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Dealing with GVC Disruptions in Light of the Pandemic

- A multiple case study of the European furniture industry -

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Abstract

The Covid-19 pandemic has affected supply chains across different countries and industries. Within this thesis we investigate how European furniture companies are dealing with GVC disruptions caused by the pandemic. Since the phenomenon is unprecedented, there is a lack of research available thus far. We draw on existing supply chain risk mitigation strategies and divide them into five different themes: *diversify supply network*, *decrease a GVC's complexity*, *re-shore*, *manage inventory* and *influence demand*. In addition, a possible correlation between GVC governance types and the success of a company during the pandemic is investigated. A multiple case study approach is used to identify three main findings: 1) the companies use very similar risk mitigation strategies despite being very different in terms of size, price segment, business model, etc. - the most popular theme is *diversify the supply network* whilst *re-shoring* is the least popular; 2) supply chain risk mitigation isn't a major priority for the companies, with a lack of responsibility allocation and other motives apart from risk mitigation driving strategy choices; and 3) the GVC governance type couldn't be found to influence the success of a company during the pandemic. In terms of a company's success, the determining factors rather seem to be the business model, i.e. e-commerce or brick&mortar sales, and country-specific Covid-19 restrictions like lockdowns.

Keywords: *Covid-19 Pandemic, Furniture Industry, Global Value Chain, Risk Mitigation, Supply Chain Disruption, Supply Chain Risk Management*.

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Abbreviations

EU - European Union

GVC - Global Value Chain

MNC - Multinational Company

SC - Supply Chain

SCRM - Supply Chain Risk Management

SME - Small- & Medium-Sized Enterprise

1. Introduction

None of us are even remotely expecting the products we consume to be produced within the country we reside in, or even on the continent we live on. Whilst this is arguably a bold and perhaps exaggerated statement, what cannot be doubted is the fact that *Global Value Chains* (GVCs) are omni present. However, a "Made in China" label is far from proof that a product is the result of a GVC. Simply producing abroad doesn't come close to capturing the complexities a GVC entails. According to a definition presented by the OECD (2021a) a production process which is spread out over several countries with different steps completed in various different places is what characterises a GVC. There are many different reasons as to why companies choose to participate in GVCs with the most blunt one being an attempt to cut costs. For years it seemed undisputed that internationalisation of value chains and processes was the ultimate choice to ensure (cost-)efficient production, even if this had social consequences, e.g. unemployment through off-shoring (Dicken, 2015). Whilst a carefully optimised and meticulously planned value chain may ensure maximum efficiency and profitability, it is also highly vulnerable. The lack of back-stock or buffer times means that small hick-ups can result in severe supply chain disruptions.

Just how easily this house of cards can come crumbling down became painfully evident with the Covid-19 crisis. The WHO (2020a) was first informed about a yet to be identified virus in the Wuhan province in China on 31st December 2019. At this time, nobody was able to foresee the dramatic effects this virus would have on the entire world once it spread like a wildfire. Whilst the WHO (2020a) was still uncertain of whether human-to-human transmission was even a factor in January 2020, the many cases reported in various parts of the world within a very short period of time led the organisation to declare the disease a pandemic on 11th March 2020. Countries have chosen to react differently and have faith in varying strategies when dealing with Covid-19. Nonetheless, amongst the more popular measures are social distancing, travel restrictions and lockdowns, all of which are non-pharmaceutical interventions (Haug *et al.* 2020). As a result, the pandemic has had and is continuing to have devastating effects on economies globally, as well as producing a situation of financial restraint for many individuals. Be it lower than expected GDP growth, decrease in company revenues or unemployment - the economic impact of Covid-19 is undeniable.

A consequence of this impact has been a lively debate about GVCs which was essentially fuelled by two different factors. For one, consumers in several countries where finding themselves standing in front of empty shelves in stores (BBC, 2020a; The Guardian, 2020a; NBC News 2020; Capital, 2020). Secondly, especially at the beginning of the pandemic messages about the lack of medical supplies due to a peak in demand and unstable supply chains spread (WHO, 2020b). Both occurrences where highly visible in societies and lead to the open questioning of GVCs which usually go unnoticed by the broader public. After the initial panic buying of food had died done, consumers' sudden increase in demand soon put stress on the supply chains of other industries. All of a sudden it seemed as though the entire (western) world was renovating and remodelling their homes (CNBC, 2020; Die Welt, 2020) which resulted inter alia in the increase of furniture sales (Tagesschau, 2020; The Guardian, 2020b). Simultaneously, the social distancing measures resulted in a rapid increase of first-time online buyers which put additional pressure on the logistics side of furniture companies to keep delivering the expected product quality within an acceptable time frame (Lectra, 2020). A side effect of more consumers getting acquainted with online furniture shopping could be that the digital demand is here to stay. Hence, this increased digitalisation might require companies to adapt their GVCs to this new consumer behaviour quicker than previously anticipated.

Due to the unforeseen and rapid changes in demand, companies in various industries and regions were struggling to adjust their value chains accordingly. Since consumers became very aware of these challenges a public debate began on whether GVCs are too vulnerable (see for example Financial Express, 2020; The Guardian, 2020c; Reuters, 2020). The academic world did not leave the discussion uncommented and different views of whether it is necessary to alter value chains, and if so how, are being debated. It has been implied that a need exists for international companies to move from efficiency to resilience focused strategies, i.e. not exclusively aim at (cost-)efficiency but focus more on risk factors (Birkinshaw, 2020; Golgeci *et al.* 2020; BCG, 2020). The question arises whether GVCs must be remodelled in order to achieve a balance between risk and reward since it has been argued that high rewards, i.e. benefitting from GVCs, cannot be achieved without a high level of risk, i.e. vulnerability of GVCs (OECD, 2020). The opinion has been voiced that companies rely too much on one region or supplier, which often has been pin-pointed by strategists as a choice solely driven by the goal to enhance productivity and save costs (Barbieri *et al.*, 2019; Deloitte, 2020). This notion is supported by the early events of the pandemic when many European factories had to completely put a halt on production due to a lockdown in China (BBC, 2020b; Miroudot, 2020; The Guardian, 2020d). Naturally, managers should not be expected to anticipate and hedge against this exact sequence of events, but with other crises and disruptions in mind, they arguably need to question if their GVC activities are disbursed enough or too heavily dependent on one single country within the value chain. Even before news of a pandemic, scholars have increasingly argued that companies would benefit from diversifying value chain activities (Barbieri *et al.*, 2019; Manuj & Mentzer, 2008). However, as it appears, companies with a diversified portfolio of suppliers haven't necessarily escaped the repercussions. For example, companies with tier one suppliers located outside of China were still affected in the early stages of the lockdown since those suppliers required raw materials from the affected Wuhan region (Deloitte, 2020). In other words, a lack of knowledge, visibility and ability to trace activities throughout GVC networks, e.g. being unaware of second tier suppliers as elaborated on, makes it difficult to benefit from a more diverse supplier portfolio.

Another option also being discussed is whether it makes sense to shorten GVCs, i.e. decrease the level of fragmentation. The notion behind this approach is that with less steps included in a GVC, the likelihood decreases that something could go wrong, whilst the company also develops a greater visibility across the value chain (World Economic Forum, 2020). However, Miroudot (2020) states that simply shortening GVCs wouldn't necessarily have made value chains less vulnerable in the context of the pandemic. He backs up his thought by pointing out the lack of evidence to prove that a more complex GVC correlates with a higher negative economic impact due to Covid-19.

The question arises whether the topic of supply chain risk management has mainly been debated in the scientific community, or whether managers have actually adopted risk management measures and, hence, the discussion has led to an actual change in the corporate world. An example of what such a measure could look like is presented by the UNCTAD (2020) who also list inter alia more diversification of value chains but also increased state regulation as options. Another alternative mentioned is that of *re-shoring*, i.e. moving previously off-shored production facilities and value chains back to the home region of a company. This has in the past made sense for certain companies as a measure taken to create resilience against priorly identified GVC disruptions with a high likelihood, such as political unrest and natural disasters (De Backer *et al.*, 2016). However, both political unrest and natural disasters do not resemble a pandemic in terms of exponential growth and spread across the globe. Hence, one might argue that re-shoring in the scenario of a pandemic cannot to the same extent strengthen resilience. The OECD (2020) and the IFW Kiel (2020) are just two examples of organisations that have published articles questioning whether a world dominated by local value chains instead of global ones would have led to less supply chain disruptions. Whilst the most suitable measures are still being debated on, what has become clear during the pandemic is the overall importance of supply chain risk management.

Nonetheless, despite the severe affects of past crises, some might claim that the majority of companies will survive and push for the world economy to soon return back to the previous status quo. Prior crises have been accelerated by companies taking a lot of risk without seeing the bigger picture consequences of their decisions. For instance, bankers and risk managers did perhaps follow the formal rules leading up to the events that caused the financial crisis, but they arguably stayed overly optimistic regarding potential vulnerabilities within the sector (Birkinshaw, 2020). Managers in the current pandemic seem to have adopted a similar mindset and, consequently, believe that everything will soon return to business as usual. Many businesses are voicing their optimism and predicting fast economic recovery. A survey conducted with executives in October of 2020 expressed that 55 percent of the participants expect an overall improvement within the next six months (McKinsey, 2020). Only 27 percent of the executives in the private sector still expect a decrease in profitability for their respective company, which is an astounding decrease from 61 percent of respondents in April of the same year. Whether this optimism translates into a reluctance to adapt GVCs in the long run is yet to be seen.

Since various industries can be subject to very different value chains this thesis will focus its investigation on the furniture industry. The choice was made to narrow the selection of companies down to European furniture companies since especially in light of the pandemic these proved easier to gain access to. Within the European Union (EU) the sector accounts for about €96 billion of revenue annually and functions as a driver of design with many ideas being copyright protected (European Commission, 2016). The region is dominant in terms of high-end furniture production with almost two thirds of high-quality furniture stemming from within the EU. The European furniture industry consists of a large number of SMEs (small-& medium-sized enterprises), with approximately 85 percent having less than 10 employees (CEPS, 2014). The sector is further dominated by a few countries in terms of production, with Poland, Italy, France and Germany accounting for nearly 60 percent of all European furniture production.

There are two main reasons as to why we chose the furniture industry. Firstly, the industry typically has highly international and fragmented GVCs, both aspects which are currently being scrutinised. One trend that affects the furniture GVCs right now is the increasing number of customers which value quality together with sustainability (Buciuni *et al.*, 2014). This adds further complexity to an already advanced GVC, which has so far to a high degree consisted of larger companies benefiting from outsourced activities to multiple suppliers in several locations (CEPS, 2014). Whilst companies are decreasing their involvement in production processes in some sectors (Buciuni *et al.*, 2014), the firms in the furniture industry want to include suppliers in product development processes (Reis-Silva & Carrizo-Moreira, 2018). Buciuni *et al.* (2014) argue that the production of standardised furniture will pre-dominantly be conducted by low-wage countries while European companies will spend their resources on distribution and marketing. At the same time, the authors highlight that direct control over local and quality-focused production will still be valued and foster competitiveness, especially with customers requiring customised products at short lead times.

Secondly, as was mentioned, the sector was overrun by a sudden increase in demand, making it all the more interesting to see how agile companies were in reacting to this change. Furniture retail sales in the US for example first plummeted with the outbreak of Covid-19 and then rapidly increased by 79.1 percent from April to May in 2020 (Statista, 2021). A similar phenomenon was witnessed in Germany with an initial drop in demand, then followed by an unusually strong sales period during the summer (VDM, 2020). However, due to restrictions many consumers shifted their demand away from brick&mortar stores towards e-commerce. According to the European Commission (2021) the share of e-commerce consumers buying products within the category “furniture, home accessories and gardening products” in 2020 was 28 percent. A survey conducted by Ecommerce Europe (2021) shows that 68.4 percent of respondents have seen an increase in online sales in the category furnishings. The managing director of the online furniture shop moebel.de had even experienced demand increases of up to 80 percent (Ferdinand Holzmann Verlag, 2021).

1.1. Research Questions

This thesis investigates whether GVCs really were disrupted as is suggested by the numerous accounts elaborated on above. If we find this to be the case we will further analyse what these disruptions look like in detail as well as their severity. In a second step we will then study what measures companies have taken to mitigate the disruption of their GVCs. We will evaluate whether there are differences in the approaches and which actions seem to be the most successful. The goal of this thesis is to carve out an answer to the main research question:

How are European furniture companies dealing with GVC disruptions in light of the pandemic?

More specifically, we aim to investigate the risk mitigation strategies that the companies have in place to handle GVC disruptions and therefore our first sub-research question is:

Which supply chain risk mitigation strategies do these companies apply?

This will allow for an analysis of whether some strategies are more common than others and what possible reasons exist for this.

As was mentioned previously, the GVCs within the furniture industry are rather complex and there is a large range of very different companies from multinationals (MNCs) to SMEs. Consequently, how GVCs within the furniture industry are governed is a relevant topic to take into account when investigating how the sector is coping with the pandemic. Therefore our second sub-research question is:

Is there a correlation between the GVC governance type of a company and its success during the pandemic?

1.2. Delimitations

Due to the vast plurality of organisations within the furniture industry we have delimited this thesis to include only European companies. Ten respondents were interviewed from seven different organisations that vary in terms of size, business model and country of origin. This number allowed for in-depth interviews whilst still grasping the plurality of the European furniture industry. In addition, this thesis focuses only on supply chain risk mitigation in the context of the pandemic and doesn't include other global crises. This choice was made because none of the past crises have had the same scale and scope or the specific implications that this current crisis has.

1.3. Structure of Thesis

In the following paragraph we will shortly elaborate on the structure of this thesis. This chapter will be followed by *Chapter 2. Theoretical Framework* which will present the theoretical background used to identify both supply chain risk mitigation strategies as well as GVC governance types. *Chapter 3. Methodology* serves to present an overview of the research methods applied in this study to collect and analyse the qualitative data used. This data will then be elaborated on and summarised in *Chapter 4. Empirical Findings* before the theoretical background provided in Chapter 2 is utilised to analyse the data in *Chapter 5. Analysis*. Lastly, *Chapter 6. Conclusion* will provide the answers to our research questions and summarise the main ideas and thoughts of this thesis.

2. Theoretical Framework

This chapter will first present a general theoretical background on GVCs before more closely looking at the theory behind GVC governance types. Next, various theoretical aspects of supply chain risk management will be presented, including an introduction to a selection of different risk mitigation strategies.

2.1. Global Value Chains

The definition of the term *Global Value Chain* has already been introduced in this thesis. What is interesting to highlight is that increased globalisation of products and markets has made world trade more integrated, whilst resulting in more fragmented GVCs (Gereffi *et al.*, 2005). This may seem a little paradox at first, however the idea relates back to Adam Smith's (1805) concept of division of labour. What Smith described then argued for task specialisation, i.e. workers focus on one task instead of completing all tasks within a production process. The concept of GVCs extends Smith's idea beyond the individual firm context and applies it to an entire value chain. Instead of dividing up the production process amongst different workers, the various steps are divided up between different firms at an international level. This results in each firm being able to focus on their core competence, thus allowing them to perfect their step within a value chain which increases performance in comparison to firms with a broader activity range (Prahalad & Hamel, 1990). With this in mind it seems fair to say that GVCs have a raison d'être and their popularity is by no means just a coincidence.

Numerous scholars have stated that the participation in GVCs can be a highly beneficial choice for companies (see for example Kumar *et al.*, 2014; Gereffi & Luo, 2015; Manuj & Mentzer, 2008). This theoretical viewpoint is supported by the fact that 70 percent of international trade includes GVCs (OECD, 2021b). However, despite their popularity they also bear substantial risks, or as Barry (2004, p.695) phrased it:

"An enterprise may have lowest over-all costs in a stable world environment, but may also have the highest level of risk [...]"

In essence, what the author emphasises is that it's precisely the highly efficient and cost-effective GVCs that are at the greatest risk for possible disruptions. As was already mentioned in the introduction, this is due to the fact that safety nets such as back-stocks are eliminated and systems like just-in-time implemented. Both measures aim at decreasing costs by reducing the amount of money spent on inventory which is highly profitable as long as no hick-ups occur. These lean supply chains become even more fragile when they span country borders and cross continents since the risk as well as the variety of possible disruptions increases. What these disruptions may look like and how they can be dealt with will be elaborated on.

2.1.1. The Governance of GVCs

GVCs are often very complex constructs and thus it's important to gain an understanding of how they are governed, if one wishes to detect weak-links and avoid disturbances. Gereffi *et al.* (2005) present an analytical typology that encompasses five different forms of GVC governance: *markets*, *modular value chains*, *relational value chains*, *captive value chains*, *hierarchy*. The authors emphasise that a governance type isn't merely chosen at random but rather the result of a complex interplay between various factors such as geography, social situation, historical background and institutions, to name only a few. However, Gereffi *et al.* (2005) manage to narrow the influencing factors down to a set of three key parameters: *complexity of transactions*, *codifiability of information* and *capability of suppliers*. These parameters are determined to be dichotomous, either manifesting as high or low. Every governance type is matched to one unique combination of high or low for all three parameters, as is visualised in Table 1.

Governance Type	Complexity of Transactions	Ability to Codify Transactions	Capabilities in the Supply Base	Degree of power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	↑
Relational	High	Low	High	↕
Captive	High	High	Low	↓
Hierarchy	High	Low	Low	High

Table 1: Key determinants of global value chain governance
Source: Gereffi *et al.* (2005) p.87 with minor adjustments

Simple transactions with easy to codify information and capable suppliers are what characterises the governance type *markets* (Gereffi *et al.*, 2005). Sellers determine the conditions in terms of both price and details of the transaction to which the buyers then react. These transactions can take place more than once between the same seller and buyer, however, the barriers to changing transaction partners are low for both sides with little incentive for long-term relationship building.

In contrast, *modular value chains* are characterised by highly complex transactions, whilst codifiability of information and supplier capability remain high as in market governance (Gereffi *et al.*, 2005). Products made with this kind of GVC will most likely be designed in a modular way, i.e. the individual components aren't fully dependent on one another and can be reassembled into multiple product versions (see for example Baldwin & Clark, 2000). The advantages of market governance remain but the amount of information exchanged exceeds that of market linkages (Gereffi *et al.*, 2005). Transaction-specific investments are still avoided though, keeping the barriers low in terms of changing partners.

Relational value chains come to exist when transactions are very complex but the information hard to codify (Gereffi *et al.*, 2005). Suppliers are highly capable and the relationships are characterised by transaction-specific investments as well as joint dependence on one another. These relationships are either supported through close geographic positioning or via trust and reputation (see for example Menkhoff, 1992). In contrast to the two priorly mentioned types, this type of governance requires an extensive degree of personal exchange and the barriers for changing partners are high (Gereffi *et al.*, 2005).

The only key parameter that differs between modular value chains and *captive value chains* is the supplier capability. Whilst this is deemed high for modular value chains, suppliers have a low capability within captive value chains (Gereffi *et al.*, 2005). This difference is an important one since the buyer will have to provide a great deal of guidance to ensure that the supplier is able to produce the sophisticated products in question. These suppliers will often be small and rely heavily on the partnership with the buyer, creating extensive exit barriers for them in terms of changing partners. The tasks they perform are often ones that require a low skill level and are of little use without the supplementary activities of the buyer such as design or the purchasing of parts.

The same relation between two governance types that was just stated also applies to relational value chains and *hierarchy*. Once again, the key parameter that changes is supplier capability which is high in relational value chains but low in hierarchy (Gereffi *et al.*, 2005). Since the transactions are highly complex but the information difficult to codify and supplier capabilities low, this governance type is characterised by vertical integration. Buyers will internalise the majority of value chain activities and have to incorporate supplier companies into their own organisation. The exerted control has a top to bottom flow with decisions being made at the top of the hierarchy and instructions spread into the entities more at the bottom of the hierarchy.

These different governance types are by no means static. Gereffi *et al.* (2005) point out that as an organisation, the industry in which it is active, or the influencing external factors evolve and change, so can and will the governance of a GVC. Another factor which the authors highlight is the degree of power asymmetry that is inherent to each of the governance types. This power asymmetry is low within a market governance type since buyers and suppliers collaborate at eye level. In contrast, at the opposite end of the scale, i.e. in a hierarchical governance structure, a company has a large extent of power over its supplier. For all the other governance types the degree of power asymmetry is somewhere in between these two extremes and increases or decreases as is illustrated in Table 1.

As was already mentioned, identifying risks to a GVC and consequently trying to avoid disruptions requires an understanding of how the GVC is governed. The elaborations made above will serve as a foundation for identifying the governance type present within the organisations interviewed. In a later step, an effort will be made to draw a connection between a specific type and the company's success or lack thereof during the pandemic.

2.2. Supply Chain Risk Management

Undoubtedly, the effects of disruptions within the supply chain can be devastating for a company, resulting in significant financial losses and in the worst-case-scenario bankruptcy

(Kumar *et al.*, 2014). That alone should be incentive enough to manage supply chain risks and yet to a certain extent, companies seem to accept the fact that disruptive events and inefficient supply chains are a part of having globally dispersed business activities (Myers *et al.*, 2006). However, the successful management of supply chain risks can function as much more than simple damage control. Businesses can even aim at gaining a competitive advantage through the creation of effective and smoothly integrated supply chains. In order to sustain this competitive advantage, GVCs must be managed continuously, which includes handling the risks they entail (Christopher & Towill, 2002). This continuous management is known as *Supply Chain Risk Management* (SCRM), a term more precisely defined as

> *" […] the identification and management of risks for the supply chain, through a co-ordinated approach amongst supply chain members, to reduce supply chain vulnerability as a whole"* (Jüttner *et al.,* 2003, p. 201).

In this thesis SCRM will also be referred to as *GVC risk management*, an extension of the term made to highlight its applicability to GVCs specifically.

Many scholars agree that GVC risk management should be defined as a process that starts with identifying and assessing risks which then leads to the creation of an action plan to reduce both the likelihood of disruptive events occurring and the negative outcomes they could lead to, if they were to take place (see for example Kumar *et al.*, 2014; Manuj & Mentzer, 2008; Norman & Jansson, 2004; Zsidisin & Ellram, 2003). Furthermore, Manuj and Mentzer (2008) argue that profitability and cost saving are two factors businesses need to include when managing supply chain risk, especially by analysing both short- and long-term effects. Similarly to an insurance, the short-term costs with SCRM can seem unnecessary, but the effects of overlooking risks in the long-term could be devastating. At the end of the day a balance needs to be achieved between the costs of risk mitigation and the benefits thereof.

Before various strategies of how to successfully conduct GVC risk management are presented, the term *risk* will first be introduced. Risk could arguably be considered a vague term which, consequently, is difficult to clearly define. Some scholars settle with equaling risk to a threat that increases with a higher level of vulnerability or amount of unreliable resources in a business (Heckmann *et al.,* 2015; Tang & Musa, 2011). Others argue that the term includes a more extensive set of factors that increase uncertainty across an organisation which at a later stage could potentially lead to a negative outcome (Haimes, 2009; Zsidisin, 2003). Manuj and Mentzer (2008) define risk as the result of an uncertain event related to two components: *1) potential losses*, and *2) likelihood of those losses*. In other words, the authors argue that the probability of losses deriving from an event, in combination with the magnitude of those losses, should be considered when managing risk.

In order to tackle uncertainty with appropriate measures, scholars suggest classifying different kinds of risk (see for example Rangel *et al.*, 2015). Christopher and Peck (2004) argue for the benefits of categorising supply chain risk based on where it originates. The authors suggest a division dependent on three categories; whether the risk is *1) internal to the company*, *2) external to the company but internal to the supply chain network*, or *3) external to the supply chain network*. The first category includes risks connected to the processes that add value within an organisation together with the systems controlling these processes, i.e. internal policies, rules and procedures. The second category relates to risks within the supply chain network of the company, i.e. supply and demand flows in either up- or downstream activities. The third category includes disruptions that neither originate within the core processes of the business nor the supply chain network but instead come from the external environment, e.g. natural disasters or accidents caused by an outside actor. This approach of analysing a risk's origin seems to be a first step toward allocating responsibilities for different risks, e.g. if a risk is external to the firm but internal to the supply chain network, it might make sense to share the responsibility for the risk between the firm and the supplier, i.e. try to mitigate it together.

2.2.1. Supply Chain Disruptions

Not all supply chain risks are a problem for an organisation. The challenging ones are the risks that materialise and as such become a disruption. Thus, supply chain disruptions are just as diverse as supply chain risks. Kumar *et al.* (2014) divide disruptions to a supply chain into five different categories: *natural/regional*, *supplier management*, *political*, *transportation* and *change to demand pattern*. Natural/regional disruptions constitute natural disasters such as tsunamis or the eruption of volcanos which will typically affect a specific region in the world.

Whilst these events are not directly the result of human activity, they may be indirectly as a consequence of global warming. In contrast, supplier management disruptions can directly be traced back to human actions, or lack thereof. The authors name the bankruptcy of a supplier which could have been avoided through more financial support by the buying firm as an example. An extreme example of a political disruption would be the outbreak of a war, a transportation disruption might be piracy in sea-freight shipping. Lastly, changes in the demand pattern can also be so severe that they would be considered a disruption. The panic-buying many countries experienced at the begin of the Covid-19 pandemic, as was mentioned in the introduction, would be an example of this.

In the interviews Manuj and Mentzer (2008) conducted with practitioners they found some GVC disruptions to be perceived as more pressing than others. Some of these disruptions have little to do with a company's participation within a GVC and could also affect companies that produce domestically. Examples would be disputes over who owns inventory or tools between supplier and buyer, problems with making accurate demand forecasts or product quality issues. Other disruptions are more clearly linked to a company's global activities such as currency fluctuations, culture differences and language barriers or the time it takes to transport goods around the world.

2.2.2. Supply Chain Risk Mitigation Strategies

According to Kumar *et al.* (2014), it is a must for companies to implement strategies with the prime goal of mitigating risk. However, randomly picking and choosing strategies is of no use. Instead, the authors believe a company should setup a risk mitigation framework which can include a number of steps, e.g. researching how severe the risk is, pin-pointing when there is a need to act on it, and planning on how to actually deal with it. Once steps have been taken to identify and rank the various supply chain risks a company is subject to, a relevant strategy or a set of multiple strategies needs to be chosen. In this report, a wide span of risk mitigation strategies will be included, which will primally originate from the frameworks of Kumar *et al.* (2014) and Manuj and Mentzer (2008). In the study by Manuj and Mentzer (2008), interviews were conducted with supply chain managers from different industries to research how risk is mitigated. Kumar *et al.* (2014) base their research on a comprehensive literature review of four established SCRM articles, which arguably leads to their article functioning as a summary of the SCRM research conducted thus far. Based on the insights from theses two articles, and with the recent disruptions of the Covid-19 pandemic in mind, we define and distinguish between five broad risk mitigation categories that constitute our conceptual framework. Each category is exemplified by at least one risk mitigation strategy. The five categories are: *diversify supply network*, *decrease a GVC's complexity*, *re-shore*, *manage inventory* and *influence demand*. All categories will now be presented.

Diversify supply network

A supplier partnership is formed in order to add value to a GVC network, e.g. by complementing other suppliers, being a cost-efficient option, or having a strategically optimal location. From a risk mitigation perspective, the decisions that increase short-term business performance and cost advantages must be considered against those that build resilience and robustness across the supply chain (Miroudot, 2020). A common strategy organisations use to become less vulnerable is to have geographically dispersed partnerships across the supply chain, which Kumar *et al.* (2014) define as *location hedging*. The main benefit of having a dispersed supplier portfolio is being independent of activities in one single location in the world and, consequently, not directly affected by e.g. a natural disaster, political instability or currency fluctuations in that specific area (Manuj & Mentzer, 2008). To implement location hedging as a permanent solution to minimise risk could however be quite inefficient from a cost perspective. Kumar *et al.* (2014) therefore also suggest an alternative strategy to location hedging, called *multisourcing*. If a company decides to multisource this can mean one of two things. Bhattacharya *et al.* (2018) define the term as the outsourcing of various tasks to more than one company, i.e. supplier. In their definition Kumar *et al.* (2014) move away from this notion of several primary suppliers and describe multisourcing as having a network of back-up suppliers for critical components within the GVC. According to Kumar *et al.* (2014), a company can then reap the benefits of having one main supplier to cooperate with and, at the same time, decrease the level of risk by having other suppliers on stand-by.

However, in terms of supplier selection, the use of several different suppliers isn't the only option to decrease supply chain risk. On the contrary, each supplier should also be individually analysed according to Kumar *et al.* (2014), who suggest including a *supplier* *scorecard* strategy in order to mitigate risk. In this strategy the company constantly audits the capabilities and risks of a supplier. The goal is to decrease the risk of disruptions that originate from a supplier's internal operations, e.g. unstable financial situation. By comparing the generalised scorecards and assessments for different suppliers, the company can rank which partnerships within the supply chain entail the most risk.

The substantial amount of globalised and dispersed activities in value chains leads to an increased transportation complexity. Not only must a manager consider potential disruptions at suppliers but also for the transportation routes between them. The flow of goods in a GVC is vital to how well it functions, which makes *transportation* an important area to include in SCRM (Kumar *et al.*, 2014). In order to mitigate risk associated with transportation, Tang (2006) suggests the following options: 1) implement multiple routes, 2) collaborate with multiple carrier companies, and 3) have multiple transportation modes available.

Decrease a GVC's complexity

As previously mentioned in this report, shortening a GVC could be seen as the equivalent to decreasing the level of fragmentation in it. The benefit of less fragmentation is that a supply chain becomes less complex and thus easier to manage. Manuj and Mentzer's (2008) *control/share/transfer* strategy lists *vertical integration* as a risk mitigation approach. Integrating suppliers into the organisation naturally increases the transparency of supply chain operations, the visibility of risks and enhances knowledge transfer. According to the authors both backward and forward integration serve the purpose of controlling risk. Since this thesis focuses on supply chain risks it's the backward vertical integration which is of interest. Internalising larger parts of the supply chain decreases a GVC's complexity since intra-organisational barriers such as proprietary information no longer hinder effective risk management (Manuj & Mentzer, 2008).

Re-shore

The outsourcing of manufacturing activities to low-cost countries has for many years been considered as vital in order to get a competitive cost and price advantage, but that trend might be changing in some industries (Joubioux & Vanpoucke, 2016). Instead, a re-shoring strategy has emerged as an option to mitigate risk as the previous benefits of off-shoring could be decreasing. Arguments that support re-shoring are connected to reduced transportation costs (Delis *et al.*, 2019), closeness to customers and essential market, and that the low-cost benefits are not as remarkable as they have previously been (Ellram *et al.*, 2013; Fel & Griette, 2017). More disruptions and a lower level of supply chain resilience are two other disadvantages associated with off-shoring according to Joubioux and Vanpoucke (2016). Hence, re-shoring could arguably be seen as a viable risk mitigation strategy. Kumar *et al.* (2014) support this statement by including a strategy called *make and buy* in their SCRM framework. The idea is to have a mixture of both outsourced production activities as well as self-production. This strategy is exemplified with a company that, as a contingency plan, can transform its test manufacturing line, located in the home market, into an actual production factory in case off-shored activities were disrupted. Having this kind of back-up production in place could arguably also be categorised as supplier diversification.

Manage inventory

In recent decades, scholars have highlighted the importance of efficiently managing inventory (see for example Chen *et al.*, 2007; Yang & Pan, 2004). International organisations have, in their strive for a competitive advantage, focused more and more on cost-efficiency through e.g. just-in-time production and lean working methods, which often simultaneously means that inventory levels should be kept low (Kumar *et al.*, 2014; Yang & Pan, 2004). In ideal business conditions, i.e. in a market with few supply chain disruptions, this strategy to maximise profit seems reasonable and its high risks might be forgotten. From a long-term risk management perspective however Kumar *et al.* (2014) propose a different strategy: *buffering*, also referred to as *strategic stock*. This approach results from a risk-averse mindset where the main goal is to never run out of stock. A safety stock can serve as a buffer in case there's e.g. a spike in demand or a supply chain disruption and whilst the authors describe it as a conservative strategy, they believe it to be a wise choice for crucial parts that cannot be quickly obtained elsewhere.

Another strategic approach to managing inventory in order to reduce supply chain risk is to opt for either *postponement* or *speculation*. Both Kumar *et al.* (2014) and Manuj and Mentzer (2008) highlight *postponement* as a viable risk mitigation strategy which serves the purpose of remaining flexible. This strategy works for products which were designed in a modular way, as was elaborated on in the GVC governance type section of this thesis. The goal is to keep a product as generic as possible and then customise it once it has found a buyer (Kumar *et al.*, 2014). Since the customisation is made at such a late stage, i.e. the company postpones the commitment of resources for a specific product as long as possible, the organisation can react to changes in demand more flexibly. The opposite approach would be that of *speculation* as is elaborated on by Manuj and Mentzer (2008). This strategy relies heavily on forecasting and aims at producing final products as quick as possible. Raw materials are moved to production sites in a timely manner, commitment to a final product happens early on and products are forwarded to the various markets as stock rapidly. Speculation can be a fruitful option to overcome uncertainty and achieve economies of scale as long as the customer demand forecasts are thoroughly made (Manuj & Mentzer, 2008).

Influence demand

In the event of a disruption, Kumar *et al.* (2014) suggest two strategies that companies can use to influence customer demand in their favour: *assortment planning,* and *price and promotion planning*. The goal with both strategies is to decrease demand for the products negatively influenced by a disruption, i.e. subtly influence customers to buy other products than the ones with insufficient supply. *Assortment planning* could e.g. take place through altering the location of products in a store or on a company website (Tang, 2006). This strategy requires the company to have a substitute to or close alternative for the product with insufficient supply. The same goes for *price and promotion planning*, where a company can mitigate risk by offering a similar product, that hasn't been affected as much by the disruption, which is then promoted through discounts (Kumar *et al.*, 2014).

Table 2 presents a summary of the various strategies presented in this section. They are ordered by the category which we have assigned to them.

We will use the SCRM framework presented above as a foundation for analysing how risk is mitigated within the furniture industry. The empirical data received from interviewing organisations will be connected and compared to the risk mitigation strategies, which will give an understanding of how furniture companies manage risk in light of the pandemic.

Diversify supply network	Decrease a GVC's complexity	Re-shore	Manage inventory	Influence demand
Location hedging Multisourcing Supplier scorecard Transportation	Vertical integration	Make and buy	Buffering / strategic stock Postponement Speculation	Assortment planning Price and promotion planning

Table 2: Summary of risk mitigation strategies in five different themes
Source: own illustration

In their article, Kumar *et al.* (2014) match the various strategies they list to one of four strategy types: *act now*, *plan now and act later*, *plan to act later*, and *do nothing*. The four types are the result of risk mapping. Risks that are deemed to have only very mild consequences for an organisation if they were to materialise fit to the *do nothing* approach (Kumar *et al.*, 2014). The likelihood of the risk materialising is not relevant since the impact on the organisation is so low. If a risk is determined to impact an organisation moderately to severely but the probability of the risk occurring is low, then the *plan to act later* approach is fitting. The first of two approaches that include the various risk mitigation strategies listed above is *plan now and act later* for moderate to severe consequences and a medium likelihood of the risk materialising. Kumar *et al.* (2014) believe that the risks which fit this characterisation are most effectively met with the following strategies: *multisource*, *transportation*, *make and buy*, *assortment planning* and *price and promotion planning*. In contrast, risks that are determined to have moderate to severe consequences but a high likelihood of materialising require the *act now* approach. The fitting risk mitigation strategies for *act now* are: *location hedging*, *supplier scorecard*, *strategic stock/buffering* and *postponement.*

In contrast to the five categories which we have presented, the approaches suggested by Kumar *et al.* (2014) rely on the scores each risk receives during the risk mapping. While we believe that this is a great alternative, it requires a highly objective risk mapping. However, when humans are involved obtaining objective results becomes challenging, to say the least. For one, organisations might not be able to foresee the full magnitude of consequences that could result from a specific risk materialising. Also problematic is the fact that assessing how likely the materialisation of a risk is, is heavily dependent on individual factors. Risk perception is a field that has been studied by various different disciplines, e.g. geography or psychology, and many different influencing factors have been identified over time (Rufat, 2015). We believe that especially for SMEs a more or less objective mapping of risks could be challenging and therefore think it might be easier to focus on one or more of the five categories listed above when choosing risk mitigation strategies.

2.2.3. The Goal of SCRM - Resilience or Robustness?

Before choosing a mitigation strategy or a set of various strategies to use, an organisation should ask itself what it wishes to achieve with its GVC risk management. Miroudot (2020) argues that a company will benefit from this decision and primarily distinguishes between two risk management goals: resilience and robustness. Robustness is defined as the capability to manage operations when the disruptive event takes place while resilience is more about the capability to restore operations to normality after the disruption. The SCRM strategies will to a large extent be affected by what the company aims at achieving, i.e. a company will sometimes require a different set of strategies to create resilience as compared to robustness. Miroudot (2020) exemplifies the strategic differences with a company that depends on close collaboration with one supplier in a certain segment of the GVC. The robustness of this company is arguably low in the event of a disruption since no alternative to the supplier exists. On the other hand, the company can be considered more resilient than those with multiple suppliers since it can direct all efforts on preparing that single supplier for a quick recovery after the crisis. That strategies for building resilience and robustness must differ is though not true in every case and for many companies an investment in strengthening one area will lead to benefits in the other (Miroudot, 2020).

3. Methodology

This chapter will elaborate on the research methods used to conduct this study and justify our choices. More specifically, we will explain how we have collected our data and how it was analysed. Finally, a critical perspective will be presented that highlights possible shortcomings of our research.

3.1. Research Method

This study was conducted with an exploratory character, i.e. by researching a topic with limited documented research (Blumberg *et al.*, 2008). Two different methodological approaches were considered in order to answer our research questions; either to conduct a quantitative or qualitative study. Based on a number of reasons, we decided to collect our data through a qualitative approach. Blumberg *et al.* (2008) argue that a study with an exploratory nature tends to benefit from a qualitative method. As Bell *et al.* (2019) emphasise, the qualitative method suits a research that's more focused on words than numbers. Bell *et al.* (2019) further imply that a researcher should use this method in order to understand how individuals interpret their surroundings, which fits the profile of our research questions that arguably are best analysed with insights from the right managers in the right context, i.e. with insights from relevant practitioners within the European furniture industry.

An abductive approach was applied since we aimed at continuing to develop already existing theory, as is described by Dubois and Gadde (2002). Whilst we used established theory to compose our question catalogue, we wanted the empirical findings to add on to the already present knowledge. Especially for our sub-research question 2 the goal was to gain an understanding of a phenomenon, i.e. why some companies are more successful than others during the pandemic, which is yet to be explained. Bell *et al.* (2019) state that an abductive approach is best suited for this.

With the main research question *How are European furniture companies dealing with GVC disruptions in light of the pandemic?* in mind, we needed to identify the theoretical thoughts that would guide us in both our research in general and the question catalogue more specifically. Our primary focus was the existent literature on the topic of SCRM to get an overview of what different risk mitigation strategies exist. This allowed us to gain an understanding for what actions European furniture companies might be taking in order to tackle GVC disruptions caused by Covid-19. We also added theoretical insights on GVC governance types to investigate whether this had an impact on a company's success during the pandemic. For both theory fields several articles of interest were viewed and a small selection was deemed most fitting to investigate the research questions.

We don't aim for the results of this study to be generalisable beyond the European furniture industry and such an attempt would more typically make use of a quantitative approach (Carminati, 2018). However, we wish to investigate a cross-section of the European furniture industry. It is for this reason that our research isn't focused exclusively on e.g. large multinationals but instead we attempted to interview candidates that work within SMEs, organisations within the industry and of course also large corporations. In order to achieve this, an investigation of multiple cases was necessary and thus the multiple-case-study approach was chosen, also referred to as a collective case study by Stake (1995). Since the line between a multiple-case-study approach compared to a cross-sectional design can be blurry, it's worth pointing out why we declare our research to be the former instead of the latter. As Bell *et al.* (2019) state, the major difference between the two is whether the focus is on understanding individual contexts, i.e. multiple-case-study, or on creating general results, i.e. cross-sectional design. We are far more interested in achieving a descriptive case study which will highlight the differences between the individual cases (Ylikoski & Zahle, 2019) as opposed to the results being fully generalisable.

3.2. Data Collection

In order to achieve this industry cross-section, purposive sampling was used when selecting candidates to interview. The idea is to assure that certain categories of cases are included in the study (Robinson, 2014; Campbell *et al.*, 2020), which for this research meant including MNCs, SMEs and an industry organisation. More specifically, the maximum variation method as described in Bell *et al.* (2019) was applied since the wide range of organisations chosen was additionally diversified by the various roles the interview candidates held within these organisations.

We scanned the European furniture industry through a web search and identified potential organisations of interest within each of the three categories, i.e. MNC, SME and industry organisation. According to Lauder *et al.* (1994) there isn't one shared definition for the term SME but one aspect considered is the number of employees. The European Commission (2005) states that companies with under 250 employees should be included, a recommendation we adhere to in this thesis. Consequently, an MNC encompasses all companies with 250 or more employees. In addition, the aspect of international activity will also be applied to the definition which the European Commission (2019) highlights.

We used LinkedIn to seek out individuals working for our identified organisations in relevant positions. A keyword search was conducted looking for candidates that had words such as *procurement*, *sourcing* or *supply* in their position titles. In addition, upper level managers at the identified organisations were also sought out, however, these weren't the preferred candidates for two reasons. Firstly, we feared that they might not be as familiar with the supply chain as employees in the relevant positions would be. Secondly, from a very pragmatic point of view, we assumed that managers at the highest level would have very busy schedules, decreasing our chances of receiving an interview slot. Besides maximum variation sampling we also applied snowball sampling by asking the candidates we had interviewed whether they would be willing to make inquiries within their networks for more suitable candidates (Emerson, 2015). This sampling approach merely yielded one further interview candidate.

After the selection process, we started to approach the companies and respondents that were considered valuable to our research. To establish initial contact we, at first, both emailed companies' media or PR departments and contacted candidates directly through LinkedIn. It was immediately clear that the latter mentioned communication channel resulted in the highest rate of successful responses. Hence, all 10 respondents in this study were either approached through 1) LinkedIn, 2) referrals from previous respondents or from candidates that did not want to participate themselves and 3) from our personal network. In total, we interviewed 10 candidates from seven organisations within the European furniture industry. Six of the 10 interview candidates work for MNCs and three for an SME. The official titles vary from CEO to supply chain-, procurement- or sourcing-managers.

This qualitative study empirically only consists of primary data. The data was collected through semi-structured interviews. As Bell *et al.* (2019) describe, the questions in a semi-structured interview are quite specific and easily structured in the form of a list. They don't have to be asked in the same order as outlined in the question catalogue, but it's still essential that the same topics are covered for every single interview conducted. At the same time, the questions in a semi-structured interview are formulated in a way that offers the respondent a certain amount of freedom when answering which facilitates more extensive knowledge-sharing in the form of a discussion or dialogue that the researcher can benefit from (Brinkmann, 2014). The person conducting semi-structured interviews has a limited amount of freedom, but is allowed to ask follow-up questions and make comments based on what the respondent answered (Bell *et al.*, 2019). On the contrary, in a structured interview, the interviewer is much more strictly bound to the pre-decided questions and Brinkmann (2014) consequently argues that there's a risk that the interviewer will be restrained from adding value to the dialogue. What we meant to achieve with the semi-structured approach was an interview setting that facilitates knowledge-sharing within specific predetermined topics without restraining the respondents.

We structured our interviews with the help of the question catalogue which was sent to the respondents prior to the meeting. To cover the full spectrum of our research questions, four topics were deemed necessary to include in our interviews. Consequently, the question catalogue was divided into four blocks of questions based on the following topics: 1) *general information*, 2) *GVC governance type*, 3) *pandemic* and 4) *risk mitigation*. The first block of questions was included to, on a general basis, establish what type of individual and company we were interviewing, which meant that questions like *What are your responsibilities on a daily basis?* and *In which countries are your company's products produced?* were asked. The second topic in the question catalogue was meant to examine how a company governs their GVC. The six questions included in this segment were created in a way that would give insights on whether the company practices a market, modular, relational, captive or hierarchical governance type, i.e. which governance type elaborated on by Gereffi *et al.* (2005) is used by the company. Questions in this segment were e.g. *Has your company in recent years bought up suppliers to make them a part of the organisation?* and *Do your suppliers exclusively produce for your company?*. With the third block of questions we aimed to address the respondent's view on the Covid-19 pandemic and its repercussions on the respective company. Questions such as *Would you say that your company was influenced by the pandemic and, if so, in what way?* and *How was your supply chain impacted?* were included in this segment. The fourth segment included the largest number of questions and was arguably most directly related to our research question since it examined what risk mitigation strategies the respondent's company practice/practiced in order to deal with GVC disruptions before, during and after the pandemic. The risk mitigation strategies as such are essential in this segment, but also the change process, i.e. if the company has altered its behaviour toward risk as a consequence of the recent disruptions. Questions in this segment were e.g. *Is somebody responsible for risk mitigation within the company?* and *Do you plan on committing more resources towards risk mitigation post-pandemic?*. The fourth topic further includes a segment where we check if the company has implemented any of the specific risk mitigation strategies from our conceptual framework (see Table 2, p.19). An overview of the entire question catalogue can be found in *Appendix - Question Catalogue*. Finally, in order to test if our question catalogue would be perceived as understandable and professional, we did a pilot interview with a person from our network who has an MBA and managerial experience in another field.

As a result of the current restrictions due to Covid-19 and to ensure flexibility for the respondents, the interviews in this study were conducted through digital means, mainly through Zoom meetings. Bell *et al.* (2019) argue for several advantages with online face-to-face interviews compared to on-site meetings, e.g. that managers might be more willing to participate because of the convenience. This convenience is essential for our thesis since we aim at covering the European furniture industry, i.e. to interview managers from different furniture companies located within different countries. Bell *et al.* (2019) further highlight that the scientific community lacks clear evidence for why online face-to-face interviews would give less extensive or reliable data compared to on-site meetings, for instance because the researcher can still pick up on visual cues during a digital video meeting. To specifically use the Zoom platform for interviews has also proven to be favourable from the respondent's point of view, where the ease of use and the fact that it offers a secure experience are mentioned as major benefits (Archibald *et al.*, 2019). With that said, a certain amount of limitations and problems can appear with digital interviews. For instance, technical problems can result in disruptions and poor audio quality which consequently may hinder the flow of conversation and the possibility to transcribe answers accurately (Archibald *et al.*, 2019; Bell *et al.*, 2019). We didn't experience any disruptions due to technical issues in our data collection process, but the audio quality of one recorded interview was in some segments poor. In order to overcome this challenge both of us transcribed this specific interview so that the segments that hadn't been understood by one of us were understood by the other.

As was previously mentioned, the Zoom platform was used to conduct the majority of interviews, but communication through Microsoft Teams, telephone and email did take place when the respondent specifically requested it. This was the case for four of the 10 interviews with one taking place via telephone in German, one via email also in German and two via Microsoft Teams. Except for the two conducted in German, all the other interviews were conducted in English. The interviews lasted for 45 to 60 minutes and the different segments of the question catalogue were divided between the two researchers of this study who were individually responsible for asking questions about the same topics in each interview. The main reason for this clear division was to avoid situations where we as interviewers would ask follow-up questions or make comments simultaneously and therefore disturb the flow of the Zoom meeting. Additionally, this division made it easier for us to stay fully concentrated during the interview part that we were respectively responsible for as well as resulting in a "change of voice" for the respondent. During the pilot interview especially the benefit of the latter was brought to our attention by our pilot respondent in the sense that it draws back full attention to the interview.

3.3. Data Analysis

Analysing data in a qualitative study is a complex matter according to several scholars (see for example Bell *et al.*, 2019; Grbich, 2012), which Bell *et al.* (2019) argue results from the fact that a researcher must rely on unstructured data language. In contrast to quantitative data analysis, there aren't many set guidelines for how to analyse qualitative data and the researcher must instead be open to broader interpretations (Bell *et al.*, 2019). Dudovskiy (2016) adds that a researcher first must identify patterns in the answers from respondents and then thoroughly analyse those. That the analysis should include comparisons to already existing theory or literature is often critical for both qualitative and quantitative research (Bell *et al.*, 2019; Dudovksiy, 2016). For analysing the data in this research we adopted elements from the *grounded theory* approach that Bell *et al.* (2016) present, where our theoretical framework and data collection is closely connected to each other and repeatedly referred back to. To answer the research questions we further attempted to find patterns for the larger topics of the data collection, e.g. GVC governance type, pandemic effect and risk mitigation strategies, while not forgetting to keep a broad view of the interview responses. For all of the topics we scanned the data for both similarities and differences between the responses and analysed what the reasons for this might be.

3.4. Research Quality & Limitations

Ensuring both a high research quality as well as the ethically sound conduction of research was a major priority that influenced our entire study but especially impacted the way we approached the interview process. In order to create an environment in which all respondents would feel comfortable enough to share (partially sensitive) information with us, we granted anonymity both for their personal identity as well as the organisation they work for. This is necessary since as DiCicco-Bloom and Crabtree (2006) point out, the respondent might disclose information that could endanger their professional standing. In addition, as was previously stated, the efficient management of a GVC can function as a competitive advantage and it should thus be avoided that details from the interviews can be matched to a specific organisation.

All respondents were transparently informed about the research goal of the study as is advised by DiCicco-Bloom and Crabtree (2006). We clearly stated that the research was being conducted for our master thesis project and we were open to answering any questions they might have about the project. The time frame of approximately one hour per interview was communicated and the option was offered to receive a copy of this study once the project is completed. At the beginning of each interview we asked for consent to make an audio recording of the conversations with the sole purpose of being able to focus on the interview whilst it was taking place instead of devoting too much attention to note-taking. We offered to send the interview questions to our respondents in advance and all except for one participant made use of this option.

We do firmly believe that the choice to conduct qualitative semi-structured interviews was the ideal one for this research project, nevertheless, that doesn't mean that there were no drawbacks to our choice. As Bell *et al.* (2019) state, the focus of qualitative interviewing is on the opinions of the respondents and the freedom of semi-structured interviews allows for them to elaborate on aspects which they deem to be important. We aimed to give the respondents this freedom, however, in order for the answers to remain comparable across the different interviews, but also due to time restraints, it wasn't possible to go beyond the question catalogue too extensively. In some of the interviews we also received quite unexpected responses which made some of the questions yet to come irrelevant, a phenomenon also recognised by Bell *et al.* (2019). In those situations it was difficult to rephrase the existing questions or come up with new ones that would still allow us to receive the information we were looking for on the spot.

The respondents also received the option of attaining the question catalogue prior to the interview. This offer was made for two reasons: firstly, to instil a sense of transparency and trust in them, i.e. familiarise them with the questions and not blindside them during the interview; secondly, to increase the quality of answers by giving the respondents an opportunity to think about possible answers beforehand since some of the questions might not be as easily answered on the spot. On the other hand, this decision also has potential drawbacks. For one, respondents might overthink an answer instead of giving an intuitive response. Secondly, a respondent has the option of shaping an answer in a way which they believe to be either most beneficial for our research or most beneficial for their organisation.

The benefits of having two interviewers asking the questions have already been stated. In addition to those factors, this approach also ensures that the level of personal interpretation is decreased. Since two researchers can reflect on what was being said, the level of internal reliability increases, according to Bell *et al.* (2019).

With the different factors listed that might negatively influence the quality of research during the interview process, it should also be stated that the sampling methods chosen aren't necessarily impeccable either. We may have aimed at approaching a broad range of possible respondents with the maximum variation approach but our lack of professional experience within the furniture industry might mean that we forgot about a relevant group in terms of GVC management completely. In addition, the snowball sampling method used to identify one of the respondents is criticised by Emerson (2015). The author believes that this method attracts participants that share various characteristics or belong to similar groups, thus potentially altering the research results. Examples given are factors such as similar socio-economic or ethnic backgrounds. However, since merely one respondent was identified through snowball sampling we believe the described risk to be minimal.

Although this research has been delimitated to the furniture industry and the European market, there are some limitations which are necessary to address. The methodology choice can create limitations, but also the researchers themselves can be limiting since they come across situations that aren't possible to control. This study has mainly been subject to three limitations. First of all, the time frame of the study together with the ongoing developments surrounding the research question, i.e. the continuously changing events of the Covid-19 pandemic, must be considered as limiting. This research includes insights from respondents during March 2021. If the data was collected at an earlier or later stage of the pandemic, the view on e.g. risk mitigation strategies and the repercussions of the pandemic might be different. Second of all, the thesis time frame further limited the number of interviews that were conducted. Consequently, the question arises whether the data collected is substantial enough to represent the European furniture industry, i.e. to what extent it's generalisable. Even though a number of organisations from different European countries and respondents with different supply chain-related positions were included, it's naturally possible to cover an even broader spectrum within a longer time frame. As previously mentioned though, the attempt of this study isn't to achieve fully generalisable results. What this selection of organisations and respondents, in addition to the granted anonymity means, is that external reliability is extremely difficult to achieve. As described in Bell *et al.* (2019), whilst the replication of this study setup can be achieved, the specific respondents cannot be identified and the exact circumstances, i.e. point in time of the pandemic, cannot be repeated.

It’s also vital to highlight that the respondents cannot be expected to fully represent their respective companies' view on the subject. The anonymous interviewing method could arguably increase this gap between the respondent and company since it gives the respondent the freedom and anonymity necessary to be completely honest and, hence, the answers could be subject to bias. The final and third main limiting aspect of this research is the lack of comparative studies. To our knowledge there are few significant articles made about supply chain governance and risk mitigation in furniture companies. Since the start of the Covid-19 pandemic was relatively recent, there’s also a limited amount of established research on SCRM related to this particular disruption. It would have added value to our thesis if more comparative results existed, e.g. similar research in another industry or part of the world. On the other hand, this thesis now has the opportunity to add new insights to the scientific community.

In conclusion, whilst there are benefits and shortcomings for all the methodological choices we have made, we do believe that our choices are appropriate in the sense that they align with our research goal. This appropriateness or alignment is described by Leung (2015) as an indication of validity in qualitative research. Since this methodological analysis has thoroughly elaborated on the advantages and limitations of this study, as well as justifying the approaches we have chosen, we believe that the integrity of this study stands.

4. Empirical Data

In this chapter we will present the main findings of the interviews which are divided into four different parts. First of all information about the companies and individuals interviewed is provided. Secondly, we will present the data obtained on the GVC governance type of each company before, thirdly, elaborating on the responses given concerning questions about the pandemic. The fourth and last section will cover information received about the risk mitigation of each company.

4.1. Overview of Companies & Respondents

Company	Category	Respondent	Position	Interview setup	Duration	Date
Company A	MNC (brick&mortar)	Respondent A1	Senior Sourcing Manager	Zoom	51 minutes	8.3.2021
		Respondent A2	Supply Planner	Zoom	46 minutes	19.3.2021
		Respondent A3	Senior Supply Chain Manager	Teams	1 hour 6 minutes	22.3.2021
Company B	MNC (brick&mortar)	Respondent B	Purchaser	Zoom	54 minutes	10.3.2021
Company C	MNC (brick&mortar)	Respondent C	Senior Buyer	Teams	43 minutes	16.3.2021
Company D	MNC (e-commerce)	Respondent D	Operations Manager	Zoom	44 minutes	19.3.2021
Company E	SME (brick&mortar)	Respondent E1	Top Management	Telephone	46 minutes	5.3.2021
		Respondent E2				
Company F	SME (brick&mortar)	Respondent F	Senior Buyer	Zoom	49 minutes	28.3.2021
Company G	SME (industry organisation)	Respondent G	Head of Purchasing	E-mail	-	8.3.2021

Table 3: Summary of data collection details
Source: own illustration

Table 3 represents a summary of the various interviews that were held. Ten respondents from seven different companies were interviewed, four of them can be categorised as MNCs, the other three as SMEs.

Company A is a brick&mortar retailer with stores spread out globally. Online sales are also conducted but these merely serve as a supplement to the analogue business. The company works together with several hundreds of suppliers located in various parts of the world, as was stated by Respondent A1, A2 and A3. Respondent A3 emphasised the global spread of the supply network whilst Respondent A1 and A2 highlighted the suppliers in Europe, more specifically Poland. The respondents' positions are all within supply chain management, with the highest level of seniority pertaining to Respondent A3 and the lowest to Respondent A2.

Company B is also a multinational firm with a focus on analogue stores. However, in contrast to Company A, Company B focuses on a higher price segment and to-order production. Their supply chain can be seen as two-fold with specific products being produced in the home market and others sourced in China as well as Eastern Europe. Respondent B works within purchasing and thus had valuable insights especially on those parts of the supply network that are outsourced.

Company C is specialised on a specific furniture category and present within Europe. The majority of production takes place within several European factories, whilst specific parts are sourced from Asia. Just like Respondent B, Respondent C also works within purchasing and does so at a senior level.

Company D, in contrast to the companies previously listed, doesn't have a physical presence but conducts its business online. It's a multinational company which is primarily active in North America and selected markets in Europe. This company has a very different business model compared to Company A, B and C since Company D functions as a marketplace, i.e. a platform on which furniture is sold. Company D's suppliers are located mostly within Europe for high-end products, whilst less sophisticated products are imported from Asia. Respondent D works within the area of business operations.

Company E differs from the above described companies primarily in terms of size. The company operates two different stores within close proximity of one another and its lack of magnitude impacts its supply network dramatically. In order to achieve a certain degree of bargaining power, Company E has joined a purchasing organisation which bundles the purchasing needs of several SMEs. Company E is led by a top management team of three, two of which are Respondent E1 and E2.

Company F is a medium-sized organisation that works with a franchise system. They have various physical stores within one of the Nordic countries. Company F's suppliers are located primarily in Asia, however, according to Respondent F about 40 percent of production also takes place in Europe. The European suppliers can mostly be found in eastern Europe but some are also located in other countries such as Italy. Respondent F works as a senior buyer.

Company G is an industry organisation in the sense that it doesn't sell furniture to end-consumers like all the other companies do. Instead, Company G is the purchasing organisation that Company E works together with and as such active within the B2B sector of the furniture industry. The suppliers that collaborate with Company G - and are thus the suppliers of Company E - are mostly located in eastern Europe, with some also from Asia. Respondent G is the head of purchasing for Company G.

4.2. GVC Governance Type

4.2.1. Ownership

In terms of having ownership in suppliers or not, the respondents from Company A expressed that their supply chain network includes a mix of both. Company A fully owns some suppliers at the same time as they have no ownership at all in others. Respondent A1 highlighted that a supplier's production to 99 percent could be devoted to Company A without them having any ownership in the supplying firm. The strategy regarding ownership in suppliers hasn't changed in the last years for Company A. Respondent A1 pointed out that this strategy is consistent, which Respondent A3 supported by saying that the supply strategy is developed on a long-term basis and that Company A has neither increased nor decreased the amount of ownership in suppliers during the Covid-19 pandemic. Similarly, Company C has a supplier portfolio with both fully owned and outsourced production. Since Company C has been growing by acquiring other manufacturing firms, the respondent found it difficult to distinguish to what extent they prioritise ownership in the actual production activities. With the acquisition strategy, Company C buys the whole production process of a firm, which naturally includes already existing partnerships with suppliers. This type of acquisition last took place in 2018 for the firm. The respondent further emphasised that Company C focuses substantially on their own production and primarily outsource activities they can't do themselves.

Company B has a slightly different strategy regarding ownership in their supply chain network, where only the production that takes place in their home market is fully owned. They don't have any ownership at all in the production sites located in other parts of the world, which instead are completely outsourced activities. Similarly, Company E, F and G don't have any ownership in suppliers. As for Company D, which functions as a marketplace, the respondent differed between high-end and low-end supplying firms. The low-end suppliers that Company D collaborate with could outsource all production to Asia and ship everything from there, while the high-end suppliers to a larger extent have their own manufacturing sites. Despite not having ownership in suppliers, the respondent expressed that Company D controls the suppliers which in turn control the manufacturers. Despite the control of suppliers, the respondent stated that Company D isn't very involved in the manufacturing partners of those.

4.2.2. Relation & Range

When conducting the interviews, it became evident that the majority of participating companies value a close collaboration with suppliers. Respondent B highlighted that building strong relationships with suppliers is necessary in order to rely on the business you conduct with them. Respondent A1 added that efficient production with more secure quality and lower costs are benefits from long-term collaborations. The respondent from Company C agreed that these benefits exist but emphasised that the type of relationship highly depends on the outsourced activity. Respondent C explained that 85-90 percent of collaborations with suppliers are long-term but that flexibility is more important for some production steps compared to others, e.g. packaging which is almost exclusively outsourced based on which supplier is the cheapest option. In contrast, for Respondent D the emphasis isn't necessarily on long-term bur rather on strong partnerships that are mutually beneficial:

"It is only when our suppliers grow that our business grows. So we try to seek out win-win collaborations with suppliers."

The respondent further highlighted that suppliers in recent years, specifically during the pandemic, have become more willing to collaborate with Company D since they more and more see the e-commerce marketplace as beneficial moving forward.

The respondents from Company A also pointed out that long-term and close partnerships with suppliers are a core part of their business strategy. That strategy applies regardless if the supplier is owned by Company A or not, according to Respondent A3. Additionally, Respondent A1 emphasised that the reason for why a supplier has been with them for a long time is the high ratio of production that is allocated to Company A. The respondent took the example of other companies that might only require 20-30 percent of their supplier's production capacity, while Company A could require 90 percent. Consequently, the respondent argued that Company A and the suppliers become dependent on one another, which facilitates long-term collaborations. Even if incentives to switch suppliers would exist, it might not be feasible to perform such an action according to Respondent F:

"It is a very long process if you want to change suppliers. It can take like one year to change suppliers. So we try to keep our suppliers."

Respondent C agreed and further emphasised that switching suppliers in the short-term is a complicated process due to long testing procedures when starting up new production. Instead of changing suppliers on a frequent basis, the majority of companies in this research prefer investing in the already existing ones. Respondent A1 mentioned that investments in suppliers, e.g. in their machinery, are important to help develop the products. That respondent further said that Company A facilitates this development by having a local presence in supplier regions. Respondent A3 supported this statement by adding that Company A dedicates resources to purchasing teams implemented to create long-term partnerships by providing suppliers with the right means to perform according to set requirements and standards.

The company that arguably stands out the most regarding the supplier relationship is Company E which have partnered up with an industry organisation to optimise their procurement efforts. According to Respondent E1, the industry organisation is responsible for creating a pool of suppliers that all the furniture companies that work together with the industry organisation can then collaborate with. Company E can thus choose suppliers for specific product categories based on the previous selection done by the industry organisation. This results in the fact that a major part of the communication with suppliers e.g. the contract initiation is not done by Company E themselves. The industry organisation is, as previously stated, Company G. Respondent G explained that they value long-standing relationships with the majority of firms in their supplier pool.

As previously mentioned, the respondents to a large extent agreed on benefits from having long-term supplier relationships. Despite that, the companies in this research differ quite a bit when it comes to strategies regarding range of suppliers. Company A, D and G value a broad and large range of suppliers according to the respective respondents (A3, D, G). Respondent D explained that they have a lot of suppliers that could come from all over the world, which is important in order to grow their marketplace. Compared to other MNCs, such as Walmart or Amazon, Respondent A1 claimed that Company A has a fewer number of suppliers based on the production volume that they have:

"For example, if we have a new design, then that is allocated to the same suppliers. So we don't invest or allocate production just because we produce a new product. We try to keep existing suppliers."

At the same time, Respondent A3 stated that Company A value having a so-called *global sourcing strategy*, which does include having quite a lot of suppliers, even if the number is still small compared to businesses of a similar size. The respondent from Company G also sees the benefits of having several suppliers for every product category but argued that they today have a concentrated number of suppliers due to economical reasons. In contrast, Company B, E and F don't value having a lot of suppliers to the same extent as Company A, D and G. The reason for this is, according to Respondent E1, that Company E doesn't need a large amount of suppliers since they are a relatively small firm. Respondent F had a similar view on the matter and explained that they only have one supplier for one specific product. The respondent from Company B took it one step further when clearly stating that they're now focused on working with a fewer number of suppliers and have in recent years been reluctant to start working with new suppliers. Since Company B had encountered several production line issues in China, focusing on fewer suppliers is more effective than struggling with these issues at several suppliers.

4.2.3. Information Exchange

When it comes to the initial information exchange in supplier relations, i.e. how the company communicates with a new supplier, the majority of respondents claimed that having some kind of local presence is vital. The respondents from Company A and B stated that an employee, or team, in the same region as the new supplier handles the initial contact and provides all support that might be needed to start producing. Respondent A3 and B described that the person on-site is very much involved in the early stages of a supplier relationship, primarily to make sure that the supplier follows and adopts all the terms and requirements from the company. Respondent A1 and B further stated that the local person or team is also responsible for identifying new suppliers. In contrast, Company C and F don't always have a local presence at the suppliers. Respondent C and F explained that the local presence of their respective company consists of a quality controlling/assurance team which primarily operates in Asia. According to Respondent C, it depends on the product how the initial communication with suppliers takes place. For certain products, the respondent claimed that the local team is more involved and e.g. visits the supplier to check the quality before the first delivery. For Company F, the magnitude of initial on-site communication depends on the region. In Asia, the quality controllers try to check every new item, which according to Respondent F is a long process.

Company D stands out the most when it comes to information exchange with new suppliers since they to a large extent simply expect the suppliers to fulfil initial requirements and if they don’t, a collaboration won’t be entered. The respondent explained that some suppliers might be reluctant to make the investments necessary to distribute through an e-commerce platform. As the supplier relationship develops though, Company D becomes more supportive. According to the respondent some suppliers are valued more than others and, consequently, will experience more extensive information exchange:

"We typically follow the 80-20 rule where 80 percent of your sales comes from 20 percent of your suppliers. So the 20 percent of our suppliers would have a dedicated account manager for them. [...] For the remaining 80% of our supplier base we do push them towards more self-service options."

Similarly to Company D, Respondent A3 and F stated that the continuous communication in established relationships differs from supplier to supplier. Respondent A3 highlighted that some suppliers are less technologically advanced than others and that emailing therefore must be the main communication tool. As for Company F, the type of information exchange more depends on the supplier's region or country. The respondent differentiated between Asia and Europe, specifically Ukraine, and explained that Asian suppliers prefer email over phone calls while it's the complete opposite when communicating with Ukrainian suppliers. In contrast to Company A, D and F which communicate differently depending on the supplier, Company B and C are much more consistent in their continuous information exchange. Respondent B stated that all dialogue is handled through the person on-site while Respondent C explained that they don't always have people at the suppliers and the material planning team rather takes care of supplier communication.

As for Company E, the majority of communication with suppliers is done through the industry organisation, i.e. Company G. Respondent E1 stated that they in rare occasions are involved in product development at suppliers and that even in those cases company representatives will only sometimes visit the supplier. Similarly to Company E, the industry organisation doesn't normally have people on-site either. Respondent G explained that the products they procure are often presented at trade fairs and bought from there. As a consequence, Company G doesn't see a necessity to visit suppliers. If more products are needed, they would approach the supplier through email, fax or digital order systems. Respondent G further added that more information could be exchanged for certain product categories, especially those with customisable furniture.

When asking questions about information exchange with suppliers, several respondents (A1, C, D) mentioned forecasting or prognosis. Strategies including both continuous forecasting every six months (Company D) and planning three years ahead (Company A) were brought up. For the majority of companies in this thesis, the suppliers naturally want to manufacture and sell as many products as possible to them. For Company D though, the respondent stated that the suppliers often have several distribution opportunities which consequently results in negotiations. If the contractual guidelines aren't clear, Respondent D explained that suppliers often take advantage of these situations:

"What often is the case is that a supplier will tell us that we can have 40 units and they tell Amazon that they can have 40 units and [the] same with every other e-commerce platform, and in the end they only have 40 units. Then all of a sudden they sell out and say 'oops, we sold out and you can't have any more stuff in the next three months'."

The respondent further added that this is a significant driver for negative customer experience.

4.2.4. Dependency & Activities

Out of all firms included in this research only one respondent (A1) mentioned the value of having suppliers that dedicate the majority of their production capacity to them. While Respondent A1 clearly stated that Company A receives a larger fraction of their supplier's production compared to many other companies, the other respondents from Company A were a bit more careful in their answers regarding this subject. Respondent A3 claimed that some suppliers are 100 percent dependent on Company A as their only buyer whilst others only distribute a small share of their production to Company A. The respondent further highlighted that it isn't a part of Company A's strategy to gain more control over suppliers and that they don't intentionally partner up with suppliers that exclusively would produce for them. Instead, Respondent A3 claimed that the dynamics of the industry and market decide what kind of relationship is created with a specific supplier.

The respondents from Company B, C, D, E, F and G unanimously stated that their suppliers are free to produce for any other firm. Respondent B, C and F strengthened their statement by saying that interfering in suppliers' customers isn't any of their business. Respondent B and F added that suppliers must of course meet the contractual agreements which can be about the ability to produce the right quantity but also, as Respondent C added, to not share any sensitive information with other customers. The respondent from Company D stated that none of their suppliers only manufacture products for them, as was similarly stated by Respondent C and F. With that said, Respondent D added that they monitor what prices other marketplaces demand for the same product and aim at gaining more negotiation power over suppliers moving forward.

As previously mentioned, the type of relationship a company has with its suppliers can depend on the activities outsourced. Regarding which tasks are outsourced, the brick&mortar companies in this research have similar strategies. For instance, design work is to a large extent done internally. Respondents from both Company A and B highlighted that keeping their own identity, i.e. having exclusive products, is a key reason for why the design-related activities are conducted within the firm. Respondent A3 added that the suppliers can though offer support and insights during the product development process. In contrast, Company B receives feedback from suppliers after the design is finalised and approved by the product managers. As a consequence, Respondent B stated that sometimes small adjustments have to be made to the finished design in order for it to fully fit the production line.

Three of the respondents (D, E, F) stated that their respective company solely buys finished furniture. Company D only functions as a marketplace without any own brands, which makes procuring finalised furniture a reasonable strategy. Respondent F said that they don't produce anything themselves and partly also outsource the design work. The respondent explained that, for new designs, Company F first finds a supplier with a product they like and then use that product as a basis for making their own design. In other words, the suppliers of Company F are to a large extent involved in the design of new furniture, which they ultimately also manufacture. Company E mostly buys finished furniture designed by the suppliers Company G has selected. Sometimes minor product adjustments will be made, similarly to Company F’s approach.

As stated, Company E and F stand out among the brick&mortar firms with the strategy to not be involved in such a large fraction of the value chain, i.e. outsource many activities. Tasks that are most commonly outsourced by the other companies are packaging and low-end manufacturing. The respondent from Company C explained that they try to outsource products that can't be produced in their own factories or that aren't practical to produce internally, which mainly are components needed in large quantities. Respondent A1 elaborated that which activities Company A outsources is very dependent on where the raw material can be found. If outsourcing a certain type of tasks to a specific location would create a more sustainable value chain, Company A will try to do so.

4.2.5. Summary

Table 4 represents a very basic summary of the individual GVC governance type aspects previously discussed. The goal is to provide an overview of how the various companies handle the different aspects and facilitate comparison amongst them.

Company		Ownership	Relation & Range	Information Exchange	Dependency & Activities
A	MNC (brick&mortar)	Fully own some, no ownership in others	Long-term collaborations; many suppliers	Local presence	High share of supplier production; production & packaging tasks
B	MNC (brick&mortar)	Own production and have suppliers without any ownership	Long-term collaborations; fewer suppliers	Local presence	Varying share of supplier production; production of some products & packaging outsourced
C	MNC (brick&mortar)	Own production and have suppliers without any ownership	Long-term collaborations; fewer suppliers	Local contacts	Varying share of supplier production; production of components & packaging outsourced
D	MNC (e-commerce)	None	Not very dependent on individual suppliers; many suppliers	No local presence, account managers for most crucial 20% of suppliers	High variety in share of supplier production; all supply chain steps done by suppliers
E	SME (brick&mortar)	None	Collaborations not as long-term; fewer suppliers	No local presence	High variety in share of supplier production; production & packaging tasks
F	SME (brick&mortar)	None	Collaborations not as long-term; fewer suppliers	Local contacts	Varying share of supplier production; production & packaging tasks
G	SME (industry organisation)	None	Long-term collaborations; many suppliers	No local presence	Varying share of supplier production; production & packaging tasks

Table 4: Summary of empirical findings for GVC governance type

Source: own illustration

Company A, B and C have varying degrees of ownership in their suppliers, whereas Company D, E, F and G have none at all. In general, long-term collaborations with suppliers proved popular in theory, however, not all companies actually sustain them. In terms of information exchange, Company A and B have local departments in regions where they have many suppliers. Company C and F on the other hand have individual local contacts but not the manpower of an entire department. The companies also differ in terms of how much of a supplier’s production is devoted to their company, i.e. how much of a supplier's production is meant for Company A and how much is meant for other companies. Company A receives a high share of supplier production for the majority of their suppliers. Company B, C, F and G receive different shares of a supplier's production, i.e. sometimes a higher and sometimes a lower share. The same goes for Company D and E only that said variance in share is even more extreme, i.e. some suppliers devote very small amounts and some very large amounts of their production to these companies.

4.3. Effects of the Pandemic

4.3.1. Demand

All respondents stated that their company had been effected by the Covid-19 pandemic. The most commonly mentioned factor that had a negative influence on the demand was closed down stores and societies. Respondent F explained that sales decreased by around 20 percent in the initial stages of the pandemic. The company then tried to stop all orders from both China and Europe. Already in April or May though, the furniture sales increased again by around 30-50 percent. The respondents from Company B and C also mentioned an initial decrease in demand, but at the same time stated that the effect depends on what product category you look at. Respondent B explained that the products customers want to see and touch before a purchase decision were greatly affected while Respondent C more highlighted a sales decrease in the so-called project solutions. A substantial share of Company C's revenue is achieved through collaborations with construction firms. The insecurity in the real estate building market consequently lead to a decrease in sales in that segment for Company C. On the other hand, Respondent C stated that other furniture categories in certain regions had record years in terms of sales for the company.

The respondents from Company A, D, E and G also mentioned the increase in sales in certain categories, especially those related to home furnishing. Respondent G claims this to be the result of customers wanting to renovate their homes which according to Respondent A3 and E1 was caused by people staying at home more. Respondent D agreed with this statement and added the shift towards online platforms as a major factor to why sales increased for Company D. The respondent explained that the amount of sold office furniture last year increased by 300-400 percent compared to the year before. In contrast to all other respondents in this research, Respondent D only highlighted the benefits which had resulted from the pandemic when focusing on demand:

"Basically it cleared out a lot of our competitive environment. A lot of brick&mortar stores were closed is one thing. People that naturally wanted to buy stuff [physically] were going online, so we got a lot of new customers. Additionally, people were spending a lot of time at home, therefore they were looking to buy a lot of stuff for their homes, which drove a lot of demand our way as well."

The shift towards online sales platforms was a factor that several other respondents also brought up. Respondent A1, A3 and C didn't discuss the increase in online sales as a negative aspect, since they argued that their respective company had well-prepared systems for those kind of sales channels. Company A offers customers both click&collect and home delivery options for online purchases, which Respondent A3 highlighted as vital systems when the demand shifted due to closed stores. In contrast to all the positive statements regarding online sales, Respondent B and E1 focused more on the negative effect of closing down physical stores. Respondent B stated that retail had been hurt in many regions since Company B had closed-down stores all over the world. Company E also had to close down their stores temporarily several times. The respondent further explained that the online customer segment isn't very established yet in the country in which they are active in. They tried offering other sales channels in the beginning of the pandemic, e.g. telephone and video calls in combination with click&collect. However, these attempts weren't very successful. As the pandemic continued though, the customers were more willing to embrace the new options of shopping according to Respondent E2 which made click&collect a more attractive alternative.

4.3.2. Supply Chain

When we specifically asked questions about how the pandemic affected the supply chain of each company, the respondents primarily highlighted two aspects: longer lead times and shipment problems. Five out of seven companies (A, D, F, E, G) had experienced difficulties with keeping lead times at an acceptable level in the initial stages of the pandemic. The most common origin to increased lead times were disruptions in suppliers' production. Respondent A1 explained that lead times in certain sourcing areas had increased by up to three or four times the usual length. Only the respondent from Company B clearly stated that lead time changes haven't been a problem. On the complete contrary, Company D and F still experience these problems. Respondent D, E1 and F explained that the most critical source to the problem is the fact that the suppliers can't get their hands on the necessary materials and piece-parts needed to produce. One respondent (E1) claimed that for some products they still have lead times of up to 20-24 weeks. Respondent A1 described a similar problem where the lead times in certain sourcing areas once again had increased with three to four times due to a global shortage of the raw material they require. Respondent C added:

"The world market has been crazy with prices increasing [...]"

and further explained that Company C has seen prices for raw materials increase by 60-80 percent.

As previously mentioned, the other significant outcome affecting supply chain activities was problems with shipments, which Respondent A2, D, E1, F and G brought up. All these respondents explained that the issue originates from a lack of containers located in the necessary regions. Respondent D, E and G stated that shipping prices from Asia to Europe have become incredibly expensive. Respondent E1 claimed that container rates have been 10 times as high compared to before the pandemic whilst Respondent F said that the price for shipping one container from China costs five times as much now. Respondent F further highlighted that the shipping problems are yet to be overcome and have rather continued to increase in the last months:

"In December, January and February, the main issue for us was the lack of containers in Asia. So we just tried to get every container we were able to; small containers and freezing containers. It was quite ridiculous to ship furniture in a freezing container."

The shipment problems spread across the entire supply chain and ultimately lead to inventory constraints at the consumer level, according to Respondent D. Company F could however prevent these inventory constraints at least initially by having an overflow of stock in the warehouses.

Company C and E’s supply chains were also directly affected by shutdowns. For Company C this meant that their own production site in a specific region within Europe wasn’t accessible for several months due to a lockdown. Company E had a similar problem with the production sites of their suppliers in Eastern Europe having to close due to Covid-19 outbreaks.

4.3.3. Supplier Relationship

Finally, regarding the Covid-19 effects and repercussions, we asked questions about how the relationship with suppliers had been influenced. Despite the negative supply chain effects outlined above, respondents from three out of seven companies (A, B, D) had experienced a strengthening of the relationships during the pandemic. None of the respondents thought that their respective company's trust in suppliers had been negatively affected, even though one respondent (F) described how some worries existed in the early stages of the pandemic:

"It was like a test for our relation. I remember that I wrote to our supplier that 'yes, now we can see if we have a good relation and we can trust you'."

Respondent C mentioned the lack of physical meetings as a major downside, which according to the respondent is vital for building long-term relationships. Other than that, most of the respondents remained positive and highlighted how the respective company and suppliers have supported each other throughout the pandemic. Respondent A3 described how they continuously held webinars and even had a hotline open where suppliers could interact with, and ask questions to, representatives from Company A. Many of Company A's suppliers altered their production towards producing aid materials and masks during the pandemic which the company understood and supported according to Respondent A3. Respondent A1 explained how essential the suppliers are and exemplified the supportive measures by stating that Company A:

“[...] has the possibility to invest in suppliers if needed. And [Company A] internally has gone out to the suppliers to say 'we can help invest, we can help provide funding and we can lower payment periods' so the supplier can receive money earlier than normally in order for them to keep producing."

Company G is also involved in cooperative talks with suppliers, which the respondent meant should result in better lead times moving forward. As for Company B, the respondent agreed that taking care of the existing suppliers is more important than finding new ones but simultaneously highlighted that the latter is always an option. Respondent D discussed something similar when answering this question, namely, that the company has more control than the supplier in this situation. The respondent explained that their online marketplace has been viewed more and more as a viable alternative to brick&mortar shopping, which consequently has made the supplier increasingly dependent on Company D. Despite positive effects from the pandemic, the respondent claimed that Company D hasn't really tried to take advantage of the suppliers. Interesting to note is that even with Company D's market power, some suppliers in Italy still neglected to inform them about the complete shutdown of their production. The respondent reflected on this by saying that Company D would need to emphasise communication even more going forward.

4.4. Risk Mitigation

4.4.1. SCRM before the Pandemic

Before we asked any specific questions, we wanted to gain an understanding of how the individuals interviewed perceived their companies in terms of risk mitigation. When asked what risk mitigation strategies existed prior to the pandemic or which activities were conducted to mitigate risk, the answers were rather brief. The two most common responses were that supplier audits are conducted (Company C, E, G) and multi-sourcing is used (Company A, B, E). A statement by Respondent B shows that risk-awareness exists within the companies:

"When we have products that are quite important for business in terms of the product size, the amount of money they make, and how many we sell, we are of course developing our supply chains accordingly."

For Respondent A1 this includes producing core products close by. The respondents from Company A listed the most measures, also naming own production capacities, a crisis management strategy which includes meetings, as well as the geographic distribution of suppliers. The two latter activities are also conducted by Company D who build their risk mitigation efforts on risk scenarios. Respondent F mentioned the use of "letter of credit payments" to mitigate financial risk. The respondent went on to explain that with this method Company F's bank and the supplier's bank are used as intermediaries to carry the transaction risks. Despite stating that suppliers are carefully selected, Respondent C doesn't believe that the company was well prepared. No more details were given on whether the respondent was referring specifically to the pandemic with the statement or meant risk mitigation in general.

In the interviews we supplemented the first question on risk mitigation by giving two specific examples of possible risk scenarios: 1) supplier bankruptcy and 2) natural disasters such as earthquakes. Not all, but some of the respondents referenced back to these examples in their answer. Supplier bankruptcy wasn't perceived as a major threat for several reasons. Respondent A1, A3 and G stated that indications of financial instability materialise beforehand, thus giving companies the time to prepare and react. Due to their business model Company D is hardly impacted if bankruptcies were to occur. According to Respondent D the company would merely need to cancel orders and try and re-direct the demand towards similar products. The cancellation of orders was also listed as the primary solution by Respondent F. Company E which relies on Company G for the majority of their purchasing isn't too concerned about supplier bankruptcies either because of the joint procurement. Respondent E1 rests assured that Company G collaborates with a large pool of suppliers and would both warn Company E if problems were to materialise as well as have alternative suppliers ready.

Natural disasters on the other hand are happenings that Company A and B do not believe they can anticipate or influence. Respondent A3 adds that it's the size and scale of natural catastrophes that determines to which extent business is impacted. Respondent D agreed with this notion and claimed that natural disasters are not problematic for Company D just as long as they don't exceed a specific region.

After hearing these initial thoughts we wanted to investigate whose responsibility SCRM is within each of the companies. The only respondent to explicitly state that the company has a risk department was Respondent A1. Respondent A2 mentioned Company A's use of contingency plans for various risk scenarios that might occur. Overall, the respondents from

Company A gave the most detailed insights on this aspect and all agreed that many different positions within their company have risk mitigation as a responsibility. Respondent E1 makes a similar claim stating that risk mitigation is an aspect that should be considered in all decisions and activities. Whilst for Company A the joint responsibility for risk mitigation means that the topic is neither centralised nor decentralised, Company D has a centralised plan for major impacts. Some respondents allocated the responsibility to a less broad number of positions. According to Respondent B, those working with the supply chain in general are responsible, whereas the respondents from Company E and G stated that this is a part of purchasing. The respondent from Company C agreed with the latter but only if the occurring disruption is a supplier problem. Respondent F claimed several times that risk mitigation is the responsibility of top management and couldn't recall knowing about a specific risk mitigation strategy. The respondent was confident that especially in light of the pandemic Company F's top management is vigorously occupied with risk mitigation.

To gain an understanding of the respondents' risk awareness we inquired what possible disruptions the companies prepare for. Respondent A3 provided the most holistic answer in mentioning examples of both supplier- and logistics-disruptions. The majority of answers focused on suppliers not being able to deliver, be it because of a fire in a supplier facility (Respondent C), bankruptcy (Respondent G) or Chinese New Year (Respondent B). Company B's risk mitigation seems to be centred around their supply chain activities in China with the respondent elaborating extensively on the risks specific to this region. Both sudden changes in weather and the worker migration around Chinese New Year represent happenings that can be extremely disruptive to Company B's supply chain.

This supplier focused risk awareness is not shared by Company D because of their lack of dependency on specific suppliers. For Respondent D the logistics network is the major source of possible disruptions. An example of such risks would be 1) the blockage of the Suez Canal in March 2021 mentioned by Respondent F, or 2) the volatility of delivery times, as mentioned by Respondent G. Since procurement is the main activity Company G is engaged in, it comes as no surprise that sudden price increases are also listed as a possible disruption by Respondent G.

A question that seemed to cause confusion during the interviews was our attempt to understand the goal of the respective risk mitigation efforts of each company. We asked whether the focus was to keep the business up and running whilst a disruption was occurring or return back to normality as soon as possible once a disruption had occurred. The respondents from Company A and D sidestepped the question. Respondent A3 said that the goal of their SCRM is to

"[…] secure availability for the lowest total supplying cost because of course it will be reflected in the customer's price in the end."

Respondent D emphasised the importance of being agile in light of uncertainty and further stated that need for agility is the major learning to draw from Covid-19. According to the respondent from Company B the goal is to keep things up and running as close to the everyday business as possible. In contrast, Respondent E1 and F stated that returning back to normality as fast as possible is their current risk mitigation goal. The respondents from Company C and G believe the goal to depend on the individual scenario. For Respondent C the risk mitigation efforts undertaken due to the pandemic had the goal of maintaining everyday operations where possible.

4.4.2. Specific Risk Mitigation Strategies

	Risk mitigation activities	Yes	No	No answer/ Unknown/ Not applicable
1.	Do you audit your suppliers before working with them? Do you evaluate them with the help of scorecards?	A, B, C, D, E		F
2.	Do you have suppliers in different parts of the world?	A, B, C, D, E, F		
3.	Do you have suppliers on "standby" or alternative suppliers that could jump in if necessary?	A, C, D, E	B, F	
4.	Do you use different methods of transport for your products?	A, B, C, D, E, F		
5.	Do you try and keep products as generic as possible for as long as possible, and then customise them once demand has occurred?	A, B, C, E, F		D
6.	In recent years, have you moved production from overseas back to the home market?		A, B, C, E, F	D
7.	Do you have some sort of production facility in the home market where you can test products which could be turned into an actual production line if you were to experience supplier problems?	A3	A1, B, C	D, E, F
8.	Do you keep extra stock of your final products at hand to ensure that you don't run out of products?	A, D, E, F	B, C	
9.	Do you try to influence consumer demand through e.g. a promotion to draw attention away from products that might go out of stock soon?	A, B, D, E, F		C

Table 5: Summary of empirical findings for risk mitigation strategies
Source: own illustration

After attaining a broad notion of how risk is handled within each of the companies we asked about nine concrete risk mitigation efforts. Table 5 represents a summary of the responses given by all respondents, except for the respondent from Company G. Since Company E is part of the joint procurement conducted by Company G, the answers for Company E naturally also represent the answers for Company G for these specific questions. Respondent E1 and E2 had already been interviewed before reaching out to Company G and thus these questions weren't a part of the email interview with Company G.

Two risk mitigation strategies proved to be so popular that all respondents claimed their companies apply them: 2. having suppliers in different parts of the world, and 4. using different methods of transport. As was already elaborated on in section *4.1. Overview of Companies and Respondents* almost all of the companies have suppliers in both Asia and Europe, mostly eastern Europe. Respondent C explained this geographic division in the following way:

> *"This is due to the fact that it's very simple products where the labour cost is so much cheaper in China than it is here in Europe. For other parts, like the more complicated products, we are not buying in China. The complicated, high-risk products we are actually buying in Europe [...] If you have a look at where the industries are, for example hinges and draws and extenders and everything like that, there is a huge competence in Austria and Germany. Then why would we buy it in China where we don't know if it's the right quality, when the competence is indeed in Europe."*

Similar notions were shared by other respondents as well, such as Respondent B who also stated that all labour-intense production takes place in China. All companies use sea-freight to transport the products from Asia to Europe. The transport on land both in Asia and in Europe either takes place by truck or train. Only Respondent A3 and B claimed to also use airfreight from time to time which as Respondent B elaborated is useful for samples.

Two other strategies applied by almost all companies were 1. the use of supplier audits and scorecards, as well as 9. influencing consumer demand to avoid stock-outs. For strategy 1. Respondent F and for strategy 9. Respondent C didn't know the answer to the question, preventing unanimous results for these two strategies. Particularly Company A heavily depends on supplier audits and the use of scorecards to mitigate supply chain risk. Respondent A1 and A3 mentioned a code of conduct that all of Company A's suppliers must adhere to, spanning aspects such as sustainability. The compliance with this code is frequently monitored and suppliers are continuously evaluated to ensure that they are suited to supply Company A. The more senior respondents from Company A also elaborated on an "open book" approach with regard to their suppliers. They believe the benefits of this financial transparency to be a more trustful and transparent business relationship overall with the opportunity to assist their suppliers should this be necessary. Auditing is also crucial for Company D since as Respondent D stated:

"[…] we do audit suppliers as they come on board to make sure that they can fulfil in an e-commerce environment because typically suppliers are more set up to – European suppliers specifically – operate in a brick&mortar environment, therefore they aren't really as digitalised as they need to be."

For Company E the auditing is less extensive since the suppliers they work with stem from a pool of companies that have been previously selected by Company G. Respondent E2 stated that the auditing done by Company E addresses aspects such as return rates but isn't nearly as comprehensive as that of Company G. According to Respondent F the supplier selection is done by middle management and thus our question remained unanswered. One of the respondents claimed that a part of their audit asks suppliers whether they also produce for a very prominent competitor. Since said competitor is famous for auditing very thoroughly the respondent's company would view a yes as an indication that the supplier in question could be a suited business partner.

Influencing consumer demand through e.g. promotions to avoid stock-outs is especially convenient for Company D since their digital business model allows them to alter the order in which products are presented to a customer within seconds. Still, even the brick&mortar retailers use promotions or varying showroom setups to try and steer customer demand away from products with low stock levels and towards products with sufficient stock.

Only one strategy of all those asked about wasn't applied by any of the companies, namely strategy 6. moving production back from overseas. For Company A this question isn't very fitting since as Respondent A1 stated:

"Since we have production sites in so many regions it's not that you move it home, it's more that you reallocate some production to other […] suppliers"

Respondent A1 and A3 agreed that one major factor that determines where suppliers are located is the closeness to raw materials that can only be sourced in a specific geographic area. For Company C and E relocating closer to the home market is an option they're investigating now as a possible consequence of the pandemic. Whilst this strategy isn't relevant for Company D, Respondent D does believe that some of the suppliers may have moved production back to the home markets within the last years.

Strategy 7. turning a test facility in the home market into an actual production line, is almost as rarely applied as strategy 6. Since neither Company D, E nor F produce any products themselves, this strategy isn't applicable to them. According to the respondents from Company B and C the facilities they have in the home markets are too specialised and not at all suited to produce what they currently outsource to Asia. Merely Company A might have the setup needed to potentially benefit from this strategy. Respondent A1 stated that the company does have test facilities in the home market, but didn't believe these could be turned into an actual production line. Respondent A3 on the other hand didn't necessarily agree with this assessment:

"Well everything is a matter of time and cost. So the answer to this question is yes, if it would be the best solution to the given situation […]. If it would not be the best option, then no."

Another strategy that neither Company B nor Company C make use of is 8. having extra stock of final products. Both of these companies let their suppliers produce to order and only Respondent C stated that there's some safety stock for the components needed for Company C's own production but none for final products that are outsourced. Company E mostly lets suppliers produce to order as well but has extra stock of some standard articles. In contrast, Company A, D and F rely on safety stock as a method of supply chain risk mitigation. Respondent A3 and F both claimed that how much additional stock the company has depends on factors such as lead times, with products from Asia requiring more safety stock than those from Europe. Respondent D also emphasised how important extra inventory is for Company D's e-commerce business model to be able to meet any extra demand quickly.

The approach to produce to order enables Company B, C and E to remain flexible in terms of product design. This flexibility is described under strategy 5. keeping products customisable until demand has occurred. Company B and E ensure that the production of customisable products takes place in eastern Europe to avoid longer lead times. Both companies offer their products in a broad range of different fabrics and colours for customers to choose from. For Company A customisability is an option that some of the product range has and some doesn't.

Strategy 3. having backup suppliers, is most dominantly used by Company D. Since the company functions as a marketplace for several different suppliers it can substitute products quickly and thus ensure to meet customer demand. Company E is in a similarly privileged situation with a pool of suppliers at its disposal thanks to the collaboration with Company G. Respondent B and F stated to lack backup suppliers and whilst Company C doesn't have several suppliers for the same product, i.e. dual sourcing, they could allocate products to other producers after testing has occurred for quality reasons. Company A does have multisourcing and makes sure to not assign the entire production of core products to only one area. Nonetheless, Respondent A3 clarified that Company A doesn't have standby suppliers with no ongoing production at all.

4.4.3. SCRM after Begin of Pandemic

With the aforementioned individual discrepancies in regards to risk mitigation in mind, we were curios as to what specific measures each of the companies had taken at the onset of the pandemic. Whilst all other respondents started elaborating on aspects of production and inventory analysis, Respondent A3 stated the most fundamental of all actions:

"Well first we can say that it was to live up to all the restrictions and all the directions that governments and local crisis management teams are giving - that's the first reaction."

The various companies essentially had three different approaches towards securing the continuation of business as best as possible despite the pandemic: ensuring production, taking stock of inventory or cancelling orders. Both Respondent A1 and D focused on keeping production/supplier capacities at maximum level. For Company D this meant monitoring the supply base and analysing which partner was still able to fulfil orders and which wasn't. In an attempt to gain a full picture of where Company C was standing, Respondent C stated that:

"The first action we actually took was inventory, how much do we have [and] how long can we survive on the materials that we have."

In contrast to Respondent A1, Respondent A2 highlighted the attempts to cancel orders with their suppliers. Respondent A3 summarised A2's focus on order cancellations and A1's focus on ensuring production by stating that the demand towards suppliers needed to be adjusted. Depending on which products this apparently led to both increasing as well as decreasing order volumes. Company F was also quick to cancel orders. Respondent F claimed that a clear goal was set by top management to save a certain amount of money through cancellations, enabling Company F's buying department to strive for a specific aim. However, apart from this precise assignment Respondent F wasn't aware of any other actions taken and believed this to be a question for top management.

Flexibility in adjusting orders became even more important as the pandemic spread according to Respondent A1 and A3. Depending on which regions were currently shutting down or opening up again, production sites needed to adjust their outputs and the flow of products needed to be redirected. Essential for such adaptations is a functional supplier dialogue. The importance of close exchange with suppliers was elaborated on by Respondent A1, A2, C, D and G. Despite the companies choosing different approaches to adapt their supply chains to the pandemic, all needed to communicate with their suppliers. For Respondent A2 this meant asking suppliers how order cancellations would impact them since some of Company A's suppliers almost exclusively produce for them. Company D had problems with some suppliers not informing them about shutting down production and thus not being able to deliver on orders. Respondent C tried to find ways around transport difficulties with Company C's suppliers by asking the products to be delivered via airfreight. For Company E and G the biggest supplier-related hurdle remains the extension and unreliability of lead times, which wasn't as damaging at the start of the pandemic since according to Respondent E1 the supply chain difficulties began to develop after the first lockdowns. Respondent E2 also pointed out that at the onset of the pandemic many of Company E's suppliers simply decided to move up their annual summer closings and have them immediately in an effort to avoid the pandemic's influence.

Apart from the coordination with suppliers, some companies also adapted internal processes. Respondent A3 highlighted:

"[...] you increase the frequency or adapt the frequency of governance structure or the meeting forums and emergency response plans [...] to be able in every market to discuss how the situation is, which are the constraints, and then how can you support and respond to mitigate those constraints and then those that you cannot handle yourself or there are large global patterns, like to deal with overseas transport vessel and equipment capacity - that you escalate and ask for support globally."

Respondent D stated that adapting business processes required the analysis of how the virus was spreading and from those scenarios calculating the consequences of possible impacts on Company D. Overall, Respondent D continuously highlighted the value of rapid and agile responses since the pandemic was causing the business environment of companies to change so quickly.

Only one respondent painted a very different picture. Whilst Respondent B agreed that lockdowns and price increases for transport and raw material were impacting Company B as well, the respondent didn't perceive this as a dramatic disruption. According to Respondent B supply chains and business operations need to be adjusted constantly anyway, irrelevant of whether a pandemic is spreading or not. In contrast to the other respondents, Respondent B was quick to list a possible advantage of Covid-19 - the decrease in business travel to China - and hopes that this will remain unchanged after the pandemic.

What was interesting to see was that all respondents were content with their companies' crisis management, or at least didn't have any major points of criticism. When asked whether more action should have been taken or the companies should have been better prepared, at least one respondent from each company stated that either the preparation was as good as possible or that no one could have been prepared for a pandemic. Respondent A1, C, D, E and F highlighted the surprising nature of the situation and the lack of experience with it. Respondent B was overall rather satisfied with Company B's reaction. Respondent G claimed that the company had achieved good results in 2020 but that they were expecting more problems to occur in 2021 whereas for Company C and D the year 2020 had proven to be a record year.

The lack of criticism might be explained by Respondent A1's rationale that it's always easier to know better in hindsight and Respondent A3 mentioned that of course the actions taken will be analysed and optimised for the future. One suggestion for improvement was offered by Respondent F who believes that higher inventory levels might have resulted in less negative impact. On the other hand the respondent was quick to add that a careful balance needs to be struck between the benefits and costs of extra inventory. Company E was the only company to search for possible improvements beyond the borders of its own organisation and express what in their eyes is a lack of sufficient government action. Both Respondent E1 and E2 believed that the government of the country Company E is located in could have and should have done more to reduce the losses endured due to Covid-19.

4.4.4. Adapting SCRM post Pandemic

Especially since all of the respondents were very understanding of the challenges a before unknown situation like the pandemic meant for their companies, we were very curious if this resulted in an expectation to learn from the struggles endured. Therefore we inquired if the respondents expected the risk mitigation strategy to be adjusted. Except for Respondent B and C, all others stated that yes, the strategy will be adjusted. However, Respondent B had previously said that what the pandemic had changed was Company B's openness and flexibility to work with new suppliers, namely increasing it. Similarly, Respondent C had highlighted in previous answers that the pandemic had led to Company C making use of dual-sourcing on 95% of key components. Since diversifying the supply base is a major risk mitigation strategy, these responses aren't in line with a negating answer to whether the risk mitigation strategy will be adapted. In conclusion, all companies, A through G, are adjusting their risk mitigation strategies, even if not all respondents fully reflected this when answering.

Respondent D agreed with B and C that a broader supplier base is the number one lesson drawn from the pandemic:

"I think it's definitely opened businesses' and peoples' eyes up to show that we have to diversify our supply chain, and our suppliers have realised they need to diversify their supply chain. They can't just rely on having a single warehouse in one country, they can't rely on having one manufacturer in one country, they need to [...] expand a bit more. Basically that diversification is a primary risk mitigation driver that they should be pursuing at this point in time post Covid."

Other changes that the respondents reflected on either in terms of actions that their companies have already taken or they believe will be taken in the future vary. Respondent F is convinced that top management is working on the matter. What Respondent G emphasised is that each of the furniture retailers connected to the procurement association must still make their own decisions in terms of which suppliers they wish to work with. Despite carefully selecting the suppliers the respondent clearly stated that the final responsibility and thus also risk in the supplier choice rests with the furniture retailers. The question could be raised whether Company E is aware of this view. What Respondent E1 and E2 rather focused on in order to mitigate risk was an analysis of the cost structure and identification of savings potential. Prospectively Company E will most likely also analyse business processes to identify possible ameliorations. Respondent A3 agreed with this general approach to business adaptations and stated:

"I think if you as a company aren't responding to basically what is happening, then it's a very quick way to non-existence. Whatever is the trigger, is it pandemic or is it customer behaviour or is it any type of change, if you are not adapting, then you are non-existing."

Nevertheless, the respondent also mentioned more specific examples of how the risk mitigation strategy has been adapted: increased communication and an altered meeting structure. Respondent A2 more generally spoke of alterations of the company's business contingency plans that reflect the pandemic and unforeseen disruptions overall. In addition, the learnings Company A made during the first wave of the pandemic were processed and presented to the entire company, according to Respondent A2. Respondent A1 reflected on both the legal as well as the interpersonal relationship with suppliers stating that there's now a tendency to classify pandemics as natural disasters and thus include them under the "force majeure" clauses in supplier contracts. These clauses allow companies to breach contracts in the event of natural and unavoidable catastrophes. However, Respondent A1 continued on to say that a contract is just a piece of paper and at the end of the day what really matters is the personal relationship with suppliers since this may well be an important factor to determine which partner the suppliers prioritise when production is constrained. Respondent A3 would prospectively like to see the supply chain become more robust as well as establish decision making based to a larger extent on data, as was increasingly the case during the pandemic.

Despite the fact that all companies had and still are adjusting their risk mitigation strategies, not one of the respondents believed that their company will devote more resources towards the matter in the future, be it in the form of extra personnel or engaging external expertise, e.g. assistance from consultancy firms. Respondent A3 stated that Company A already had all the necessary roles and Respondent G claimed that there had already been an expansion of resources for supplier management specifically.

We then inquired whether the respondents believed that a different supply chain setup to the one that their company had might have decreased the damage the supply chain endured due to the pandemic. Different ideas were voiced, one of which was presented by Respondent A1 who thought an even more diversified supply base might have had benefits. However, this thought was quickly tossed aside since the respondent didn't believe such a setup to be economically attractive and was convinced that this would result in lower production volumes for each supplier, thus making Company A one of many partners for a supplier, with all the loss of advantages this would bring. In contrast, Respondent B and E2 would both like to alter the supply chain to reduce the level of globality by collaborating with suppliers in Europe instead of Asia. Respondent D believed that more knowledge about supplier inventory levels would have led to less disruption and Respondent F thought this could have been achieved by having more inventory on hand. In addition, Company D's respondent would like to see the company tap into new markets and thus diversify its customer portfolio, making the company less dependent on a few countries. A general hope that isn't related specifically to the pandemic was voiced by Respondent E1 who would like to see a decrease in lead times and believed that Company E would benefit from this. For Respondent C a supply chain setup that would have led to less disruptions isn't imaginable and as Respondent A3 pointed out it's always easier to know better in hindsight.

When asked if the respondents believed that scenarios such as the pandemic would occur more often in the future, not a single respondent answered with no. The replies closest to a no came from Respondent B who had no idea and Respondent E1 who hoped such situations wouldn't occur anymore. On the other end of the spectrum was a very clear yes from Respondent F and the statements from Respondent A1 and A3 who believed that if nothing fundamental changed similar events would happen every now and so often, even though they may vary in scale. A little more unsure were Respondent D and G who both thought the possibility exists whereas Respondent A2 and E2 weren't even certain if the current pandemic will ever end.

However, if similar events were to occur Respondent A2 and G believed that businesses have now gathered experiences in terms of how to handle unforeseen disruptions. According to Respondent A3 companies may not necessarily be better prepared but they do have better structures to guarantee quicker responses. Respondent D voiced a similar thought:

"[…] I think companies have become a bit more resilient and a bit more knowledgeable. Going through this experience enables companies to adjust and to learn and to have people who can adjust and learn from it - and that's definitely valuable. If you've been through something like the Covid experience, it kind of builds a muscle. You need to be resilient going forward. So even if another scenario comes up that is a pandemic or isn't but has similar impact on supply chains, I think you could also have the learnings from here that would be transferable to the new environment, and I think that's valuable."

5. Analysis

In this chapter our empirical findings are analysed and connected to the theoretical framework of this thesis. Firstly, the GVC governance type of each company is elaborated on. Secondly, the risk mitigation strategies are discussed with the five themes of our conceptual framework in mind and then further analysed in close connection to the pandemic. Finally, the correlation between a company's GVC governance type and success during the pandemic is reflected on.

5.1. GVC Governance Type

As was presented under *2.1.1. The Governance of GVCs*, Gereffi *et al.* (2005) suggest five different GVC governance types. In order to match the companies interviewed within this research to one of these types, we proceeded to analyse whether a company scores high or low for the three key parameters introduced by Gereffi *et al.* (2005): *complexity of transactions*, *ability to codify transactions* and *capabilities in the supply base*. To be able to determine which of the dichotomous variables applies for which of the companies a reference point was needed. This is due to the fact that a furniture company may score low in terms of *complexity of transactions* if a company focused on the production of specialised manufacturing machines is chosen as a benchmark. In order to visualise the differences in between each of the companies within this study, the decision was made to use the furniture industry, more specifically the companies in this research, as a reference point. In conclusion, a company that designs its own furniture and passes on this design to a supplier for production will score high in terms of *complexity of transactions*. At the opposite end of the scale, i.e. a low score for *complexity of transactions* would be a company that buys finished furniture from a supplier through e.g. catalogues, trade fairs or platforms.

To be able to determine how a company scores on each of the three key parameters we used proxy variables in the sense that instead of asking *"Are your transactions complex?"* we wanted to know what kind of tasks suppliers typically do or how they communicate with suppliers. The result was a comprehensive image of each company's GVC as is presented under *4.2. GVC Governance Type* within the four subsections *4.2.1. Ownership*, *4.2.2. Relation & Range*, *4.2.3. Information Exchange* and *4.2.4. Dependency & Activities*. The image that emerged from the respondents' elaborations was used to determine a company's score for each of the key parameters.

In addition, the four subheadings under *4.2. GVC Governance Type* also function as a proxy for Gereffi *et al.*'s (2005) power asymmetry. The main indications for power asymmetry were drawn from the degree of ownership the companies have in their suppliers and the extent to which suppliers are dependent on the respective company. This is due to the fact that if a company partially owns a supplier then they will be able to influence that supplier. A similar reasoning can be made for supplier dependency in the sense that if a rather large share of a supplier's production is intended for a company or a substantial share of the supplier's revenue is generated by the collaboration with a company, then said company has power over the supplier.

Table 6 represents an overview of how each company scores for each of the three key parameters and what GVC governance type that results in.

Company		Complexity of transactions	Ability to codify transactions	Capabilities in the supply base	Power asymmetry	GVC Governance Type
A	MNC (brick&mortar)	High	Low	Low	High	***Hierarchy***
B	MNC (brick&mortar)	Low / High	High / Low	High / High	Low / Low	***Market / Relational***
C	MNC (brick&mortar)	Low	High	High	Low	***Market***
D	MNC (e-commerce)	Low	High	High	Low	***Market***
E	SME (brick&mortar)	Low	High	High	Low	***Market***
F	SME (brick&mortar)	Low	High	High	Low	***Market***
G	SME (industry organisation)	Low	High	High	Low	***Market***

Table 6: Summary of GVC governance type determination
Source: own illustration

Company A has been concluded to function as a hierarchy GVC governance type. The complexity of transactions between the company and suppliers is high since complex tasks are outsourced which must be done according to the specific requirements of Company A, e.g. regarding design. The ability to codify transactions is low since the supplier activities to a large extent are advanced and Company A prefers to have a locally situated person that is very much involved in those activities and in maintaining the supplier relationship. The capabilities in the supply base are also deemed to be low for a similar reason: Company A needs to be heavily involved in the supplier's operations which the company are through support and investments. The hierarchy GVC governance type as elaborated on by Gereffi *et al.* (2005) further fits the high power asymmetry between the company and its suppliers that our empirical findings show. We mainly base this power asymmetry level on the high degree of ownership Company A has in its suppliers and the high degree of dependency the suppliers have on Company A since some dedicate a major percentage of their total production to Company A.

Company B has been concluded to function either as a market or relational GVC governance type depending on which of the two supply chains, i.e. own or outsourced production, we analyse. The own production in the home country is what we deem to be a market governance type. For these activities, the complexity of transactions between the company and its suppliers is low since the advanced tasks are kept in-house and only specific piece-parts are bought from suppliers. The ability to codify transactions is high since these components can easily be procured at a distance, e.g. by email. Finally, for the own production part of the GVC, the capabilities in the supply base are high since the suppliers are experts in their specific field without much involvement from Company B. For the outsourced production, Company B only does design work internally and outsources almost all production-related activities. The complexity of transactions is considered high for this product segment as a result of the advanced tasks being outsourced. The ability to codify transactions is low since Company B requires a local presence in the supplier's region to handle all contact. Finally, for the outsourced production, the capabilities in the supply base are considered high since the suppliers themselves must complete the furniture without much involvement, other than design-related activities, from Company B. As for the power asymmetry, the GVC of Company B fits the low level description of Gereffi *et al.* (2005) where low ownership and low dependency characterise the supplier relations. The empirical findings lack clear insights regarding the extent of dependency between Company B and suppliers, other than the fact that the respondent mentioned they can always find new suppliers. Perhaps the respondent referred to the component suppliers for their own production when making this statement, since the fully outsourced production with a relational governance should have a slightly higher power asymmetry than that would imply.

The relational governance should be more focused on long-term collaboration (Gereffi *et al.*, 2005), which the respondent in a later stage emphasised as vital.

Company C has been concluded to function as a market GVC governance type. The complexity of transactions between the company and its suppliers is low since the company mainly outsources simpler tasks that can't be done internally in an efficient way, e.g. production of components. The ability to codify transactions is high due to the focus on purchasing finished, small items. Additionally, Company C doesn't need local representatives that communicate directly with suppliers, which can instead be contacted from a more centralised department. The capabilities in the supply base are high because of the supplier's independence from Company C, i.e. since the suppliers need to be experts in their specific field without the involvement of Company C. The market GVC governance type from Gereffi *et al.* (2005) further fits the low power asymmetry that our empirical findings show. We mainly base this power asymmetry level on two factors: 1) the low amount of ownership the company has in external suppliers and 2) the previously described supplier independency since the suppliers have other major customers apart from Company C.

Company D, E, F and *G* have also been concluded to function as a market GVC governance type. The empirical findings show that all these companies have similar characteristics for how they govern their GVC. The complexity of transactions between the companies and suppliers is low since more or less finished products are bought without much involvement from the company in neither production nor design work. The ability to codify transactions is high because the procurement of finished furniture is done by email and phone (Company F) or through trade fairs once a customer has actually ordered the product (Company E & G). Company D also makes use of account managers but we believe that this is primarily done to devote special attention to important suppliers as opposed to a lack of codifiability since they only buy finished furniture. The capabilities in the supply base are also deemed high for Company D, E, F and G since their suppliers almost completely independently take care of all production-related activities. In terms of power asymmetry, the low levels identified for all the companies fit Gereffi *et al.*'s (2005) description of the market GVC governance type. We mainly base this on the fact that the companies don't have any ownership in their suppliers, combined with the fact that the suppliers are free to produce for any other firm, which they also do.

A direct translation of which key parameter is reflected by which of the four subheadings under *4.2. GVC Governance Type* isn't possible since various aspects mentioned serve as indications for more than one of the key parameters. To name an example, Company D is a marketplace, therefore they sell the finished furniture produced by suppliers. Since the furniture is a finished product in this case and thus no exchange of e.g. design templates or material requirements is needed the complexity of transactions is low. Simultaneously, the same argument can be presented for high capabilities in the supply base since if the supplier is producing finished furniture, then the capabilities for various tasks such as design, material selection, production, etc. are all taken care of by the supplier.

Our analysis that six out of the seven companies included in this research (at least partially) have a market governance structure may seem surprising, especially since many of the companies have completely different business models. However, what this hints at is that it's not the business model which determines the governance of a GVC but rather the company itself that makes this decision by choosing how to interact and collaborate with suppliers. What may also seem unexpected is the fact that the conclusion was so often a market governance type despite the majority of companies emphasising how much they value and strive for long-term relationships with suppliers. Interestingly enough this aspect isn't included in Gereffi *et al.*'s (2005) framework as a key parameter and this decision is understandable. Whilst especially the relational governance type relies heavily on long-term collaborations, it comes as no surprise that companies value close relationships throughout all governance types. As was mentioned by several respondents, switching suppliers may be a viable option but the costs that such a decision incurs are substantial. Therefore valuing long-term relationships should rather be viewed as an entrepreneurial and economically sound decision instead of as an indication of a governance type.

5.2. Risk Mitigation Strategies

5.2.1. The Five Themes

Diversify supply network

The question of whether a company has suppliers in different parts of the world was asked to identify whether a company applies the risk mitigation strategy *Location Hedging* as described by Kumar *et al.* (2014). This was one of only two strategies that all companies applied and thus an incredibly popular choice. As Manuj and Mentzer (2008) state, the benefit is the geographic spread of GVC activities which makes companies less dependent on the happenings within specific areas. However, most of the companies within this study aren't as geographically dispersed as one might expect from their positive responses. The empirical findings show that the majority of respondents claimed to have a mix of production in Europe, mostly eastern Europe, mainly to ensure certain quality standards, as well as activities in Asia, mostly in China, to have access to both cheaper components and cheaper labour for labour-intensive products. The latter was named by Respondent B and C as the major reason for production in China. Respondent C also highlighted that the sourcing of high-risk products takes place in Europe where the company believes the highest level of competence to exist for those products. In contrast, whilst Company A also engages in location hedging, their choice of location is heavily determined by the availability of raw materials.

The reasons mentioned are logically coherent but none of them aim at GVC risk mitigation. Instead, it rather seems like the companies have economically sound arguments for a dispersed choice of supplier locations and risk mitigation is merely a pleasant side effect. In addition, whilst eastern Europe and China are two very different locations, the companies are still missing out on essentially the rest of the world as an opportunity to hedge locations. On the other hand, Kumar *et al.* (2014) point out that location hedging can be inefficient in terms of cost so one could argue that focusing on two dispersed locations, i.e. eastern Europe and China, maximises the benefits of location hedging whilst keeping the costs of it as low as possible.

Another strategy that serves to diversify the supply network is that of *Multisourcing*. The empirical findings show how important it is to differentiate between the two types of multisourcing: 1) having more than one primary supplier and 2) having backup/alternative suppliers. The first type has one clear disadvantage, namely that spreading out a company's demand for a specific item amongst several suppliers decreases the company's bargaining power as compared to buying the entire quantity from only one supplier. However, for Respondent C the benefit of mitigating risk by procuring from more than one primary supplier became clear due to the pandemic. Company C now has dual sourcing on 95% of its key components which it didn't have before. As Kumar *et al.* (2014) highlight, the strategy isn't as costly as location hedging but still achieves the goal of decreasing supply chain risk. Company A even makes use of both strategies and thus not only has suppliers in different locations but can also have more than one supplier in the same location.

Type 2 multisourcing, i.e. backup/alternative suppliers which aren't currently producing for a given company, seems to be a concept that's attractive in theory but as Respondent A3 pointed out difficult to apply in practice. Only two companies made use of this strategy: Company E through the pool of suppliers it has access to thanks to Company G, and Company D who are highly independent of any one specific supplier and can constantly alter which supplier's products receive more prominent customer attention on their marketplace interface. In addition, Respondent C stated that items could be shifted from one supplier to another current supplier of similar products after testing had occurred.

Another very popular strategy which almost all companies engage in is the auditing of suppliers. Kumar *et al.* (2014) suggest conducting this individual analysis with the help of *Supplier Scorecards*. Some companies approach this strategy more thoroughly than others, Company D for example is merely interested in whether or not a supplier can perform in an e-commerce environment. We believe this strategy to be a very vulnerable one since the companies mostly rely on the responses they receive from their suppliers and can thus not be sure whether the statements made are true. Company A has found a way to decrease a supplier's incentive to lie by proving that they're willing to assist suppliers e.g. financially if need be. In return Company A expects full transparency from their suppliers which is inter alia achieved by an open book policy. This example highlights the benefit of the supplier scorecard strategy as it serves to decrease the risk of supply chain disruptions caused by internal factors such as the supplier’s financial situation (Kumar *et al.* (2014). However, in contrast to what Kumar *et al.* (2014) suggest, not many of the respondents claimed to conduct supplier audits on a regular basis. Whilst one could argue that the developing relationship with a supplier over the years might make continuous audits obsolete, this could also be titled blind trust and might backfire.

Transportation also proved to be a very popular strategy amongst respondents. However, we as interviewers failed to grasp the complex nature of transportation as a risk mitigation strategy in our overly simplified question whether the companies use different modes of transport. According to Tang (2006) this is only one of three possible options included in the strategy and we failed to ask about the other two: 1) implementing multiple routes and 2) collaborating with multiple carriers. In addition, the respondents did use different modes but usually for a different part of the journey. The empirical findings show that mostly trucks, sometimes trains, would be used to make the journey on mainland China or mainland Europe and then container shipping was used for the intercontinental stretches. If we interpret Tang (2006) correctly however, the idea would be to spread risk by making the same lengths of the journey with more than one mode. Several respondents (A3, B, C) claimed to use airfreight as an alternative to container shipping for product samples or if a delivery was urgent - both circumstances that don’t use multiple transport modes simply to mitigate risk.

Decrease a GVC's complexity

As our empirical findings indicate, *Vertical Integration* hasn't in recent years been a very popular strategy amongst the European furniture companies. Company A and C have previously bought up suppliers, i.e. internalised supplier activities, but don't explicitly do so now. Manuj and Mentzer (2008) argue that vertical integration as an SCRM strategy makes the supply chain less complex and easier to manage. The question is whether these benefits would actually have helped for the specific disruptions resulting from the pandemic. Many problems originating from the pandemic, such as factories closing down due to country-wide lockdowns or raw materials that can't be procured because of transportation issues, would still influence internalised activities. Manuj and Mentzer (2008) discuss how a company can gain control of risk, but with the insights from our empirical findings we would argue that it’s impossible to achieve 100 percent control. If e.g. people are ill at a factory, which temporarily has to close down, it doesn't matter if you own the supplier or not. With that said, one might argue that vertical integration would at least facilitate knowledge transfer throughout the supply chain and, consequently, be a useful strategy during the pandemic. Our empirical findings show that better knowledge transfer though isn't a factor the furniture companies need to strive for. Only Respondent D mentioned that more communication with suppliers would have made things easier. The other companies instead highlighted increased information exchange with suppliers as a positive and natural result of the pandemic. Several respondents explained how they had more contact with external suppliers compared to before, which worked well and helped their operations despite difficult times.

Re-shore

When asked whether production had been moved back to the home market in recent years none of the respondents stated that this had been the case for their companies. Thus, the by far most unpopular method to mitigate supply chain risk within this study is the strategy to *Re-shore*. This might come as a surprise considering the fact that Ellram *et al. (*2013) and Fel and Griette (2017) had pointed out the decreasing benefits of off-shoring such as a reduction in the low-cost advantage. Respondent B fully supported this statement by highlighting the increased material cost in China. Additionally, off-shoring results in more supply chain disruptions (Joubioux & Vanpoucke, 2016) and higher transportation costs (Delis *et al.*, 2019) to repeat only some of disadvantages already elaborated on.

Whilst many arguments can be made in favour of re-shoring, it's relevant to point out that the strategy can be considered the opposite of location hedging and as such misses out on all the benefits associated with the latter. Since the two approaches aren't compatible, it's understandable that if location hedging is practiced by all companies, none of them would practice re-shoring. However, both Respondent C and E1 stated that they're now investigating re-shoring as a result of the pandemic. This is highly interesting since as we elaborated on in the introduction, there has been an extensive public discussion on the matter. The essential question we should be asking ourselves when debating whether re-shoring mitigates supply chain risk is if local supply chains would have been less disrupted due to the pandemic. Important to point out is that not only factories in China had to close but also factories in eastern Europe, as pointed out by Respondent E1, and western Europe, as was stated by Respondent C. The degree of ownership was irrelevant in the matter since both supplier factories (Company E) and own factories (Company C) were impacted.

Apart from the empirical findings questioning whether re-shoring would have mitigated the effects of Covid-19 on supply chains, the strategy also bears other challenges. Higher labour costs are only one such example, much more problematic is the question of how to source raw materials. Since not all regions have important raw materials at their disposal, fully local supply chains seem impossible to achieve. Company A is well aware of this dilemma and focuses the configuration of its GVC primarily on the closeness to raw materials instead of customer markets.

An interesting alternative to re-shoring could be the *Make and Buy* strategy as described by Kumar *et al.* (2014). Since this approach is a mix of outsourcing some production whilst also keeping some production in-house it could be an option to achieve both the benefits of re-shoring and location hedging. Location hedging for outsourced activities combined with local own production seems to be working well for Company B and C who described an overall neutral (B) or even positive (C) effect of the pandemic on company revenue.

Turning a local test production facility into an actual production site was an example offered by Kumar *et al.* (2014) for companies to quickly reap the benefits of re-shoring. Since the pandemic didn't leave companies with much time to prepare, we wondered whether some had made use of this option. The empirical findings show that all companies saw this option sceptically to say the least, others clearly stated it to be impossible. Despite having own production facilities Respondent B and C agreed that these were too specialised to fulfil the tasks usually outsourced to Chinese suppliers.

Manage inventory

To have a *Strategic Stock* may seem like an obvious way to mitigate the risk of sudden demand increases or SC disruptions. Having too much inventory might however be costly for companies in the long-run, especially in the event of a demand decrease. As Kumar *et al.* (2014) suggest, it can instead be a good strategy to keep extra stock specifically for the crucial parts of a product or supply chain that can't be procured quickly or from another source. As our empirical findings show, Company C practices a strategy similar to what Kumar *et al.* (2014) describe, where they hold a strategic stock only for specific components. Respondent C didn't specify the reason for this, but we believe it's likely that those components are either essential to the supply chain of Company C, not possible to quickly obtain elsewhere, or are cheap to store due to e.g. the component size. As our empirical findings further revealed, several companies have a strategic stock for final products which would imply that this is a commonly practiced strategy in the furniture industry. Four companies (A, D, E, F) make use of the strategy with the two major reasons being: 1) to manage discrepancies in lead times and 2) to meet additional demand quickly, which aligns with what Kumar *et al.* (2014) describe as the main rationale for having a product buffer. Another interesting aspect to consider with the results from our interviews is how suitable a specific risk mitigation strategy is for the respective business model of a company. Since Company B, C and E use a produce-to-order approach for the majority of their products, strategic stock to mitigate SC risk is only partially possible. As was stated, Company C has strategic stock for key components and Company E has some final products on hand but for the produce-to-order products all three companies (B, C, E) only initiate the production of often highly customised furniture once the customer has ordered it. The challenge with such individually adaptable products is determining how much of the many variations should be in stock.

Company F is an example for how smoothly the strategic stock strategy can work. The additional inventory costs that the strategy requires in a more normal market scenario seem to have been well-invested since as Respondent F explained, Company F benefitted from their large stock during the pandemic. Despite this positive example, it's important to highlight that strategic stock isn't a "one-size-fits-all" strategy even for those companies that purchase final products. Having more of their standard products available as strategic stock would e.g. not have helped Company E initially when the demand dropped due to a lockdown. In this scenario, the extra stock only represents an additional cost that adds to the financial burden of the pandemic. This visualises that stock levels must be analysed from a long-term risk and cost perspective and, in our view, also be adapted to the already existing business model.

Postponement is another risk mitigation strategy that the empirical findings reveal to be problematic to implement for certain types of GVCs. As both Kumar *et al.* (2014) and Manuj and Mentzer (2008) explain, the strategy should facilitate quick reactions to demand changes and ensure flexibility. Several of the respondents agreed with this and stated that their respective company practices this strategy to remain flexible in terms of product design. To commit to product resources at a very late stage could though entail problems with e.g. lead times, which is an issue Company E approaches by keeping the production of customisable furniture at suppliers in eastern Europe. Consequently, the lead times are still kept low with the postponement strategy compared to products manufactured in Asia. Kumar *et al.* (2014) mentioned that keeping a product generic as long as possible only works for certain product categories that can be designed in a modular way. In our view, a company with a business model that already relies heavily on e.g. forecasting and large inventories would be better at extracting the benefits from the opposite of postponement, i.e. the *Speculation* strategy. As Manuj and Mentzer (2008) explain, speculation is about committing early to the product and its raw materials which, if done with accurate forecasts, will overcome uncertainty. When we asked questions regarding information exchange with suppliers, several respondents (A1, C, D) highlighted forecasts and prognosis as vital, with one company (D) planning six months ahead while another (A) makes forecasts up to three years ahead. As we see it, the suppliers benefit from continuously knowing what to produce in the future, which naturally should lead to a higher level of reliability between the suppliers and the company and maybe also results in better prices for the firm. Once again though, the empirical findings reveal that the product category matters and if the customer base of a company requires customisable products it complicates the use of speculation. In conclusion for all of the M*anage Inventory* SCRM strategies, the company must originate from its business model when deciding which risk mitigation strategy it can reap the benefits of.

Influence demand

In insecure times companies can quickly run out of stock for certain product categories if e.g. a specific supplier shut down or there is a shortage of an essential component. In that scenario, the two strategies that Kumar *et al.* (2014) present for influencing demand can be useful: *Assortment* and *Price & Promotion Planning*. As our empirical findings indicate, these risk mitigation strategies are very popular among the European furniture companies. Only one respondent (C) wasn't sure if they practice either of the strategies. It was especially evident that Company D with its e-commerce platform could easily benefit from assortment planning because 1) the company has many different suppliers with similar products to choose from, and 2) the online platform can easily be rearranged to highlight certain product categories. This can of course also be done by brick&mortar companies as our empirical findings show, but it is vital to have a substitute product for this to work optimally (Kumar *et al.*, 2014). In contrast to many of the other risk mitigation strategies presented in this research, the influence demand strategies are more reactive as opposed to proactive. To promote certain products in the light of a SC disruption is in our view a short-term solution that’s effective as a “quick fix” but not ideal as an SCRM strategy.

5.2.2. Summary of the Five Themes

What we found to stand out is how similar the companies are in terms of their choice of SCRM strategies. All companies apply location hedging and use different modes of transport, i.e. an aspect of the transportation strategy, to mitigate risk. In addition, supplier audits are conducted by almost all companies, with the one exception being Company F, whose respondent couldn’t answer this question. This brings us to the conclusion that diversifying the supply network is by far the most popular strategy theme that the companies within this study utilise to mitigate SC risk.

In addition, all companies except for Company C, whose respondent didn’t have any insights on the matter, also used the strategies described under the influencing demand theme. In contrast, none of the companies had moved production back to the home market in previous years, i.e. re-shoring didn’t prove popular at all. The lack of differences between the companies in terms of risk mitigation strategies is surprising since the companies themselves vary quite a bit from one another. Apart from differences in company size there are also significant variations in terms of price segment, organisational setup and whether they focus on e-commerce or brick&mortar sales. We would have thought that the choice of risk mitigation strategies depends on the individual characteristics of each of the companies but this doesn’t seem to be the case.

We believe that there are other reasons for the uniform choice of strategies that aren't primarily related to risk mitigation. As was stated in the introduction of this thesis, a major driver behind GVCs is the access to cheaper and different resources then can be found in the home market. Location hedging provides companies with said access and thus we find it plausible to conclude that the strategy isn't applied to mitigate risk per se but rather to decrease the costs of production. As for transportation, particularly using different modes of transport, this is incredibly easy to apply. Even more so, for most longer value chains there is hardly any other option but to use different modes, e.g. from the factory in the middle of China to a store in southern Germany. The use of supplier scorecards or supplier audits in general seems to be the strategy most intentionally chosen to mitigate risk. As many of the respondents pointed out and what seems to be rather evident: a business relationship is more than just contracts, it requires communication and trust. Thus, it seems understandable that a company wants to get an idea of what a potential business partner is like before conducting business with them.

The notion that risk mitigation strategies are used for other purposes apart from risk mitigation is also supported by other empirical findings. When asked what the goal of their SCRM is, i.e. resilience or robustness as introduced by Miroudot (2020), the majority of respondents didn't give a conclusive answer. A possible reason for this could be that risk mitigation isn't perceived as a topic urgent enough to be conducted thoroughly and based on the recommendations of the scientific community. It's likely that this sense of urgency could now increase with the experience of the pandemic and lead to more devoted SCRM.

Companies are more equipped to handling disruptions much less extensive than a pandemic, e.g. the blockage of the Suez Canal in March 2021. In such scenarios companies need to overcome a temporary disruption and then return back to business as usual as quick as possible, i.e. act resilient as described by Miroudot (2020). There are indications that at the onset of the pandemic, companies in particular but also society in general thought the Covid-19 outbreak would be such a temporary disruption. For one, the majority of politicians, scientific institutions and the general public didn't fall into a state of panic and reactions from all sides to the growing threat seemed slow and minimal initially. Another example are the suppliers of Company E who advanced their annual production closure which usually takes place in summer, in the hope that they could avoid the pandemic's repercussions that way.

However, the pandemic isn't just a temporary disruption and so far no one knows when or even if things will ever go back to normal. The respondents share this reflection with many pointing out that they believe the pandemic is far from over and little faith that the normality as we all knew it will return quickly. Since this disruption is so severe and long-lasting, companies need to turn from a focus on resilience, to a focus on robustness, i.e. be capable of managing operations whilst a disruption is occurring (Miroudot, 2020). Or as Respondent D put it: the companies need to build a muscle that will get them through similar events like the pandemic with the help of the learnings they have now made.

5.2.3. Mitigating Risk during the Pandemic

According to the risk categorisation of Christopher and Peck (2004), the pandemic would fall under category *3) external to the supply chain network* since the disruptions originated from outside both company and supplier activities. As elaborated on in *2.2. Supply Chain Risk Management*, this categorisation can be used to allocate the responsibility for different risks. With the pandemic originating from the external environment and affecting everyone in a supply chain, the allocation of responsibility is difficult. In the event of a widespread disruption it would arguably make sense to share responsibility throughout a supply chain, which our empirical findings show has been the case during the pandemic, e.g. with companies and suppliers helping each other to survive.

Whilst Christopher and Peck's (2004) categorisation focuses on risks, Kumar *et al.* (2014) categorise disruptions that occur when a risk materialises. We believe the extent of this pandemic has made it difficult to clearly categorise the supply chain disruptions according to the division of Kumar *et al.* (2014), which is described in *2.2.1 Supply Chain Disruptions*. The pandemic could initially be seen as a *natural/regional* disruption due to its biological nature and origin in the Wuhan area. However, with the extent it has now reached the repercussions can also be categorised as *supplier management*, *political*, *transportation* or *change to demand pattern* disruptions. In addition, the wide spread of the pandemic seems to make a slightly altered categorisation more reasonable: instead of natural/regional a classification as natural/worldwide seems more fitting. At the end of the day, whatever the categorisation, there’s no doubt that the pandemic affected all companies within this study in one way or another.

We have with a certain amount of accuracy been able to determine which risk mitigation strategies a company practices and how severely they were affected by the pandemic. Despite that, it’s difficult to with certainty connect these two aspects with one another considering the qualitative nature of this study. For instance, Company D has had a record year and arguably benefitted the most from an extensively diversified supply network. The question though is how much of this success comes from a diversified supply network and how much simply originates from the fact that they are to 100 percent an e-commerce business, i.e. benefitted from the overall increase in online sales. Another example is the successful year of Company B and Company C that weren't affected as much by the pandemic compared to some of the other firms in this research. This could be a result of the make and buy strategy these two companies practice where both internal and external production are included in the value chain. The question here is if the partially internalised supply chain really decreases the risk that a pandemic entails or if the success, compared to other companies in the data collection, instead comes from e.g. a more loyal customer base or production facilities located in Europe.

Based on the empirical findings, we want to highlight that other factors apart from risk mitigation efforts are influencing the vulnerability of a company and that these factors further affect the result of SCRM. The strategic stock strategy practiced by Company F is an example of how external risk factors determine the outcome of a risk mitigation strategy. If the decrease in demand the company experienced in the initial stages of the pandemic had continued, keeping large amounts of inventory would be very costly. Respondent F explained the panic they experienced at this time and how they tried to cancel a lot of orders from suppliers. Just two to three months later the strategic stock strategy saved them when the demand increased substantially, and has continued to since then. At the same time, the company is now experiencing transportation problems which makes it difficult to have sufficient strategic stock. This shows how there can be two sides to the same risk mitigation strategy and how vital it is to hedge against a broad variety of risks.

We further found it interesting that two companies with similar business models and risk mitigation strategies could be affected very differently by the pandemic. The empirical findings indicate that individual risk factors and business surroundings will make one company more successful with a specific risk mitigation strategy compared to another company with the exact same strategy. For instance, Company A and E are similar in terms of risk mitigation strategies but differ substantially when it comes to e.g. organisational size and customer base. Despite them having similar risk mitigation strategies, they weren't impacted identically as a result of the pandemic. The respondents from Company A implied that the huge machinery of the organisation has helped them get through the pandemic quite well, but not perfectly. Company E on the other hand has been very negatively affected. A larger company like Company A could e.g. benefit from being more financially stable, having more bargaining power with suppliers or having a more loyal customer base that continues to buy furniture despite longer distribution times.

5.3. Combining GVC Governance Type & Company Success

In our effort to investigate a possible correlation between the GVC governance type of a company and its success during the pandemic we come to an enticing conclusion. We couldn't uncover any proof that such a correlation exists. One indicator of this would have been that companies with the same governance type are equally or at least similarly successful during the pandemic. The opposite was the case. According to what the respondents stated we deem Company D to have been the most successful, whilst Company E would be the least successful. However, both have been analysed to have the same GVC governance type, namely market. Another indicator would have been that the two only companies to not (exclusively) have a market governance type perform either incredibly well or bad in contrast to the others. However, Company A with its hierarchical type and Company B with its partially relational type didn't stand out at either end of the scale. Both companies performed average to well.

We believe that other factors had more weight in a company's success during the pandemic than the GVC governance type. For one, the business model seems to be a determining factor. The very successful Company D is an e-commerce business and thus wasn't impacted by e.g. having to close any physical stores. In addition, the company's function as a marketplace results in partnerships with many different suppliers, meaning that there is little dependency on any one supplier. Other aspects that seem to play a role are external factors such as regional differences in how the pandemic was and still is being handled. Company C had an enormous success in a region that had very little restrictions and thus we assume that they could continue conducting business more or less as usual. In contrast, Company E struggled quite a bit and are present within an area that had rather strict restrictions, including several lockdowns that lead to the closure of stores, decreasing sales for Company E. Once again it's interesting to highlight that Company C and E were both concluded to have a market governance type and yet differ in terms of success during the pandemic. This supports our notion that the GVC governance type isn't the determining factor in the matter.

As a consequence of the pandemic the companies seem to be valuing good relationships with suppliers even more than before. Many respondents pointed out how vital communication is and we believe that this recognition could lead to companies emphasising the relational aspect of doing business further moving forward. This could potentially result in a shift from the market governance type towards the relational type. However, as was already pointed out, a market governance type doesn't mean that long-term supplier relationships aren't valued. In addition, since we couldn't find any evidence that the GVC governance type influenced a company's success during the pandemic, it doesn't seem rational to switch types in the hope of mitigating risk more successfully in the future.

6. Conclusion

This thesis utilised a multiple case-study approach of European furniture companies to identify how these are dealing with GVC disruptions in light of the pandemic. Previously existing literature in the field of SCRM was studied and several risk mitigation strategies were combined and divided into five different themes, resulting in a conceptual framework. In addition, insights from GVC governance type literature was presented to investigate a possible connection between company success during the pandemic and how the GVC is governed. Empirical data was collected through interviews with industry representatives and the findings were then grouped to analyse both risk mitigation prior to, during and after the pandemic, as well as to determine the GVC governance type.

This study has three key findings that answer our main research question. Finding 1 is that all companies included in this research have very similar risk mitigation strategies despite being very different companies. The companies differ in terms of size, price segment and online vs brick&mortar sales to name only a few examples. The by far most popular risk mitigation theme is *diversify the supply network*, in contrast to *re-shoring* which was the least popular. As such, this finding answers our sub-research question of which SC risk mitigation strategies the companies apply. In addition, we would like to highlight the importance of a fit between a company's business model and its choice of risk mitigation strategy. For example, a company with a produce-to-order approach will hardly be able to benefit from *strategic stock*.

The second finding is that SC risk mitigation doesn't seem to be a major priority for the companies within this study. For one, the responsibility for the topic isn't specifically allocated to any one of the departments or employees within the companies but rather one of the many tasks those working within supply chain management should handle. In addition, we believe that for some of the strategies, e.g. *location hedging*, the main goal isn't SC risk mitigation but other motives, e.g. reaping the benefits of low labour costs.

In terms of a possible correlation between the GVC governance type of a company and its success during the pandemic, finding 3 shows that no proof of such a correlation could be found. This finding thus provides the answer to our sub-research question of whether such a correlation exists. Instead, we believe that factors such as the business model or even regional differences in how the pandemic is being handled majorly impacted a company's success.

This study contributes to international business research in three ways. For one, insights were given on how the European furniture industry mitigates SC risk in light of one of the biggest crises in modern history. Since the event is unprecedented, the research available on SC risk mitigation in the pandemic is limited thus far. Secondly, the industry has highly global GVCs and these have been increasingly scrutinised due to their vulnerability during the pandemic. Our study provides insights as to whether this scrutiny is justified and shows that local value chains aren't necessarily less vulnerable. Thirdly, to our knowledge, no research has yet investigated whether there's a connection between the GVC governance type of a company and its success during a major crisis.

6.1. Managerial Implications

In order to conduct effective SCRM, transparency needs to be achieved throughout the SC. All our respondents highlighted how helpful open and honest communication with their suppliers was in jointly overcoming the challenges of the pandemic. No one stands to gain anything from not being transparent with business partners especially in such an extreme scenario. What also stood out was the low level of priority SCRM seems to have in the companies with no clear allocation of responsibility or internal communication of a risk strategy. Whilst we couldn't find any evidence that more thorough SCRM would have led to more success during the pandemic, it definitely wouldn't harm companies either. On the contrary, this could be very helpful for future and most likely much less severe disruptions.

6.2. Limitations & Future Research

Ideally, future research would interview a lot more respondents from the same organisation to attain more representative responses. It's possible that we came to false conclusions when determining the GVC governance type or a company's success during the pandemic. Both of these aspects were analysed based on the interviews with select individuals who can share their experiences and point of view but these can’t be deemed complete or representative for the entire company. In addition, the generalisability of our findings beyond the scope of the European furniture industry is questionable. It would be interesting to investigate other industries with highly globalised GVCs and compare those findings to the ones stated in this thesis. Alternatively, the insights from this study could be used to develop a question catalogue for a quantitative study. This would allow for an investigation of the phenomenon on a much larger scale than this study or any qualitative attempt could provide.

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Appendix - Question Catalogue

General info

1. What is your position within the company? What are you responsible for on a daily basis?
2. Where are your products produced (in which countries)?
3. Do you mainly work with a small number of key suppliers or have many different ones?

GVC governance type

1. Has the company in recent years bought up suppliers to make them a part of the organisation?
2. Are the relationships with your suppliers long-standing collaborations or do you change suppliers frequently?
3. Would you say a lot of information needs to be exchanged between your company and the supplier before the supplier can start producing?
4. Especially for new suppliers: can you send over all the important information via e.g. email or will someone visit the supplier and maybe even stay there until the production is up and running?
5. Do your suppliers exclusively produce for your company?
6. What kind of tasks do your suppliers typically do? i.e. simple tasks like packaging or do you outsource more complex tasks like design

Pandemic

1. Would you say that your company was influenced by the pandemic? If so, in which way? Both positively and negatively
    - Have you experienced changes in demand? More or less demand?
2. What about your supply chain? Was that impacted and how?
    - Problems with products arriving on time and in the right amount?
    - Relationship to suppliers impacted? e.g. transparency of communication, trust, reliability, etc.

Risk mitigation

1. Before the pandemic: what kind of strategies did you have in place / activities did you do to make sure that the supply chain isn't too disrupted in case something goes wrong? e.g. earthquake, supplier goes bankrupt, war breaks out
   - Is there an actual risk mitigation strategy?
   - Is somebody responsible for risk mitigation within the company?
   - Is the goal of your risk mitigation strategy to recover from disruptions as quick as possible or to be able to maintain operations during the disruption as best as possible?
   - What are the main possible disruptions / risks that your company focuses on in their risk mitigation efforts?
     a) Do you audit your suppliers before working with them? Do you evaluate them with the help of scorecards?
     b) Do you have suppliers in different parts of the world?
     c) Do you have suppliers on "standby" or alternative suppliers that could jump in if necessary?
     d) How many different methods of transport do you use for your products?
     e) Do you try and keep products as generic as possible for as long as possible, and then customise them once demand has occurred?
     f) In recent years, have you moved production from overseas back to the home market?
     g) Do you have some sort of production facility in the home market where you can test products which could be turned into an actual production line if you were to experience supplier problems?
     h) Do you keep extra stock at hand to ensure that you don't run out of products? Or is there a system which allows stores with a low level of a specific product to get more stock from stores nearby who have plenty of stock?
     i) Do you try to influence consumer demand through e.g. a promotion to draw attention away from products that might soon go out of stock?
2. After begin of pandemic: what were the first actions you took to do damage control?
   - How effective were these?
   - Do you think that your company should have been better prepared / taken more action to be able to do more effective damage control?
3. Now / post-pandemic: will you adjust/change your risk mitigation strategy?

- Do you plan on committing more resources toward risk mitigation? e.g. hiring a risk manager, conducting a supply chain risk analysis, hiring a consultancy firm to setup a risk management strategy
- Can you imagine a supply chain setup that your company could have had which might have avoided supply chain problems during the pandemic?
- Do you think the pandemic was a “once in a lifetime event” or that such situations will occur more often in the future?