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How can Finnish MNC B2B firms optimize their value chains during crisis, to create an ideal base for future operations?

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ABSTRACT:
The global business environment has experienced multiple disruptions over the past years, creating a constant need for firms to adapt and find new solutions to problems. This has forced firms to reevaluate and restructure their value chains to facilitate their business operations and overcome crises and the disruptions they cause. This thesis aims to understand the thought processes and decision-making Finnish MNCs have taken in response to these challenges. This will be done by understanding how disruptions such as covid-19 and the war in Ukraine have impacted the strategy and ways firms operate. While looking at the impact the disruptions have, the thesis looks into how international firms focus shifts away from their long-term strategy to their short-term survival strategy in order to increase resilience and recovery form disruption. This then shifts to allow MNCs to optimize their value chains for their future long-term strategy. The Thesis reveals that crises disruptions allow firms to optimize their value chain by improving firm agility during crises. This is by improving value chain agility which comes from the deeper understanding of the kinds of risks crises expose them to as well as revealing the kinds of partnerships MNCs have and their limitation. Allowing firms to modify their value chains, by choosing to reflect their values to the kind of partnerships they wish to have. Emphasising collaborative relationships and the nontangible benefits certain partners bring in while being able to cut out partners who may not be as invested into the relationship between the firms.

KEYWORDS: B2B, MNC, Value Chain, Disruptions, Crises

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Abbreviations

B2B	-	Business to Business
CSR	-	Corporate Social Responsibility
MNC	-	Multinational Company

1 Introduction

This chapter will go over the basic outlook for this thesis, looking into the background and the key details that the reader needs in order to understand what this thesis aims to achieve. With this, a basic background understanding of the thesis should be achieved.

1.1 Background

From the start of globalisation in the 19th century, the world has become more interrelated than ever before. With the rise of global trade, economies have been able to specialize and concentrate production in financially optimal locations (Jiménez, s, 2022). Due to this, global supply chains have become more complex. This has resulted in global consumers expecting the lowest possible prices, which in turn has caused global supply chains to be environmentally inefficient. This can be seen, for instance, with common everyday items such as water being shipped around the world despite closer alternatives being available. However, as consumers have become more aware of the impact that their consumption habits have on the environment, they have begun to demand that companies ensure adequate standards in their actions (Mota et.al, 2018). While CSR standards and sustainable practices have been steadily growing in popularity, recent events, such as the global Covid-19 pandemic and recent political unrest have unearthed the shortcomings of global supply chains and their reliance on a few actors (Remko, 2020). Due to this, there is a rise in demand to reshape how supply chains are organized by bringing them closer to the end consumer. This provides a market opportunity for differentiation in how firms act to facilitate these demands. As a result, this exposes an opportunity for sustainability to be ensured at the core root of many supply chains.

While different regions have reacted with different intensities, Europe has been engaged in an extensive discussion on their reliance on economies such as China (Strupczewski, 2021; Russell, 2018). This has caused Europe to experience some pressure to diversify its supply chains. However, the options and decisions firms will make are still uncertain.

Additionally, the recent crises have resulted in declines in consumerism, shrinking demand for certain industries, which causes a ripple effect when firms invest less, causing consumer demand changes to influence B2B firms as well. With the pandemic impacting every aspect of global economies, this caused global consumption to decrease, with some industries experiencing large declines in their consumer numbers, with service industries being in worse shape in general. One of the hardest hit industries was the global aviation industry, which experienced a decline of 60% (Mazareanu, 2020). This was a result of global travel restrictions, creating a market where supply capabilities were high but the ability for their consumers to consume the services was limited (Travel restrictions by country, 2021). Other similar service industries have experienced similar declines as regulations have prohibited their consumption.

Another reason for the decline in consumption was an increase in unemployment due to temporary and permanent layoffs (Blustein et.al. 2020). Such layoffs caused the financial status of consumers to decline, causing them to become more selective of what they consume. Wealthier countries have been able to limit the impact of this with social stimulus packages, allowing companies to maintain the employment of their workers or provide unemployment checks for those workers who are laid off (Nwokolo, 2020). This, however, is not the case in developing or emerging economies, which will eventually suffer a worse recession over the pandemic's impact as they are not able to minimise the current impacts on unemployment and protect their industries in similar ways that developed industries are able to.

1.2 Research gap

Business concentration in certain areas with the same industry within the same area is a risk for future disruptions. This raises the question of how disruption can diversify markets in a shrinking economy by creating new opportunities to disrupt the status quo. This has increased the discussion of diversifying production locations and decreasing supplier distances from production to end consumers.

With the pandemic limiting the transportation of goods, firms have become more aware of the limitations of their value chains and suppliers. This could be seen with the closing of borders, resulting in the disruption of resources and transportation of goods (Kano & Oh, 2020). As a result, the highly concentrated industrial hubs, consolidated into a few locations, displayed a risk for global supply chains, as a single disruption can cause issues throughout (Jiménez et al., 2022). An example of this kind of chokepoint is the port of Shanghai, which acts as the departure point for much of the world's manufactured goods. During the pandemic, a single actor which in this case, the Chinese government's action of closing off the port, caused large-scale disruptions that have raised the question of how globalized economies should be structured to limit the risks they suffer from disruptions. As a result, the idea of diversifying production to multiple countries and bringing production closer to the end consumer offers an insight into the thoughts of how people perceive this.

1.3 Research problem

This thesis aims to provide insight into how firms adapt to the changing environment during and in the recovery period following disruptions such as the Covid-19 pandemic and the resurgence of conflict in Europe, namely the war in Ukraine. This thesis will assess how MNCs originating in Finland approach their value chain networks when they are cut or disrupted, and how such firms can improve the value chains during market and operational disruptions. This is accomplished with the following research question:

How do global disruptions influence Finnish MNC's value chain management?

The question aims to evaluate how firms make decisions during large disruptions and whether the disruptions encourage a certain kind of behaviour and value chain strategy, allowing firms to find an optimal base for their long-term strategy.

1.4 Previous research

It is important to understand that a study does not exist in isolation. Regarding supply chain management, there are many previous studies that look into similar topics and aim to answer various related questions. New studies are being published on similar topics, such as Nikookar & Yanadori (2022), who look into how the Covid-19 pandemic prepares firms for future disruption.

Table 1 Previous research

Author	Study	Summary
Wieland, 2021	Dancing the Supply Chain: Toward Transformative Supply Chain Management	The study looks at the harmful and vulnerable aspects of supply chains from the perspective of recent crises, causing a change in supply chain structure into a more fluid and intertwined field.
Cousins et al., 2019	Investigating green supply chain management practices and performance: The moderating roles of supply chain eccentricity and traceability	The study explores two unique factors in green supply chains, namely supply chain traceability and eccentricity. The importance of sustainability has increased in importance as a driver of business performance.
Gupta & Gupta, 2019	Influence of National Cultures on Operations Management and Supply Chain Management Practices—A Research Agenda	The study looks at how national cultures differ, and how these differences impact management style and how they can cause challenges operating in a cross-cultural environment.
Bhardwaj, 2016	Role of green policy on sustainable supply chain management: A model for implementing corporate social responsibility (CSR)	The study explores how green policies can be intertwined in the supply chain and how they impact supply chain management.

Singh & Singh, 2019	Building supply chain risk resilience: Role of big data analytics in supply chain disruption mitigation	The study looks at how firms can create and improve supply chains in order to be more resilient to disruptions and risks that arise. The authors look at different methods firms use and can use to achieve risk resilience.
Nikookar, & Yanadori, 2022	Preparing supply chain for the next disruption beyond COVID-19: managerial antecedents of supply chain resilience	The study demonstrates that the social capital, human capital, and cognition of supply chain managers play crucial roles in fostering three key organizational antecedents of supply chain resilience: visibility, responsiveness, and flexibility. These factors ultimately contribute to enhancing the overall resilience of the firm's supply chain.
Galkina et al., 2023	Business modeling under adversity: Resilience in international firms.	The study article looks into how resilience theory allows international firms to survive disruptions caused by the pandemic, and how multiple firms develop their business models to create dynamic states to create different resilience characteristics and shift between these forms to find a solution with the qualities they are looking for.

Holgado & Niess, 2023	Resilience in global supply chains: analysis of responses, recovery actions and strategic changes triggered by major disruptions	The study looks into how supply chains are able to recover from large disruptions, finding five key stages to recovery, namely levelling, rationing, buffering, bridging, and boundary redefining.

1.5 Limitations

To create a more in-depth understanding of disruption's influence on international value chains, similar firms are selected for data collection, as similar firms are required to create an accurate comparison. Additionally, these firms require adequate similarities in the business environment to experience similar circumstances, allowing for them to be used to collect significant conclusions. As a result, there are two critical aspects to limit and narrow the scope of this thesis. Firstly, the use of multinational B2B firms as the base of the study. Secondly, a geographic narrowing for firms originating from Finland. The use of these two limiters allows us to understand and compare similar actors on the decisions made by these firms due to similar legislative connections and similar stakeholder structures.

1.6 Definitions

A value chain is an evolution from the idea of a supply chain. This stems from the idea that while multiple firms contribute to the end product, they don't simply supply components; instead, they add value to the end product. Tardi (2022) defines a value chain as a series of steps that increase the value of the good. A new step occurs whenever new or additional value can be considered to be added to the previous stage.

Corporate Social Responsibility (CSR) can be defined as the legal and ethical duties and compromises that firms and organizations make, in order to satisfy their customers' interests and demands (Carrasco, 2007, p. 454-459). These duties come in the form of multiple different factors, which include the organization's impacts on their environments, their human rights ambition, social factors, and labour, while originally, the goal of a company was strictly thought of as providing the maximum financial gain for its shareholders (Carroll, 1991, p. 31-48). This idea, however, has evolved with activist groups in the 1960s starting to advocate for broader responsibilities for corporations. This in hand led to the creation of impactful social legislation in the US during the early 1970s, leading to the creation of government organisations meant to supervise and regulate corporations and their societal impacts.
A stakeholder can be defined as any group or individual who can influence a firm's actions in any way (Freeman, 1984 p. 85-109). These actors include interest groups, customers, shareholders, governments, competitors, etc. These influences can be either voluntary or involuntary and direct or indirect. This results in larger groups becoming influential over firms' actions as a collective.

1.7 Structure of the thesis

After this introductory chapter, this thesis will continue by exploring the theoretical perspective of the current situation. This section will consist of an evaluation of the current relevant theories that the research is based on, as well as a theoretical outlook on the current climate/atmosphere firms are experiencing, to give a basis for the past understanding and the possibilities that these theories show for possible outcomes. The thesis will then continue with a brief outlook on the methodology of the data collection. Afterward, the thesis will continue by analysing the results and presenting the findings of the data and comparing it to the expected or suggested outlook presented in the theoretical perspective chapter. Finally, the thesis will discuss the conclusions and opportunities for further study and possible influences that appeared in the thesis that could have influenced the outcomes of the findings presented.

2 Theoretical perspective

This chapter will investigate what previous literature has been written related to the topic and how these theories and ideas impact the environment MNCs operate in. The chapter aims to create an understanding of what MNCs face and the processes that influence their decision-making, and how they would be impacted by changes caused by disruptions.

2.1 Value chain management

Supply chains can be divided into two different paths. These are the internal and external value chains. The internal value chain is the area of product creation that is directly owned and controlled by the firm, while the external value chain consists of external actors such as suppliers, contractors, and manufacturers, who provide resources or services to the firm on a contractual basis (Drake, 2011).

When looking at these two possible paths for firms to choose, one of the largest differentiators is the cost and time scale at which the options become operational for the firm (Drake, 2011). When looking into these firms and how their operations are based on a spectrum of how involved they are in the process of value creation. To understand the decision of firms, consider where to place their operation on a line (Figure 1).

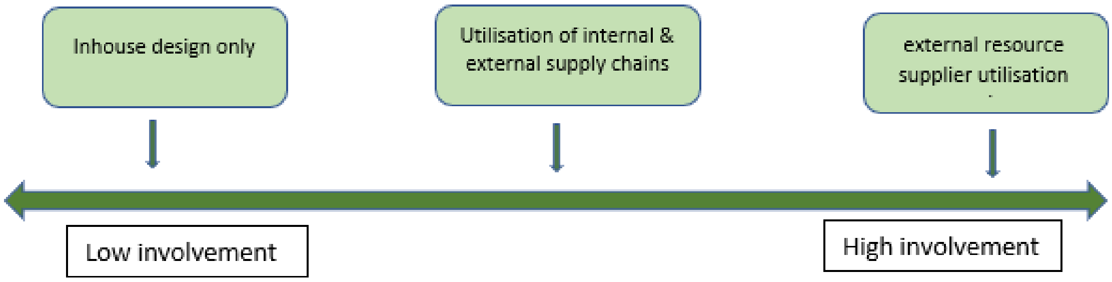

Figure 1 Firm supply chain involvement

When making the strategic decision on supply chain involvement, firms need to evaluate their resources, capability, timeframe, and goals to optimize the strategy suitable for them (Drake, 2011). When looking at the low involvement side, firms would be able to change their operational scale faster by increasing or decreasing production partners while not risking diluting investments made into production capabilities (Sreedevi & Saranga, 2017). As such, this kind of firm is more capable of adapting to changes in the short term. On the other hand, when firms utilize a higher involvement operational strategy, firms are able to better control standards and adapt changes to practices internally. This is due to higher and faster communication between production and decision makers, allowing for faster changes to be taken. Furthermore, we can consider the supply chain to be further divided into two sections, namely primary resource suppliers and good manufacturers. This divide indicates the stage in which these supply chain actors operate as resource suppliers.

With international supply chains, we can further look into where goods should be produced and whether production should be offshored to another country in order to gain market advantages not present in the local market (Casson, 2013; Jiménez et al., 2022). This is a critical component of MNCs when we consider how they should produce their products and services, as being able to utilize more resources and transfer aspects of a value chain to locations that are best able to use their resources to perform it most effectively by specializing in a certain field (Casson, 2013).

2.2 Stakeholder theory

To understand the reasoning behind the decisions firms make, we first need to understand the actors who are able to influence their decisions (Freeman, 1984 p. 31-42). Historically, the main influencer for a firm has simply been its shareholders, who dictate the actions and decisions the firm makes. However, the concept of a stakeholder has expanded from this limited group of direct owners to be defined as any group or individual who can influence the company’s actions. This enlarged group of actors can give us a better understanding of why businesses make certain decisions. These actors can be expressed by a stakeholder map (Freeman, 1984 p55; Figure 2). With this, it is clearer to identify who can influence a firm and why a larger perspective is needed when considering actions the firm needs to or should take.

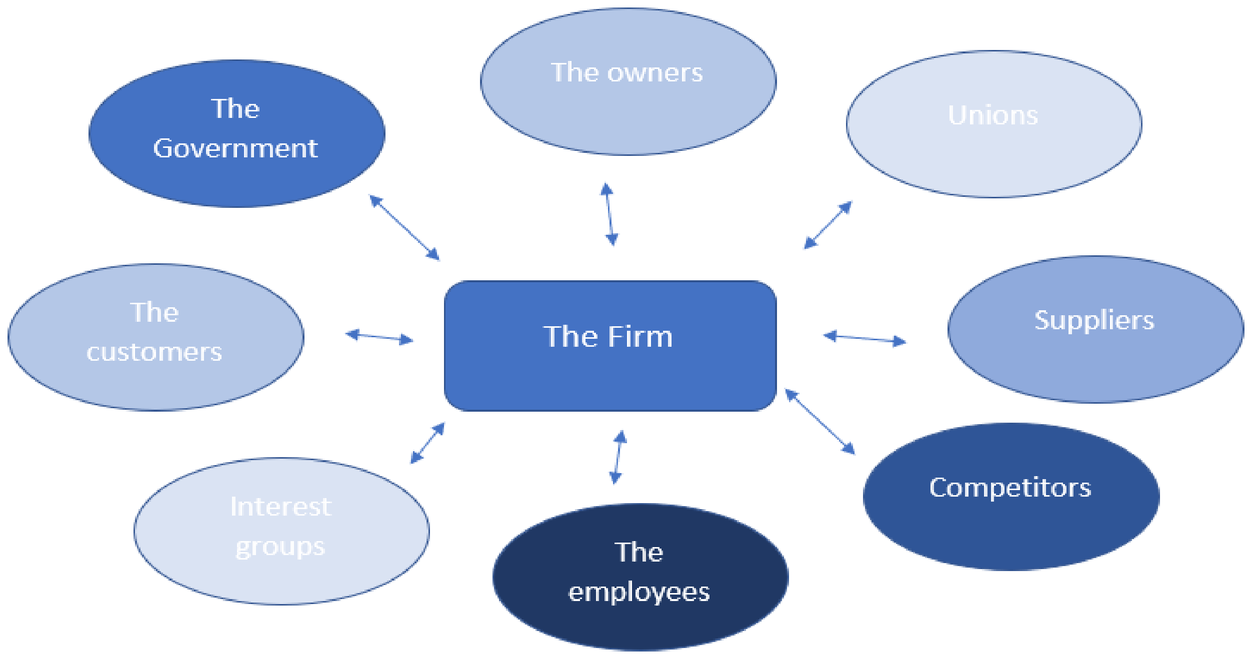

Figure 2 Stakeholder map (Adapted from Freeman, 1984 p. 55)

This model was further advanced with the differentiation of actors who directly act with the firm and those who indirectly act with the firm. The first group can be understood as who the firm works with, such as their customers, owners, and employees who work directly with the firm (Freeman & Mc Vea, 2001). The second group is the indirect actors who make decisions that influence the firm indirectly. An example of an external actor is the government, which creates regulations and creates standards that all firms need to obey and adhere to. This results in the firm needing to consider the current environment, but in addition to this, the possible future changes to the market that these indirect actors create.

2.3 Corporate Social Responsibility (CSR)

Carroll (1991, p. 31-48) set out to depict the principles of CSR in the 1990s by creating the pyramid of corporate social responsibility. This model divides the core business responsibilities into four areas: economic, legal, ethical, and philanthropic responsibilities, with certain aspects being prioritised, and only when the previous layers are fully satisfied, can a corporation focus on the next. In Carroll's model, the economic factors take priority foremost, as a corporation must be profitable in order to exist and fulfil its owners' needs. The second layer consists of legal factors and regulations that require a company to act within the bounds of the law. The third layer consists of ethics and the code on how the corporation should act and what is wrong by society's standards. After these three layers, we reach the final layer, the philanthropic layer, where a company can finally contribute to society and increase the quality of life.

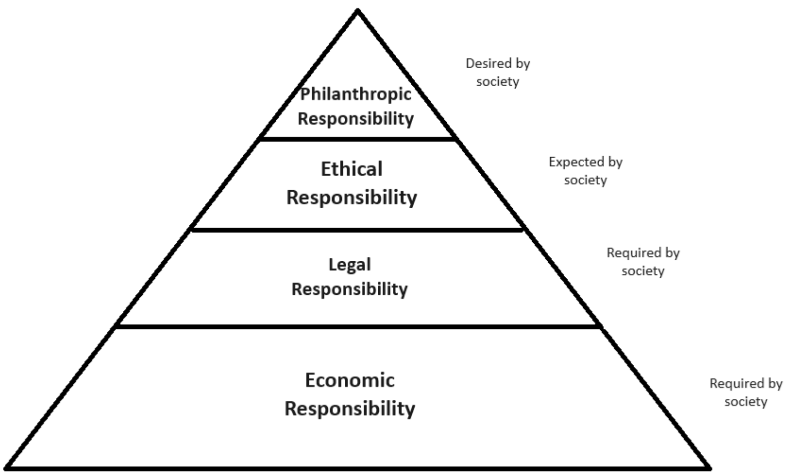

Figure 3 CSR pyramid (Adapted from Caroll, 1991)

These are an important aspect of looking at how CSR is performed, even today, as the requirements still exist. However, the standards required in each step have evolved, as regulations and demands have changed (Carrasco, 2007, p. 454-459). This has further advanced with globalized value chains and global MNCs with global social impacts (Wickert et al., 2015, p. 497-514). This causes a unique challenge between the requirements of the target, as the interests and requirements may vastly differ. This in modern days may have a large impact on the image of a company and require changes to maintain customers and keep public opinion favourable in order to maintain market share and access to markets (Carrasco, 2007, p. 454-459). This is partly due to the changes in the ethics and requirements of efficiency that customers expect companies to adhere to, in order to consider purchasing their goods or services. These slow changes in the consumer climate have caused the evolution of CSR, with new regulations and demands impacting what can be considered as CSR instead of required activities, such as emission limitation. Further, as worker conditions have improved, what previously could have been considered a good atmosphere for employees may now be just average as standards rise.

Originally, CSR was considered a luxury that only wealthy or already successful companies could afford (Freeman & Mc Vea, 2001). This could largely be explained by the idea of the CSR pyramid as the primary role of producing revenue and being profitable as the primary goal and base of the pyramid (Carroll, 1991, p. 31-48; Figure 3). Only after achieving profitability could companies look at being more responsible or sustainable in their actions. An alternative viewpoint was introduced by Edward Freeman back in 1984, where he claims that CSR could be in the best interest of stakeholders as well, in his book "*Strategic Management: A Stakeholder Approach*". Freeman's (1984 p. 85-109) work introduces the viewpoint that shareholders should include all groups or individuals who are able to impact or influence a firm's objectives. This idea can be thought of as the firm's need to satisfy its shareholders beyond just financial gain. Consequently, this change in approach to the purpose of a firm, which in turn makes understanding modern CSR easier, as shareholders can perceive additional value from a firm that conducts itself in a responsible and sustainable way.

2.4 Price elasticity of B2B firms

When looking at firms in Business to Business (B2B) industries, these firms are often price elastic, where customer firms place a high influence on the price they have to pay in order to minimize expenses and maximize their own profit margins (Hall, 2022). As a result, B2B firms need to consider how to sell additional expenses caused by possible green practices or other possible costs that they would need to pass on to the customer.

This price elasticity is also based on the rise in globalization, where firms no longer only face competitors from their own region, but instead facing international competitors from around the world (Strupczewski, 2021). Due to this, differentiation is often needed in order to obtain customers with a global reach. As a result, an outlook of products as a service can be given consideration. These goods are designed more with the customer's needs and input in mind. As a result, more individualized products are needed that suit the customers' needs and demands (Strupczewski, 2021).

Moving away from the business centres for specific industries may result in higher costs due to decreased network effect and a possible decrease in scale utilized in production. However, moving closer to customers also decreases logistics costs, which is increasing in significance (Placek, 2022). This is due to the rise in oil prices as well as higher shipping costs with the traditional shipping container costs rising. Shipping costs reached their peak in 2022 with approximately five times higher freight rate than the average 2019 pre-pandemic level (Placek, 2022).

2.5 Value chain agility

Looking at disruptions and changes MNC's need to make in order to maintain operations. Firm agility, and value chain agility becomes an important aspect. Value chain agility can be understood as how fast and easily firms can adapt and modify their own operations and their value chains (Swafford et al., 2006; Tallon & Pinsonneault, 2011). This is seen through proactive actions firms take in response to changes in the environment, customers, market conditions etc. This becomes critical in a firm's operation in crises, as firms need to be able to respond to changes, and the faster they are, the more benefit they are able to extract in comparison to their competitors and other actors in a market. Swafford (Ghosh & Murthy, 2011) looks at value chain agility in four main areas: product development, procurement, manufacturing and logistics. With these four areas of the value chains, actions and influence are split among multiple actors such as suppliers and logistics partners, who are each responsible for certain areas of the value chain's function. While a value chain operates as a collaborative framework, it is important to look at alternative participants who could add or replace certain factions of the value chain.

When looking at international value chains, agility becomes more important as the complexity increases. Actors in international value chains are further distanced from each other, and the kind of disruptions and challenges they experience may vary, resulting in differences in the types of firm actions needed to be taken (Swafford et. al., 2006). With international partners who operate further away, value chains can become more inflexible compared to local value chains, as the ability to collaborate or alter value chains becomes more complex.

Firm agility in a normal environment allows firms to adapt. The importance of firm agility grows during disruptions (Braunscheidel & Suresh, 2009 p110-140). This is due to disruptions increasing the fluctuation of the market and increasing the pace at which firms need to act to adapt and overcome risks. This further amplifies the importance of value chain management and the ability to take actions and work with partners to find a solution. (Swafford et al., 2006)

2.6 Framework

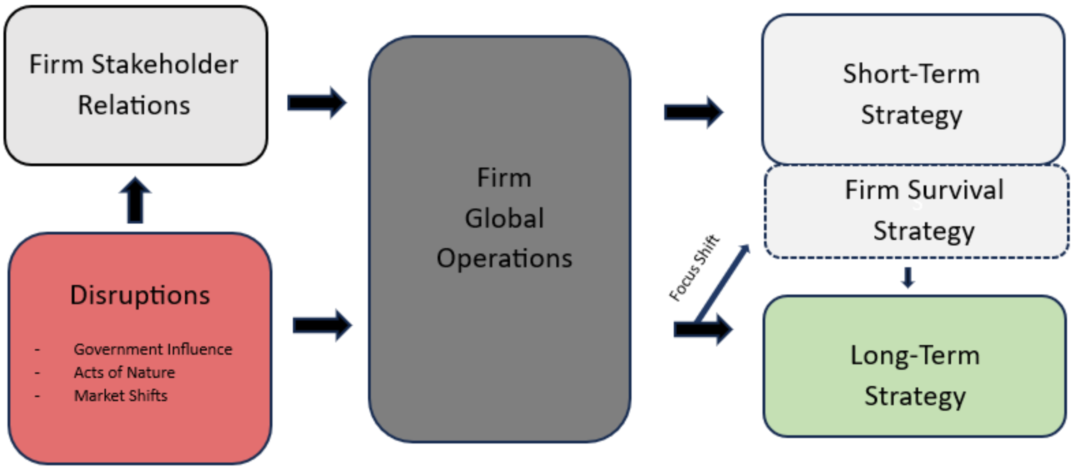

Figure 4 Framework

The framework of the thesis looks into how disruptions impact a firm's global operations by examining how disruptions impact stakeholder relations and their value chain (see Figure 4). This leads to a shift in focus away from a firm's long-term strategy to its short-term survival strategy to ensure the continuity of its operations and business functions. This can then provide an understanding of what kinds of actions and decisions are encouraged by disruptions and what are discouraged due to more critical priorities to core global business operations.

The disruptions considered include events such as economic downturns, changes in regulations, technological advancements, supply chain disruptions, or geopolitical shifts, among others. The findings of the study may reveal that external disruptions have forced MNCs to prioritize short-term challenges over long-term strategic objectives. Firms may need to make rapid adjustments to their international operations in response to changing market conditions, customer demands, acts of God, political disruption, or competitive pressures, which may divert resources and attention away from long-term planning and strategy. The study may also identify specific behaviours or strategies that MNCs adopt to capitalize on market opportunities created by external disruptions, such as agile decision-making, innovation, and diversification.

The implications of the study's findings may shed light on how international firms navigate external disruptions, the trade-offs they make between short-term and long-term goals, and the strategies they employ to maintain their competitiveness in the face of uncertainty. The insights from the study could be valuable for practitioners and policymakers in understanding how MNCs respond to disruptions and may inform strategic decision-making in the context of managing external challenges and maintaining business resilience.

3 Methodology

In this chapter, we will discuss the methodology and processes of data collection of the study. The aim is to create an open and clear picture of the process behind the data collection in the study.

3.1 Research approach

When looking into the impacts of global crises and the disruptions they cause, the impact felt by MNCs differs depending on multiple factors. This can result in similar inputs causing different reactions and consequences depending on the firm in question. As a result, a multiple case study will be conducted utilizing the experiences and thoughts of multiple firms to create an understanding of what kinds of impacts and decision-making happen when market disruptions and crises impact the way in which MNCs operate and manage their value chains.

Eriksson and Kovalainen (2016, p. 133) divide case studies into two categories, namely intensive and extensive. Intensive studies focus on a single firm to create a detailed understanding of a single firm's actions and a comprehensive perspective on a single firm. Extensive studies aim to gather a wider perspective utilizing multiple cases (Erikson & Kovalainen, 2016, p. 133). Since the aim of the study is to gain a larger perspective on the market impact of significant disruptions and crises, an extensive multiple case study is more suitable for the present case.

3.2 Data collection

There are two main data collection methods used in the thesis. The first is the use of semi-structured interviews. The second is material data collection from firm websites, utilizing time tracking to see how firm messaging shifted during a crisis. This allows for comparison between the material provided by firms to the interview responses.

This thesis employs a qualitative approach by utilizing semi-structured interviews to gather data from participants. Qualitative research focuses on understanding reality from the perspectives of respondents and is commonly employed in business studies that explore the behaviour and actions taken by firms. When employing a qualitative research design, an interpretive research philosophy is often chosen as it allows the researcher to interpret the social contexts and subjective perspectives of the phenomena being examined (Saunders et al., 2016, p. 148). Therefore, a qualitative research approach is best suited for studies that collect non-numeric data from a small sample. As qualitative research methods are not bound by standardized procedures, they allow researchers to gain a deeper understanding of a concept or phenomenon (Berends & Deken, 2021). Semi-structured interviews are an appropriate method for this study as they offer flexibility in questioning while ensuring that key areas of interest are addressed. This study is considered empirical since the data or evidence are derived from real-life individuals and their experiences (Adams et al., 2013, p. 8). For the thesis the interviews were conducted during spring 2023. This will reflect the firm perception from the time period the data was collected, and certain changes and developments may not have been present in all circumstances.

second key data collection method is analysing the messaging in the MNCs' releases. This includes official documentation released by the firms as well as edits to the firm websites, such as "about us" and "values". This can then be used to compare the public messages a firm provides to the input the interviewees provide. This can help distinguish the long-term strategy and goals a firm had before disruptions, and the actions and goals during when a firm adapts and acts to the changes they experience.

3.3 Firms

In the thesis, three MNCs were selected to participate in the study. The firms are well-established firms that operate in similar industries. Each of the firms is based in Finland with global operations, with international supply chains and customers located around the globe. The reasoning behind the selection was the comparability of the firms. This allows for better comparisons between the three firms. The selected firms all operate in maritime or shipping/marine-related fields. This means the kind of market disruptions and customers they have are similar and easier to compare when considering the complexity of value chains and firm strategy.

Table 2 Firm details

Firm	Employees	Turnover (million €)	Interview time (min)	Transcribed pages	Date of interview
A	4000-6000	1600-2200	50	7	17.03.2023
B	1500-3500	400 - 700	45	6	31.3.2023
C	15000-20000	5000-7000	45	8	3.04.2023

The selection is similarly difficult because of the scale and market size of Finland. This is due to the limited number of large, established firms that can operate in B2B markets. As a result, the number of firms is limited, or the scale becomes too significant to create significant comparisons on how these firms approach similar disruptions.

When looking at the selected firms, the main unifying characteristics that can be identified between these firms can be classified into four areas. Firstly, the type and base of the firm, which are B2B MNCs headquartered in Finland. Secondly, all firms operate in similar marine-related industries. Thirdly, they each have a global value chain composed of suppliers in multiple countries. Lastly, the customer profile for each firm extends to global actors operating with customers found globally on multiple continents. Further, all three firms' core products consist of large machinery used in themselves or as a part of larger projects in the marine industries.

Table 3 Firm business model structures

Firm	Business model

A	- Internal production located in Finland and abroad
	    o Ownership of foreign subsidiaries
	- International component suppliers for production and spare parts
	- Product design conducted in multiple locations
	    o Stationed in Finland and abroad
	- Sales team located on multiple continents

B	- Production outsourced on a contract basis to international manufacturers - Spare parts manufacturing outsourced - Product design conducted in multiple locations o Stationed in Finland and abroad - Sales team located on multiple continents

C	- Internal production in multiple sites
	    o Located in Finland and abroad
	- International component supplies for production and spare parts
	- Product design conducted in multiple locations
	    o Stationed in Finland and abroad
	- Sales team located on multiple continents

With different ways of setting up their business models, the firms have differing challenges and ways in which they operate (Table 3). When comparing the firms, Firms A and C both have in-house production for their products, which means that they are better able to control and adapt to changes while always knowing what the current state of their production is in and what is possible for them currently and in the future.

On the contrary, Firm B has outsourced the manufacturing of their products and is instead focusing only on the design aspect of their portfolio, while contracting the production of their goods on a contract basis when they receive new orders. This strategy allows them to scale down their expenditure faster as they have lower fixed costs. They become more reliant on their partners and liable to the disruptions, as well as losing out if their partners decide to prioritize and produce the goods of another firm instead of those of Firm B.

The names of the firms have been anonymised to protect the identity of the interviewed persons, allowing for them to discuss select topics without insinuating that their responses are the official position of the firm they are employed by. This permits them more freedom to describe the processes and insights they have into the decision-making processes within their firms.

3.4 Validity

When looking at the validity of the study, it is important to consider the influences that may impact the findings. For this, we can look at the two largest influencers on the validity of the study (Golafshani, 2015). The first influencer is the author. The second influencer is the data set that was acquired for this study and how applicable it is to draw larger conclusions for the industry as a whole (Ali & Yusof, 2011).

3.5 Authors influence

The impact of the authors' preconceptions in academic papers can be significant, as it can influence the ways in which research is conducted, interpreted, and presented. Preconceptions refer to pre-existing beliefs, assumptions, or biases that authors may have when conducting their research or writing their academic papers (Simundic, 2013;

Young, 2009). These preconceptions can arise from personal beliefs, cultural background, disciplinary orientation, or prior experiences, and can impact different aspects of academic papers in various ways.

Authors' preconceptions can influence the design of their research, including the research questions asked, the methodology used, and the data collected (Simundic, 2013). For example, if an author has a preconceived belief that a certain phenomenon occurs in a particular way, it may affect the research questions they ask or the data they choose to collect, potentially leading to biased or incomplete results. Authors' preconceptions can also affect how they collect and analyse data (Simundic, 2013). For instance, authors may selectively focus on data that supports their preconceived notions and ignore contradictory evidence, leading to biased interpretations of results (Young, 2009). Additionally, authors' preconceptions can impact the choice of statistical analyses or theoretical frameworks used, potentially leading to skewed findings. Furthermore, an author's preconceptions can influence how they interpret their results and draw conclusions (Simundic, 20213). They may interpret their findings in a way that aligns with their preconceived notions, even if the evidence is weak or inconclusive. This can result in biased interpretations and conclusions that may not fully reflect the complexity and nuances of the research findings (Young, 2009).

3.5.1 Data set

The second point when considering the validity of the study depends on the quality and adequacy of the data used to draw conclusions (Golafshani, 2015). In the case of comparative studies involving a limited number of firms, such as three firms, there are certain considerations to keep in mind. While a small sample size may be unavoidable due to limitations in the availability of similar firms in related industries, it can present challenges in drawing meaningful conclusions (Ali & Yusof, 2011).

One potential concern with a small sample size is the presence of outliers, which are data points that deviate significantly from the overall trend (Golafshani, 2015; Ali & Yusof, 2011). In a small dataset, even a single outlier can have significant influence on the results and may skew the findings. Identifying outliers can be more difficult in a small sample size, as there may not be enough data points to accurately assess their impact. This can affect the reliability of the conclusions drawn from the study.

Additionally, with a limited number of firms, the variability in their responses to crises or disruptions may be higher, making it harder to generalize the findings (Ali & Yusof, 2011). Different firms may have unique characteristics or circumstances that can significantly impact their performance during a crisis, and with a small sample size, these variations may not be adequately captured. This can limit the generalizability and external validity of the study's conclusions (Ali & Yusof, 2011). Despite these limitations, there are ways to mitigate potential issues with a small sample size. It is important to clearly acknowledge the limitations and potential biases associated with the small dataset in the study.

3.6 Use Of AI

The production of the thesis was made by the author, and the text is written by the author, and the ideas are original from the author based on his own research and previous research material read. Within the process of collecting information, various tools have been used to help digest material and ease the process. This has been to summarise existing studies and materials to help locate relevant and useful materials. Then, once an article, for example, had indicated usefulness, the actual information was read from the original and not based purely on the summary produced by AI tools. Additionally, after the text had been written, various in built software, such as Word autocorrect as well as external proofreading software such as “Grammarly” have been used to help correct spelling and some grammar mistakes made.

4 Analysis and Results

When looking at the actions and strategies firms take, it is important to first understand what kind of environment they are facing. Disruptions can impact many aspects of business and their value chains. Some areas may be internal or directly influenced by the firm. Other disruptions may cause firms to be bystanders, where they simply need to find solutions to adapt to the disruption and find workarounds to the challenges they face. This results in a variable approach to the kind of actions the firm needs to take. Secondly, when looking at the approaches firms take, the duration and significance of the disruption also play a key role in how firms find the balance between shifting their focus and strategy or whether they should. This can be understood with three key areas firms have had to find solutions to (Swafford et al., 2006; Tallon & Pinsonneault, 2011). First, who can the firm work with. Secondly, how can they keep their production operational. Finally, logistics, namely how are firms able to move products, resources, and components to the needed locations. These three aspects dictate the kind of strategy firms must undertake in order to overcome different crises.

4.1 Disruptions

With regards to disruptions, these can be seen as primary or secondary disruptions to the crisis. When looking into how firms adapt, it is important to understand the kind of environment the firms face and the kind of challenges and ripple effects they cause. This thesis looks into two main disruptors, namely the Covid-19 pandemic and its ensuing disruptions, as well as the war in Ukraine. Due to the overlap of these two disruptors, it is difficult to separate them distinctly at each point, despite each having unique aspects impacting both the internal and external value chains.

4.1.1 Covid-19 pandemic

With the pandemic, the two main issues that arose were the implication on the workforce, as well as the governmental influence controlling and restricting the ways in which firms can interact and operate. This resulted in firms being required to adapt their operations to meet government requirements as well as limit the risk to their employees and operations as a whole.

> *"Covid itself had impact on our own operations as well we had to take quite drastic measures so we do not suffer. Firstly, we tried to avoid Covid cases and of course second point there is to mitigate what happens when we get a Covid case." – Firm C*

Firms were able to change the way they worked internally by influencing how their employees worked, such as by asking staff to work remotely to minimize contact between employees. There were still rapid changes that influenced how firms operate, which were outside their control, with external factors influencing the market, such as governmental restrictions on trade.

> *"[I] would say the first month was quite ok. We had disruptions to Italy, but we did not have much other disruptions. The major day that flipped the customer-facing side upside down is when the US closed down their inbound flights." – Firm C*

4.1.2 Ukraine war

Unlike the pandemic, the direct business impact of the was in Ukraine has been less internal, instead arising from the responses of third nations, limiting the kind of business that can take place. This essentially eliminated the possibility of conducting business with Russian partners and customers while also making Ukrainian partners riskier as the uncertainty increased and their operations were significantly disturbed. This resulted in partners from these two nations being cut out due to the war, causing disruptions in the value chains. This in turn has resulted in firms having to find solutions and possible new partners to work with.

> *"We [no longer] trade with Russia which was a reasonably big market for us." – Firm C*
>
> *"[In] our horizontal transportation business, our steel structure were using a lot of Ukrainian steel or Russian steel…. and we had a really really big difficulties to ensure that they have enough steel plates that they can make our steel structures." – Firm A*

With these two nations that play a significant role in material production and customer base being cut out of normal business operations, firms were required to find new solutions and partners to fix or replace their supply chains to be able to deliver their orders and meet customer demand. Within the three examined firms, one of the issues all faced is the impact on steel, as these two nations have played a large role in European steel production. Some of the largest European steelworks being located in impacted countries (Jiménez et al., 2022). Which has created a large ripple effect on steel-based components and manufacturing (El Baz & Ruel, 2021).

4.1.3 Firm perspective

When looking at international disruptions, it is important to understand the key challenges the individual firms face and how their value chains adapt to unique challenges depending on how they have set out their business strategies (Swafford et al., 2006; Tallon & Pinsonneault, 2011). This resulted in different experiences on what some of the critical challenges were and how they should approach the challenges they face. How firms organise and set up their business structure also influences how different disruptions are able to influence their operations.

Among the three examined firms, Firms A and C are more similar with internal manufacturing capabilities. This results in the utilisation of suppliers for component and material production, while designing and assembling products being done internally. This allows for more direct influence and control over production. Furthermore, with regard to the disruption concerning Ukraine and Russia, these firms were able to avoid their manufacturing being disconnected from their other business operations due to sanctions imposed. While final assembly sites were within the firms control, they still faced the impact of suppliers being also influenced by the disruption, which could lead to the stoppage of production due to component shortages, resulting in a risk of idling cost of operating these sites internally (Carsson, 2013).

Firm B’s strategy and business model, namely their low involvement strategy of outsourcing production, had both advantages and disadvantages for them during disruptions (Carsson 2013; Jiménez et al., 2022). Firstly, a complete stoppage in orders would cost them less, as they would not have the fixed cost of operating manufacturing facilities. This, however, also creates a risk as they are fully reliant on their manufacturing partners to accept their orders and contracts when they need goods to be produced. Consequently, this results in the key challenge of maintaining relations with their key partners in order not to lose possible sales due to the inability to produce their products. This becomes critical, as during tougher times suppliers may be forced to scale down their operations, possibly damaging the entire global business of Firm B if they are not able to find solutions or guarantee their value chains through disruptions (Swafford, 2006; Tallon & Pinsonneault, 2011).

4.2 Firm strategy and approaches

When looking to understand how the firms adapted and the solutions they sought to overcome the disruptions, the first key detail is resource allocations and prioritization of tasks in order to overcome the challenges faced by the firm. This resulted in the question of what should take priority and what kind of solutions and changes are required to achieve the goals set. When looking at the firms' overall strategies, this caused a shift to occur, moving goals and resources from the firms' long-term strategies and goals into more dynamic short-term adaptive strategies.

With this, the firms aim to overcome and create a more agile business to adapt to uncertainty due to the unpredictability of the disruptions (Swafford et al., 2006; Tallon & Pinsonneault, 2011). While aspects of impacts and choices are common for all three examined firms, it is important to also look individually at the approaches and the ways in which they acted and sought to overcome challenges they experienced.

4.2.1 Firm A

When looking into Firm A, we can observe how operational management is influenced and how resource procurement and production management are organized, as well as how the firm sought to overcome the disruptions and find solutions to the challenges they faced. With large-scale disruptions, the impacts spread throughout the value chain, creating ripple effects and spreading challenges throughout the market (El Baz & Ruel, 2021; Ramani et al., 2022)

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> *"It is really about getting the components to the factory and being able to deliver the ready machines to customers. The sourcing work for example, has been now mainly focusing on just getting the components buying from suppliers more or less anything we can." – Firm A*

While the Covid-19 pandemic was a global disruption and created universal challenges, the war in Ukraine, having a more concentrated regional epicentre, has a greater disruption impact on firms closer to the epicentre. Value chains such as those of Firm A may struggle with a large presence in the region near or within a disruption epicentre.

> *"[Our] horizontal transportation business, our steel structure were using a lot of Ukrainian steel or Russian steel. And our steel structure suppliers are mainly in Poland and Estonia. And we had a really, really big difficulty to ensure that they have enough steel plates…" Firm A*

This causes challenges to spread throughout the value chain, creating a ripple effect. When taking a look at steel from Firm A's perspective. Their main steel sources originate from Ukraine and Russia, with Ukrainian steel forges being destroyed or at least operations disrupted, while Russian steel is being cut off with sanctions. While Ukrainian steel was disrupted, external stakeholders ensured that trade with Russia was cut off. This has resulted in component manufacturers lacking steel sheets to manufacture ordered goods. This in turn has impacted the internal assembly of final products, causing delays in product delivery. This can result in further struggles in operational management impacts sales and existing contracts impact finances.

With these kinds of challenges and a rapidly changing environment, supplier management becomes critical and good partnerships and cooperation to find solutions becomes more important. While the goal may be to find suitable partners, disruptions and challenges will also reveal how partners perceive the relationship and their priorities.

> *"Some suppliers are more in a partnership for us or with us so they understand better [that] it's time to collaborate, and some suppliers are more opportunistic they basically sell their slots to the ones that pay the highest prices." – Firm A*

"[It is clear which] suppliers have been supporting us in these tough times, that have not been increasing [prices] too much. Then [there are also] the suppliers that have used the opportunity [and] took advantage of us." – Firm A

In the long term, adapting partnerships and identifying which partners Firm A wishes to continue business with is critical. However, in the short term, it may not be possible to spend resources or find alternatives to satisfy the needs during disruptions.

"We have not had that much time to basically manage the supplier relationship because it has been all about firefighting and securing the product availability." – Firm A

This culminates in value chain agility and how the firm can find partners and coordinate with them to find solutions (Swafford et al., 2006). With stakeholder and partner relations being looked at, Firm As strategy to initially focus on finding solutions and modify aspects of their value chain in order to initially perform core business functions, then aim to normalize business functions to the changes experienced after stabilizing core functions and building a long-term operation model to meet challenges and the state of the market.

4.2.2 Firm B

Out of the three examined firms, Firm B has the most unique business model, with all their production being outsourced and its business being concentrated in the Chinese market. The majority of their production and customers are located in China, while designing and other tasks are performed in other countries such as Finland and Sweden. Due to this, their perspective can be split into a European and a Chinese perspective. With the majority of their production also being outsourced, the European aspect is more internalised, while their key market in terms of customers and suppliers is located in China is more externalised.

This strategy of outsourcing production is based on the rationale of having flexible scalability to meet demand, which is having partners who are able to increase production when there is demand, while limiting risks associated with having internalised production capabilities (Drake 2011; Sreedevi & Saranga, 2017). Firm B operates in a project-based customer base where every sale is part of a project, which means that there is no steady flow of sales or demand.

> *"We outsourced most of the production and basically we are designing the goods ourselves but then using fabricators who are working as partners for us." – Firm B*

> *"[The benefit is] flexibility when having this outsourced set up. I think the main reason our company being in this kind of outsourced model is the project business."- Firm B*

> *"There is this kind of mass production where you would be benefitting from your own production lines and getting those into good condition.… When volumes are going upward or down, it's naturally mitigation for risk also if you're having your own production or not having that" – Firm B*

For Firm B, the most impactful disruption has been the Covid-19 pandemic. With significant disruption to both suppliers and customers which has caused delays on both the production side to get goods made, while also customer projects falling behind schedule, impacting the timeframe when goods can be used on site, demanding coordination both ways to adapt to changing environments. This forces a shift in focus to meet challenges in the short-term and changing the priorities from standard long-term approaches to short-term control.

"The focus has been a lot more towards the securing availability and lead times compared to the traditional supply chain focus where you try to squeeze down the cost and you try to do these continuous improvement and fine tuning for you processes. We see now big crises impacting heavily to our suppliers but also to our customers." – Firm B

"Sometimes the [customer project] is delayed our customers don't need our products on time then if we were delivering on time, they were not willing to receive [the products]" – Firm B

Further, due to the type of project business Firm B is in, the orders and sales are often committed well in advance, meaning disruption influences and current workload may not correlate. Instead, disruption may cause after-effects into the future as projects may be sold 10 years in advance. This results in expected demand being set years ahead and current disruption and market changes resulting in business impact in the future. This can also split the crisis management into short-term and long-term concerns. Short-term challenges include the ability to complete the already agreed sales and contracts in the impacted environment, where suppliers may not be able to find all the components or operate at a lower capacity, causing a need to expand partners and accept terms that may not have been considered acceptable in the normal environment. On the contrary, disruptions like the Covid-19 pandemic have long-term impacts for firm strategy planning, with the impact on expected future market size. With projects being agreed in advance, the quantity of those that are started or set out is decreased, meaning that a known market decrease is coming in the future, which will need planning on how the firm will face and adapt to the future market.

4.2.3 Firm C

When looking to understand Firm C, unlike Firm B, they have a much more global presence with customers being located around the globe and goods being supplied to as many as six continents. This means that they have to operate in a more complex environment than Firm B, whose main business concentrates in a single market area. With this, they must balance the need for global presence while trying to maximise benefits from scale. As a result, while business operations may be spread around the globe, key business functions such as spare part storage for their services business area may be more concentrated in a single location to be able to take advantage of scale. During a normal business environment, this is beneficial. However, it also creates a chokepoint for disruption impact, creating a single critical point that could be impacted. Furthermore, this kind of strategy to base a global operation out of a single location puts a large strain and need for logistics coordination to move goods around the world to meet customers.

> *"We ship to somewhere around 180 countries a year, which should highlight a little how diverse it is. Then we look at our setup logistically, a lot of our deliveries are going from that central logistics center to all over the world. We have some local locations where we operate but that is a quite a small portion of our business." – Firm C*

With this disruption, which influences the logistical capabilities being critical to Firm C's operation. Thus, finding solution to a changing environment becomes critical to overcoming disruption. With Covid-19, once the pandemic had set in and firms became aware that it would not be limited. This requires coordination and planning to find alternatives, shifting methods and expanding network solutions (Swafford, et al., 2006). This also challenges the firm's understanding of logistics elasticity and how disruption influences cause rapid change in the available resources that firms are able to utilize (Choi, 2021). This also plays a role in capacity assigning, as partners want to operate with their most significant partner, giving them priority over others, resulting in smaller market actors being left out.

> *"Our all time delivery dropped with 10 percentage points. but overall [we have experienced] a lot of disruptions, but [there has also been] a lot of hard work and the outcome has been really good, [so] we have been finding solutions on how to deliver." – Firm C*

> *"Agents want to work with those who have volumes." – Firm C*

With disruptions, metrics are also challenged, as what is successful and acceptable may not always be clear. This is due to metrics not being comparable to past standards. Comparisons were no longer providing a realistic image of the situation and were not identifying the most critical challenges. With impacts in all areas of air, road, and sea logistics, if all metrics indicate delays, for example, the usefulness decreases significantly, making changes or adaptations more difficult due to an unclear understanding of the situation.

> *"We ship quite a lot deli freight in passenger airfreight and that dropped off the market when passenger airfreight dropped off the market meaning we had to find other options." – Firm C*

> *"[The] sea freight side as well where we had drastic cost increases and we had a change in the reliability. which was also rather dramatic- basically the sea freight side it was definitely the providers' market; they could do what they wanted and we had a lot of issues with late deliveries and cost of transportation." – Firm C*

Further, with a more internalised business model rather than relying on partner operations, this causes a larger emphasis on personnel control and management to find workarounds and ensure staff is able to perform their roles while minimising risk to operational capabilities (Nikookar & Yanadori, 2022). With a firm internalising the responsibility, it has to ensure adequate conditions and appropriate resources (Wickert et al. 2015, p. 497–514). With Covid-19, the risk of having outbreaks increases with the number of staff members requiring contact. Which raised the importance of identifying key tasks and personnel who need to be on-site to fulfil their role. Requiring Firm C to find workarounds and moving to more remote work to decrease the number of employees being in contact with each other while protecting the people who need to be in some contact on site.

> *"In our own operations as well we had to take quite drastic measures so we do not suffer firstly we tried to avoid covid cases and of course second point there is to mitigate what happens when we get a covid case. So for instance we separate personnel and keep distance in all operations." – Firm C*

This highlights the importance of staff safety and ensuring the best opportunity for staff to perform their roles to the best of their abilities. With Covid-19 for example, this increased the importance of non-business functions such as general hygiene, cleanliness and decontamination. Should Firm C not have been able to keep Covid-19 cases constrained, there would not have been resources to find and execute solutions. For instance, a key strategy is having alternative sites ready to take over in case their main site is being compromised. However, this was not an immediately available solution, instead requiring time for strategy and an alternative operation model to be prepared.

> *"Should we have a case whit covid in our central distribution center and we need to find ways when the site is closed to operate from another location, so a lot of these kind of actions took place and took the focus from our [current ways of working]" - Firm C*

4.3 Long-term value chain optimization after crisis

looking at firms' disruption recovery and their resulting long-term goals and strategy, while adapting to the future market. This can be looked at in three main areas where disruptions can help develop value chains in finding better long-term strategies. The first area is partner relations and choices, which refers to suppliers, contractors, and participants who operate in the value chain. Second is risk identification to find key risk factors and the kind of preparations that should occur to minimise impacts. Finally, it is adaptability and firm agility. These three areas are a core part of a firm's long-term benefits that they can develop through crises and disruptions.

Firstly, looking at firm partnerships, crises can offer critical insight into the true relations and collaborations firms have with one another. This can be through tighter collaboration or changing partners due to shortcomings revealed. This can be, for example crisis revealing who is more willing to take advantage of any situation and prioritize immediate advantage over long-term relations. This shows what kind of partners they currently have and allows for a shift in the kind of approach they want to take in choosing partners for the long-term. When looking at finances, it also allows for a better understanding of the intangible value partners bring and offer beyond contractual obligations and the kind of culture and values they have (Nikookar & Yanadori, 2022).

> *"Some suppliers are more in partnership for us or with us so they understand better it's time to collaborate and some suppliers are more opportunistic they basically sell their slots to the ones that pay the highest prices"*
> *- Frim A*

> *"Agents want to work with those who have volumes" - Firm C*

This results in key insight into the kind of partners and how they benefit firms or the risk they provide. This sets into perspective what things partnership and common values firms need to operate long-term strategy. All three examined firms emphasize the importance of collaborating and working with their partners to find solutions together while understanding and working together to meet the challenges they face. This indicates the critical nature of partner relations and their continuous management, with prior relations and work being critical to show commitment to each other. As partners prioritize their most important partners, stronger relations allow firms to leverage their relationships and increase the odds of stability. Consequently, this leads to the other two aspects of risk identification and firm agility.

As concerns risk identification, these kinds of disruption through stress testing also reveal firm shortcomings and possible previously unidentified risks, allowing for better understanding and contingency planning to overcome future challenges. Furthermore, the knowledge and preparedness can be adapted throughout the entire firm instead of localization of preparedness to certain kinds of risks, such as government influence in markets, such as limiting operations or access to markets. Further, with the existing relations, the position the firm occupies and the influence they have or do not have with their partners also allow them to understand the implications of their strategy, such as complacency in a value chain that is not able to overcome adversity and achieves simply minimum agreed conditions without the flexibility to adapt and overcome crises.

Finally, the core benefit of large-scale disruptions is the opportunity to improve their adaptability and agility in their value chains and internal operations. When looking at disruptions such as the Covid-19 pandemic as well as the war in Ukraine, firms needed to adapt fast and find solutions in a constantly changing environment. This allows firms to build a culture and network within to adapt and take faster actions to different situations (Braunscheidel & Suresh, 2009, p. 110-140; Swafford et al., 2006). Lower levels of operations are able to take larger action due to fast-paced changes in the business environment. This leads to the firm being able to act faster and find a solution through tighter collaboration with partners, while identifying shortcomings and finding alternative ways to achieve desired results. This can be seen through the kinds of decisions and actions that the three MNCs made, with all three looking at alternative suppliers, sourcing, logistics, or other aspects of their business, as well as workarounds for ordinary tasks.

A significant change that these disruptions brought was the ability to do remote work, emphasizing how actors can communicate and work while not being in the same location. Considering value chain management, this also brings out how coordination and agreements could be done through calls and finding methods to bring lower barriers to communication, with a decrease in the need to travel to on-location to discuss and make new agreements. This allows for a larger sampling of possible solutions and partners as the cost of the approach decreases.

In conclusion, disruptions bring new understanding to value chain management and an opportunity to assess the kinds of partnerships a firm wishes to pursue. This allows firms to develop their long-term strategy to create a value chain to match the values they set out for themselves. Bringing partners into the strategy while fostering a deeper insight into the influences in their value chain. Furthermore, a deeper understanding allows firms to find opportunities to improve their overall strategy by considering alternative practices that disruptions introduced into their operations to overcome the challenges disruptions brought out.

Table 4 Cross case summary

	Results

Short-term focus shift	• Resource allocation during crisis and disruption
	    o What task should MNCs prioritize
	        ▪ How staff should be organised to meet challenges.
	        ▪ What kinds of tasks take priority and who needs to be able to do them. Understanding staff and partner criticality to find a balance to minimise risk while aiming to keep normality in operations
	        ▪ Are certain areas of the business more affected, and can other areas supplement or take over certain tasks
	• Contingency preparedness
	    o What alternatives to normal business operations and strategy can MNCs utilize

	▪ Finding/introducing new partners to expand the partner network to guarantee capabilities in supply and logistics, etc ▪ Dispersal of limiting factors of business functions by utilizing alternatives to disperse previously centralised operations. ▪ How does internalisation of operations play into value chain management to • Can a completely external production network overcome challenges with supply • Value chain partner management and guaranteeing service. o What kinds of alternative supplies exist in the market that could be brought into the value chain to supplement or replace existing partners o How do different partners act when partner dynamics change to benefit one side more ▪ How shifts in partner powers balance impact how actors of the value chain act. Who are part of the long-term strategy and who are taking advantage o How should MNC face limited supply in their value chain to guarantee service ▪ Should firms diversify and look out to more suppliers to minimise risks that impact on a single actor would shut down operations ▪ Should firms focus on a few partners and leverage their key positions as a significant partner to guarantee priority from their existing partners and avoid losing priority to other firms that are a more significant customers to the partnering firm.

<table>
<tr>
<td>Long-term value chain benefits</td>
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Partner selection and relations

Building a more resilient and collaborative value chain network, fostering closer international collaboration with partners

Creating a common culture and strategy throughout the value chain to emphasize core goals and values
Reevaluating the intangible benefits and values partners bring to the value chain
Bringing in new partners to cover needs while cutting our limiting partners in the value chain

Risk identification

Finding previously unrealised risk and allowing future strategy to take advantage of new insight
Stress testing previous contingency solutions and their feasibility in practice

What limitations do contingencies have, and how can they be evolved utilising the learned ways of working and

Improved value chain agility

Increased preparedness to adapt and evolve the value chain for further challenges
How firms are able to collaborate both internally and externally to meet and overcome challenges they experience.
Improved communication and ability to develop new ways of working

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5 Conclusion

When looking at MNCs responding to an international crisis, the types of approaches they consider create a dynamic balancing act in how they allocate their resources during crises as well as in times of normalcy. This sets out the challenge of how much MNCs should invest in crisis preparedness and the kind of benefits they can extract from crises for their future operations. This leads to challenges that managers must overcome to create resilience in the value chains they manage, considering internal and external stakeholders. When looking at the original question set out in this thesis:

How do global disruptions influence Finnish MNC's value chain management?

It can be seen that disruptions are able to bring out the limiting factors of the existing operations and strategy Finnish MNCs have in regards to their value chain management. This can then be used to improve their value chain management in three main ways. These are partner management, risk identification, and value chain agility. Through disruptions, firms are forced to move their focus to their short-term strategy, which allows them to deep dive into the critical aspects of their value chain, needing a more active and dynamic approach. Allowing Finnish MNCs to explore alternatives and develop new ways of working, which they can bring into their long-term strategy, by finding ways to utilise the learned experiences. This can be by reevaluating their existing partnerships and the intangible value they bring into the value chain, as well as collaborative aspects and contingencies they need to meet rapidly changing environment. This then leads Finnish MNCs to develop a more agile value chain to meet and overcome the rapid changes and disruptions brought about, allowing for better insight into the way their value chain operates. This, in the end, makes the value chain more prepared to face future changes in the market and overcome them faster and in a more efficient way.

5.1 Theoretical contribution

The thesis builds on how MNCs cycle between long-term and short-term strategy priorities and the kinds of strategy adjustments crises bring upon them. This sets a firm’s strategy to rebuild itself over the solutions brought about during these market disruptions, allowing firms to adapt and create a more robust and agile value chain that is better suited to meet challenges and find solutions to market changes during and beyond disruptions caused by crises.

Looking at previous studies, we can see similar findings to this thesis. When looking into how MNC’s adapt and the processes that are observed in MNC'' management during crisis disruptions. The process of first finding ways of stabilizing their operations and finding solutions by adapting their business to meet the needs of the market supports the findings by Galkina et al. in their 2023 paper. Their developed model of business model dynamics during the resilience process shows well how a firm’s way of thinking and actions works. Their model shows how the process of recovering and developing solutions covers a cyclical process to find adequate solutions for long-term recovery and full revival of their business from the initial immobilization of the firm’s business model (Galkina et al., 2023). This shows similar findings with the thesis findings that crises move the MNCs’ focus shift away from their long-term strategy to a short-term survival strategy that they then slowly develop to build a more agile value chain. Thus, we can find a correlation between a firm's overall business model crisis management and value chain crisis management.

5.2 Managerial implications

This influences how managers should approach value chain management regarding crisis and what kinds of actions they should take in preparedness, and how they are able to keep the benefits and learnings they received from crisis disruptions. This thesis shows that disruptions bring decisions and responsibility down to operational management, who need to find solutions and adapt to changes. This skill becomes critical in maintaining value chain agility and not reverting to complacency regarding partnerships and value chain strategy. This brings out the importance of understanding the partnerships and maintaining relationships with partners through the process of collaborating on what is needed. Furthermore, a crisis brings out the understanding of who are reliable partners and who are not able to fulfil their side of the relationship. This means that understanding and evaluating partners beyond the tangible is needed to keep up the resilience and agility of an MNC's international value chain

5.3 Further research

In the realm of economic upheaval, the impact of crises and disruptions is as varied as it is complicated, often carving out distinctive paths of influence across industries and nations. This diversity presents an opportunity for comparative studies, offering a nuanced lens through which to analyze and understand the dynamics of resilience and adaptation.

One avenue of further research would be to compare business-to-consumer (B2C) firms against their B2B counterparts. Consider, for instance, the contrasting B2C and B2B entities during moments of crisis. Delving into their strategic maneuvers could reveal challenges and opportunities, each sector faced with its unique set of circumstances. From shifts in consumer behaviour to disruptions in supply chains, the contours of their responses unveil a variety of adaptive strategies and innovative tactics.

Beyond Finland, the comparative lens extends to a global stage, where analogous industries in disparate geographies offer an opportunity for cross-cultural research. By comparing the responses of similar sectors in from multiple nations or continents, for instance. The influence of governmental interventions, the impact of climate and geography, and the influence of local economies all intertwine to shape the strategic decision-making firms make during market disruptions.

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Appendices

Appendices 1 Base structure and interview questions for firms.

1. Briefly describe your company and your position
2. How would you consider/describe your firm's supply chain?
    a. Centralised, dispersed.
    b. local, global
    c. Inhouse, outsourced.
3. How have the recent disruptions such as covid and the Ukraine war affected your firm's operation model?
    a. Has there been restructuring
    b. Has there been a shift to more internal operations or outsourcing
    c. Has there been a shift in focus?
    d. Has there been a change in customers or key markets?
4. How has your supplier and customer relations been impacted
5. What would you consider the weakness and strength of your firm
    a. Do you think this will give you a long-term competitive advantage?
6. Has the focus been more on long-term strategy or short-term survivability?
7. How do different stakeholders differ in their reactions to the firm's decision?
    a. Internal and external stakeholders
8. How do you feel your organisation's actions differed from your competitors or other actors in similar industries
9. Do you think crises and disruptions have sped up the shift to more sustainable solutions?
    a. In your firm's efforts or in customer interests
10. Any comments on key details you would like to bring out?