seen as a rivalry between customers of the same supplier that want to gain a competitive advantage over their competitors (Hüttinger, Schiele, & Veldman, 2012). In the research on buyer-supplier relationships, it has been widely described that strengthening buyer-supplier relationships positively influences the satisfaction of suppliers (Benton & Maloni, 2005). Suppliers can include several factors into the process of choosing a preferred customer. Examples of criteria are the economic strength of customers, represented by profitability and financial stability of customers. Moreover, knowledge and innovative capacities can be attractive characteristics of companies (Mortensen & Arlbjørn, 2012). With regard to COVID-19, research has shown that supplier satisfaction and collaboration are effective means of achieving supply chain sustainability (Sharma, Luthra, Joshi, & Kumar, 2020).

To understand the concept of preferred customership, it is important to explain the main factors that make buying firms attractive. Customer attractiveness is influenced by the expectations of suppliers and whether these are positive or negative. It is not only determined by monetary factors such as paying high prices and buying large volumes, but also by the innovative capacity of buying firms (Schiele et al., 2012). Next to that, research has found that behavioral antecedents such as a preferred customer status have a larger influence on relationships than technical antecedents such as innovativeness (Schiele, Veldman, & Hüttinger, 2011). Disturbed buyer-supplier relationships are often caused by a gap between the expectations of suppliers and the value that buyers provide (Weller et al., 2021). Both economic factors as well as relational factors have key influences on the satisfaction of suppliers (Vos, Schiele, & Hüttinger, 2016). Examples for economic influences are profitability and growth capacity whereas relational factors are quality of service or reliability.

A preferred customer status can bring significant advantages to buying companies, especially in times of scarcity and disruption such as the COVID-19 pandemic. When disruptions decrease material flows, suppliers must assign their resources and make decisions on which customers are served before others. This emphasizes the potential that a preferred customer status can have during disruptive times as buying firms can avoid supply chain breakdowns which may potentially cause severe operational and economic difficulties. In several markets, there

is a smaller number of powerful suppliers which results in a selective behavior. Preferred customers can experience more reliable and quicker deliveries as suppliers offer preferential delivery compared to their ordinary customers. Customers that are not preferred experience longer waiting times and may even be entirely left out by suppliers (Schiele et al., 2012). Due to the strategic importance of preferred customers, suppliers may offer high-quality support that includes the dedication of their best qualified staff. Next to that, the consistency in the relationship reduces the need for administrative efforts which makes positive buyer-supplier relationships more efficient (Schiele et al., 2012).

The concept of preferred customership is of increased relevance for companies that want to avoid shortages and ensure supply. Therefore, examining the potential of a preferred customer status contributes to providing a profound answer to the research question on how company X can strengthen strategic relationships and reduce the impact of disruptions. Available literature is focused on how companies can improve supplier satisfaction and build strong long-term relationships as satisfaction is regarded as a crucial determinant for a high performance of a buyer-supplier relationship (Weller et al., 2021). There is existent research which shows that a preferred customer status has proven to be beneficial in disruptive times (Schiele et al., 2012). In the case of COVID-19, literature has not yet focused on the potential of a preferred customer status for buying companies. Existing literature describes the desire for a preferential treatment in the public procurement sector during the first phase of the pandemic when governments focused on providing basic supply (Melnyk et al., 2021). Therefore, this thesis adds upon existing papers by looking at the private sector and providing a special view on the importance of the preferred customer status during strong disruptions such as the COVID-19 pandemic. Therefore, the focus is on managing supplier relationships to ensure supply and avoid supply chain breakdowns. In the methodology section the research focuses on the potential of a preferred customer status for the buying company.

3. METHODOLOGY

The research question of this thesis is *“How can risk management and a preferred customer status be used to strengthen a strategic buyer-supplier relationship and reduce the impact of disruptions like COVID-19?”*. The best suited way of providing a profound answer to this question was a case study that focused on interviewing employees in the field of supply chain management to enable a close investigation of the specific relationship between company X and its Chinese supplier and the impact of COVID-19. Qualitative case studies can provide better insights on behavioral issues compared to quantitative methods as they offer to investigate more in-depth (Zainal, 2007). For this thesis, qualitative research was the most suitable way to display the dynamics of the impact of COVID-19 and not use strict variables that are used for quantitative methods. As the intention was to investigate a strategic buyer-supplier relationship the interviews have been conducted with employees with different roles and responsibilities. This was the most suitable approach to

answering the research question as it provided different perspectives on the strategic relationship. In general, similar case studies have been proven as a suitable approach to gain an in-depth understanding of complex relationships among buyers and their respective suppliers (Choi & Krause, 2006). It has been used successfully in examining the concept of supplier satisfaction and its connection to a preferred customer status of companies (Weller et al., 2021).

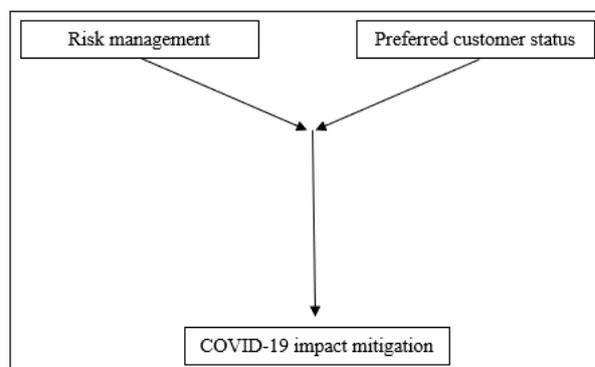


Figure 1: Research model

In the research model shown above, it is illustrated how risk management and a preferred customer status can be combined to mitigate the risk of major disruptions like COVID-19. The first target of the case study was to find out which risk management measures have helped the case company to reduce the impact of COVID-19. Secondly, it was investigated whether the case company is a preferred customer of the supplier to find out if a potential preferred customer status improved the access to scarce resources during COVID-19.

3.1 Case selection

The approach of the case study was to gain an in-depth understanding of a specific strategic buyer-supplier relationship which was the unit of analysis. The COVID-19 pandemic has highlighted the relevance of managing this relationship due to the relational issues that arose between the involved companies such as the impact of transportation, reliability, and communication. These issues in the relationship between a German company and its Chinese supplier have proven that this case is representative for an investigation as it was largely affected by the disruptions of COVID-19. The aim was to interview a minimum of ten employees with different responsibilities to fully understand the impact of COVID-19 on the buyer-supplier relationship. There was a focus on specific determinants of successfully managing the relationship during disruptions. To ensure that the data is representative, it was intended to focus on employees that are directly involved in the buyer-supplier relationship. While searching for potential interviewees, only five employees turned out to be actively involved in the relationship with the Chinese supplier. Based on that, it was decided to add an interview with a Chinese representative from the supplier as well as several employees from the fields of logistics and production planning. All interviewees have been largely affected by the impact of COVID-19 on the supply chain of the buying firm, even though

they may not have been in personal contact with the supplier. In that way, it was ensured that the impact of COVID-19 could be analyzed from a managerial and operational perspective. The literature review was used to explain the core concepts of the thesis to the respective interviewees to avoid misunderstandings and achieve precise and high-quality answers. Below, the responsibilities of the interviewees can be found. In total, ten interviews with thirteen participants have been conducted. For this single case study, it is intended to show the different perspectives that the interviewees have within supply chain management:

- Head of Supply Chain Assets
- Technical requirements and quality
- Purchasing for containers and related equipment
- Transports and Logistics
- Container planning and coordination
- Production Planning
- Supplier representative

The case that was investigated includes the strategically important relationship between a German company and its Chinese supplier. This supplier is offering steel cylinders that the buying firm uses to transport raw materials and finished products across the world. The first containers from the Chinese supplier were bought in 2013. Since 2016, the buying firm has used the supplier as their only source for containers which emphasizes a high dependence. The main reason for this is that the supplier has been developed towards a high-quality supplier that is seen as a reliable and flexible partner. From the view of the supplier, the buying firm is regarded as the biggest customer in their respective market. The relationship is seen as positive from both sides.

3.2 Data collection

To establish a useful basis for analysis and collect high-quality data, the interview questions had a semi-structured design. The aim was to gain insights on the variety of relational experiences that employees made, so that the questions shall not restrict given answers by being over specified. Therefore, some introductory questions were asked first to get an impression of the general relationship between the company and its Chinese supplier as well as the impact of COVID-19. Afterwards, the following questions were more focused on the respective fields of supply chain management that the interviewees work in. The most important question, which led to the most insightful answers, can be found below.

Questions on the buyer-supplier relationship

- How would you describe the relationship with the Chinese supplier before and during/after COVID-19?
- Which characteristics of the supplier make the relationship attractive? (Melnyk et al., 2021; Schiele et al., 2012; Vos et al., 2016)
- What are the most frequent difficulties/ key challenges of the relationship?
- Which measures are most helpful in managing these?

Questions on the impact of COVID-19

- What were the most severe supply chain impacts on the buyer-supplier relationship of COVID-19? (Glas et al., 2021; Ibn-Mohammed et al., 2021; Melnyk et al., 2021; Paul, Chowdhury, Muktadir, & Lau, 2021)
- Which resources that affect the relationship have been scarce during COVID-19 and how did you manage to access these? (Craighead et al., 2007; Kleindorfer & Saad, 2005)
- Did your company change its supply chain management for the affected resource? (Christopher & Peck, 2004)
- Did you engage more in the buyer-supplier relationship to gain access to scarce resources?
- Did COVID-19 change the attitude of the company towards the risk of severe disruptions and risk management? If yes, which measures have been introduced and which had the most significant impact? (Ivanov & Dolgui, 2020)

Questions on the preferred customer status

- What does the supplier consider to be attractive? Examples could be innovative capacity, financial attractiveness, or reliability (Schiele et al., 2012; Schiele et al., 2011; Weller et al., 2021)
- To what extent are you dependent on the supplier and the value that the supplier provides? (Quality, reliability, etc.)
- What are strategic resources that your supplier can offer better than alternative suppliers?
- Is there an exchange with the supplier about mutual expectations? Can be both sides, e.g. expected quality that is compensated accordingly (Schiele et al., 2012; Weller et al., 2021)

3.3 Data Analysis

To analyze the results of the interviews, a summarizing table that focuses on the key factors was used (Appendix 1). This table contains the entire results that contributed to finding a profound answer for the given research question. The interviews have been summarized to evaluate similarities among the different perspectives to investigate the respective importance of topics. The analysis resulted in profound explanations of key factors in managing the impact of disruptions like the COVID-19 pandemic and achieving a successful buyer-supplier relationship with the Chinese supplier. The interviews have been focused on the concepts that are presented in the introductory and literature parts as well as the major issues that the company faced. Based on that, recommendations on how the risk of disruptive impacts can be mitigated by risk management tactics and pursuing a preferred customer status are provided. Next to that, data has been analyzed for academic contributions to existing literature.

4. RESULTS OF THE INTERVIEWS

To explain the findings of the interviews, this section is focused on the main impacts of COVID-19 and how the buying firm managed to reduce these impacts with risk management measures and their preferred customer status. Therefore, the key impacts will be highlighted in the following sections. The interview results will be compared to each other to emphasize the similarities and differences in the experiences of the respective interviewees.

4.1 Main findings

Topic	Findings
Preferred Customer Status	<ul style="list-style-type: none"> • Buying firm is a preferred customer • Preferred customer status did not bring advantages (dependence on transportation debilitated advantages) • Preferential treatment during scarcity, but containers could not be shipped from China (scarcity of shipping capacities)
Risk management	<ul style="list-style-type: none"> • Risk management measures were the key factor in mitigating effects of COVID-19 • Safety stocks avoided container shortages which could have led to a production stop • Internal communication as an important factor (different perceptions of scarcity from managerial and operational perspectives)
Changes in the buyer-supplier relationship	<ul style="list-style-type: none"> • No improvement in the relationship between buyer and supplier during COVID-19 • Closer cooperation could have been beneficial to improve planning and decrease uncertainty

Table 1: Key findings for answering the research question

In the following section on the results of the interviews, there will be a focus on the key findings that contribute towards answering the research question *“How can risk management and a preferred customer status be used to strengthen a strategic buyer-supplier relationship and reduce the impact of disruptions like COVID-19?”*. These findings are shortly summarized in Table 1. According to the results of the interviews, the buying firm is a preferred customer of the supplier. The main finding on that status is that the buying firm did not profit from being a preferred customer during COVID-19. The problem in the buyer-supplier relationship was a large dependence on the

transportation from China to Germany. Even though the supplier offered a preferential treatment to the buying firm, container scarcity developed due to the delayed transports. The dependence on transportation has debilitated the advantages of the preferred customer status. Instead, the buying firm largely profited from risk management measures that have been in place prior to COVID-19 such as large safety stocks. These stocks ensured that production could be continued during times when container deliveries were delayed and difficult to schedule. Another key finding on the impact of COVID-19 is that there seemed to be issues in the internal communication. The importance of communication was highlighted when the interviewees reported on their experiences regarding container scarcity. From a planning perspective, it was perceived that there were always enough safety stocks in place to keep the production running. In fact, interviewees involved in the daily operation processes reported that safety stocks have largely diminished during COVID-19 and measures had to be taken to ensure the availability of containers. A summarizing table of the entire interview results can be found in the appendix.

4.2 The preferred customer status of the buying firm

To investigate whether the buying firm has a preferred customer status, questions about the attractiveness of Company X were asked to its own employees as well as the representative of the Chinese supplier. From the results it can be said that the buying firm is a preferred customer of the supplier due to the following reasons: There is a long-term relationship between the two companies. Over several years, the buying firm has developed the supplier towards a high-quality producer that can match requirements which are over market standard. “We are their main customer in our market” was stated by several interviewees. It was reported that Company X is an economically strong and consistent customer with the potential for further cooperation in the future. According to the supplier, the production line for the containers is prioritized over other products during times of scarcity.

From the view of the buying firm, there are several reasons why the relationship with the Chinese supplier is attractive. Their products are of high quality which is the result of the cooperation over the last years. The buying firm has invested lots of capacities into the relationship by visiting the production sites of the supplier and developing them towards a high-quality producer that matches all requirements. The supplier is seen as a reliable partner that is able to flexibly increase production capacities. In addition, the Chinese supplier is a financially attractive supplier due to low labor rates and low steel prices. According to the buying firm “the relationship did not get closer, but it may have been beneficial and made communication and planning easier”.

A key finding on the preferred customer status is that it did not bring significant advantages to the buying firm during COVID-19. The preferential treatment was not beneficial, as the scarcity of shipments decreased the number of cylinders that have been sent to the buying firm. Therefore, the preferred customer status did not help to mitigate the negative impact of COVID-19.

4.3 The impact of transportation on the long-distance buyer-supplier relationship

Due to the long-distance relationship between China and Germany, transportation has always been a crucial factor. “Before COVID-19, it was possible to access transports and schedule the arrival of the ships so that we always had precise schedules”. During the disruptive times of COVID-19, transportation possibilities such as container ships have become scarce. Therefore, transportation companies can be seen as weak partners in the supply chain network as they were unable to grant sufficient logistical capacities. For the supplier, this led to difficulties in accessing sea transports. According to the interviewees, prices for transportation almost tripled due to the limited supply. For the buying firm, this development resulted in a high uncertainty as it was unknown when new containers would arrive at nearby harbors. “The delivery times from China to Germany almost doubled which led to decreasing safety stocks of containers at the production sites”. Without containers, the buying firm would have been unable to run the production which would have caused severe financial damage. A decisive factor was that the buying firm was entirely dependent on the Chinese supplier due to single sourcing. Since 2016, the supplier was the only qualified supplier which increased the reliance on the supplier and transportation.

Another impact of COVID-19 was that the buying firm was unable to visit the Chinese supplier and work on quality and process improvements as it was done over several years. “So called “technical visits” have been performed twice a year to develop the supplier towards a high-quality producer that matches all our requirements. These visits have proven as beneficial because Company X has quality requirements that exceed market standards so that developing the Chinese supplier was a success.

The uncertainty of transportation revealed that there were internal communication problems on the availability of containers. In two interviews it was reported that there never was the danger of entirely running out of stock and that the safety stocks still have been more than sufficient. In other interviews it was stated that the safety stocks were decreased to a minimum. This was the case because containers were available at the production site but not entirely prepared for production. From the perspective of container planning, every available container is considered to be ready to use. From an operational perspective, a large number of available containers was not entirely prepared which made them unusable for production and storing products.

4.4 Risk management measures that helped to mitigate the impact of COVID-19

To mitigate the impact of COVID-19 the buying firm profited from several risk management methods. Some of these methods have been in place prior to COVID-19 and some have been developed during the pandemic. These measures can be rather seen as traditional risk management measures that proved to be

suitable during disruptive times of COVID-19. The most important risk management measure was that the company always had large safety stocks in place. “There are policies in place that regulate container safety stocks that can last approximately 6 months. During COVID-19, these stocks decreased to a container number that would have lasted less than two months”. Considering the fact that transports from China to Germany take several weeks, the large safety stocks have proven as a crucial factor in mitigating the negative impacts of COVID-19. As the buying firm was not able to send employees to China for quality and process improvements, there was a huge reliance on independent local inspectors that perform additional quality checks at the supplier site. These inspectors have proven as a key factor to ensure quality levels whereas other methods such as process videos, photos, and web conferences have proven as difficult due to language barriers and time difference.

Another important risk management measure was to internally decrease the scarcity of containers. To achieve this, it was decided to postpone production changes to increase the availability. The decision to change certain production processes would have increased the number of needed containers which would have resulted in more scarcity. As every container must be checked technically, additional labor was used in the container preparation department to increase the availability for production.

As the buying firm has extensive safety policies in place, the number of containers was always sufficient to keep the production running. Nevertheless, the impact of COVID-19 has changed the company’s perception of large disruptions. To decrease the dependency on the Chinese supplier, it was decided to qualify another supplier in the United States. In addition, the pandemic has shifted the attention to the impact of critical suppliers which are being investigated at the moment.

4.5 Changes in the relationship during COVID-19

From the view of the buying firm, the relationship remained on the level that was given prior to COVID-19. In general, the relationship with the Chinese supplier is seen as partly both transactional and transformational. It is seen as transactional as the supplier is expected to deliver products which match given requirements under a fixed-contract price. From another point of view, it was described as transformational as the buying firm largely invested into supplier development to have a partner that is able to match needed requirements. There was tension in the relationship due to the uncertainty of transportation which was not entirely the fault of the supplier but rather an effect of the general decrease in transport availability. An important factor during COVID-19 was the communication between the companies, especially regarding transportation and scheduling. As visiting the supplier was not possible, the relationship was relying on independent inspectors that were used to improve communication. Because of the language barrier, there was a large reliance on the inspectors and a local representative that speaks English. It was stated that it may have been beneficial to

tighten the relationship more to access more information and decrease the uncertainty. In contrast to the experiences of the buying firm, the supplier's view is that the relationship got closer during COVID-19.

5. DISCUSSION

The research question of this thesis is *“How can risk management and a preferred customer status be used to strengthen a strategic buyer-supplier relationship and reduce the impact of disruptions like COVID-19?”*. The answer to this question is threefold due to the following developments: First, the preferred customer status of the buying firm was not significantly beneficial for them. The main impact of COVID-19 which caused scarcity was the availability of transportation. These developments could not be significantly influenced by the supplier. Secondly, the risk management measures that were in place were the key to reducing the impact of COVID-19, mainly by storing large safety stocks that could last up to 6 months. Lastly, the buyer-supplier relationship does not seem to have strengthened during the pandemic as the interviewees did rather experience worse circumstances than improvements in the relationship. In the following, it will be explained how the research findings contribute to existing literature and which managerial implications can be drawn. The section on limitations will focus on potential for improvements that would have led to a more precise answer to the research question.

5.1 Main contributions

In the following section, the main contributions will be presented. Therefore, it will be explained how the research findings are in line or opposed to existing literature which was previously presented in the literature review. Each of the following three paragraphs will be focused on a key contribution of the performed research.

5.1.1 *The preferred customer status of the buying firm*

The interview results on achieving a preferred customer are in line with the contributions in the literature review. Suppliers can include several factors into choosing a preferred customer, for example economic as well as behavioral factors. In the case of the buying firm, it is shown that economic stability and being a consistent customer contributed to becoming a preferred customer. Next to that, knowledge transfer within the relationship is affecting the perception of the supplier as the buying firm largely invests into developing the supplier to a high-quality producer. (Mortensen & Arlbjörn, 2012; Schiele et al., 2012; Schiele et al., 2011). Disturbed buyer-supplier relationships often are the result of different expectations of the involved companies (Weller et al., 2021). In the case of the investigated relationship, there are clear expectations of both parties as the supplier is expected to produce according to the requirements of the buying firm for a fixed price. Therefore, the supplier specifically knows the needed specifications and the

value that is received in return. A factor that is not in line with the literature is that a preferred customer status does not necessarily help to avoid supply chain breakdowns (Schiele et al., 2012). In the specific case of the buying firm, a preferential treatment would have been ineffective as the supplier was not able to influence transportation as the general availability of container ships from China to Europe was heavily decreased. This shows that disruptions of long-distance relationships may cause the effects of a preferred customer status to vanish.

5.1.2 *The impact of major disruptions/COVID-19*

The impact of disruptions as it is described in the literature can be found for the investigated buyer-supplier relationship. The restricted flow of materials due to a lack of transportation availability would have led to a production stop if the buying firm would not have had large safety stocks for their containers. Consequently, the buying firm would have had to stop their operations which would have caused severe financial damage as the containers are needed to store and ship the product (Chopra & Sodhi, 2004; Craighead et al., 2007). Global sourcing is an important factor in the buyer-supplier relationship as it increases the opportunity for disruptions during the transportation and coordination process (Kleindorfer & Saad, 2005). The decision of the buying firm to use single sourcing from China therefore is a suitable example that shows the danger of being dependent on transportation. Disruptive events have shown large financial impacts on companies (Craighead et al., 2007). From the Chinese supplier, it was reported that the company suffered a financial loss of 1.5 million € due to a fixed-price contract with the buying firm. Especially costs for transportation but also material costs have been rising during COVID-19 which caused the enormous loss. Due to the shortage of transportation, it was reported that the supplier experienced a scarcity of raw materials which led to the decision of ordering earlier and increasing stocks to ensure the production of the containers for the buying firm.

5.1.3 *The importance of resilient supply chains and the impact of weak network links*

Another contribution that goes in line with the literature is that the resilience of supply chains is determined by all parties that are involved in supply chains. The role of transportation shows that not only buyer and supplier are crucial factors in building resilience, but also all other network partners. In the case of the buying firm, transportation companies have proven as the weak link in the supply network during COVID-19. This shows the importance of evaluating entire supply chains and searching for weak links that may cause supply chain breakdowns (Christopher & Peck, 2004; Ivanov & Dolgui, 2020; Kleindorfer & Saad, 2005). In the case of the buying firm, the Chinese supplier was a partner that was able to manufacture needed quantities according to predetermined requirements. What weakened the supply chain was the dependency on transportation from China to Germany. As the supply for transportation was strongly decreased, delivery times got longer which threatened the production to stop in case the buying firm would have run out of containers.

5.2 Managerial implications

The large impact of transportation has been revealed in the relationship between the buying firm and the Chinese supplier. In combination with the decision for single sourcing, the COVID-19 pandemic has shown the danger of being dependent on a single supplier and long-distance transportation from China to Germany. Therefore, the company has decided to qualify another supplier in the United States to decrease the dependency on the Chinese supplier, even though the dependency will remain high due to the lower capacities of the US supplier. Again, the buying firm would still be dependent on transportation from the United States. For that reason, it is recommended to consider further supply sources in Europe to decrease the dependence on transportation to a minimum. As the impact of COVID-19 is decreasing, the buying firm could use the Chinese supplier as their main source due to the high quality that is supplied and the low prices that are offered. In addition, it should be considered to qualify and develop a smaller supplier that can guarantee supply during disruptive times without being dependent on long-distance shipping. Another option to decrease the dependency on shipping could be to search for alternative transportation routes via rail.

From the view of the supplier, the buying firm can be considered a preferred customer. According to the supplier, the production line of the containers is prioritized over other products that the company offers. The buying firm should pursue to keep the preferred customer to receive preferential treatment during uncertain times caused by material scarcity. As the relationship with the Chinese supplier was developed over several years and now is a success, it should be considered to decrease the efforts that are invested in the relationship and shift the focus on developing alternative suppliers. The Chinese supplier can offer products according to the requirements of the buying firm. As long as the requirements stay equal and there is monitoring of quality aspects and key performance indicators, the level of quality could be held. For the buying firm, the importance of developing alternative suppliers should be a key topic. With the given experience in supplier development, there is a large potential of establishing a supplier base that keeps the level of dependencies low. Meanwhile, a preferred customer status could be pursued for the additional suppliers to further mitigate risks and gain a preferential treatment.

During the interviews, there were several key points where there either was consent among the interviewees or disagreement. The most significant disagreement has been found in the internal communication on container availability. From the management perspective, delivered containers are considered as ready to use as soon as they are located at the production site. Therefore, the scarcity was not perceived as threatening the production process. From an operational perspective of employees that are involved in the production planning and logistics, there was a strong disagreement on this statement. According to these employees, containers are stated as “available” even though they still need to go through the process of technical checking. This causes a difference in the perception of employees on which containers

are available. Therefore, it would be recommended to improve the internal communication on container availability, especially during times of uncertainty and disruption. To improve risk management, the case company could focus more on improving internal communication so that there are equal perceptions on scarcity, especially for strategic resources.

5.3 Limitations and future research

A limitation of the given research may be that transportation as the most important factor in the relationship during COVID-19 can barely be influenced by both parties. Due to the strict COVID-19 policies, both companies were dependent on political decisions such as lockdowns. The general supply of container ships was significantly decreased which made the situation tense for the involved parties (Ibn-Mohammed et al., 2021). Moreover, a research limitation could be that the intended number of ten interviewees, which were thought to be deeply involved in the buyer-supplier relationship, had to be reduced to five. As a solution, it was decided to interview other employees that have been strongly affected in their respective fields of supply chain management. In that way, the focus was slightly shifted from the relationship between buyer and supplier towards the impact of the disruption. Future research in this field could focus more on all parties that are involved in the supply chain networks of companies and not only consider buyer and supplier. In that way, research could be performed on the impact of weak links between buyer and supplier as there are several factors that can cause supply chain disruptions (Kleindorfer & Saad, 2005). As it can be seen in this case study, the buyer-supplier relationship is largely affected by other involved parties in the supply chain network such as transportation companies. Over a longer period for this thesis, it would make sense to put a focus on all long-distance buyer-supplier relationships of the case company to study the most critical factor in the relationship, which is transportation. Therefore, it would be useful to get an overview of the locations of all critical suppliers and evaluate the potential danger of being dependent on transportation.

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8. APPENDIX

Appendix 1: Interview results

Results on the buyer-supplier relationship and preferred customer status

Topic	Findings
Changes in the relationship during COVID-19	<ul style="list-style-type: none"> Reliable relationship that is largely affected by geographical distance, uncertainty of transportation from China (transport scarcity is not their fault but nevertheless is a large factor in the relationship) “technical visits” were not possible, no option to improve processes at the supplier site – difficult to find alternatives which increased dependency on inspector Uncertainty during COVID-19 raised the need to improve communication Always was a transactional relationship which did not change Buying firm does not see significant changes in the relationship, supplier thinks that the relationship got tighter
What makes the relationship attractive	<ul style="list-style-type: none"> High quality of products that fulfills the buying firm’s requirements (above market standard) Reliable supplier Long-term cooperation that resulted in high quality standards (supplier development) Prices (China: low labor rates, lowest steel prices) Flexibility (can ramp up production quickly)
Most frequent difficulties and how they are managed	<ul style="list-style-type: none"> Communication was always difficult due to language barrier and time difference which was an issue because communication got more important during COVID-19 – quality inspector was of increased importance Not being able to visit the supplier and improve quality and processes – reliance on inspector Transport scarcity, ended in uncertainty due to longer lead time – large buffer stocks that ensured production Lockdowns in China due to the strict governmental regulations Internal communication: perception on container scarcity, different views on availability (in the system marked as “available” but in reality, not prepared for production)
What makes the buying firm attractive	<ul style="list-style-type: none"> Long-term cooperation, developed the supplier towards a high-quality producer Economic strength and stability Biggest customer in the market of the supplier Consistent customer (also in future) Result: production line for containers is prioritized in times of scarcity
Dependence on the supplier	<ul style="list-style-type: none"> Single sourcing since 2016, entirely dependent on the supplier High dependence on transports due to large geographical distance Decision to add a second source, still largely dependent as the second supplier cannot produce needed quantities

Results on the impact of COVID-19 and risk mitigation

Topics	Results
Most severe supply chain impacts	<ul style="list-style-type: none"> Transport scarcity that increased uncertainty and prices, high dependency Decreasing buffer stocks of containers Longer lead times

	<ul style="list-style-type: none"> • Logistical chaos, difficult to schedule arriving containers • Scarcity at the supplier: material, energy, and labor • Manufacturing lockdowns in China (strict policies) • Financial struggles of supplier (fixed price contract)
Risk mitigation acts	<ul style="list-style-type: none"> • Most important factor: large buffer stocks of containers • Local inspector in China regarding communication and ensuring quality • Postponing production changes to use less containers • Additional coordination efforts • Increasing labor in container preparation to make more containers available (ready for production)
Scarcity	<ul style="list-style-type: none"> • Transport shortage as the main problem • Material shortages at the production of the supplier (due to longer deliveries) • Energy shortages • Labor shortages/ lockdowns in China due to strict policies
Changes in supply chain management	<ul style="list-style-type: none"> • No significant changes in stock management, focus on increasing stocks to previous levels • Decision to add a second source for containers • Production changes to make more containers available • More coordination needed (especially transports)
Perception of buying firm on disruptions	<ul style="list-style-type: none"> • More focus on the potential impact of disruptive events and useful mitigation acts • Buying firm was already focused on risk management before COVID-19 which paid off • Long-term actions (2-5 years) have been condensed to next 1-2 years • Investigation of critical suppliers and alternatives, internal risk mitigation acts • Decision for dual sourcing to lower dependence on supplier and transports from China