



Master's degree in Management

Chair of Corporate Strategy

How collaboration between supply chain partners can ensure resilience in the face of external disruptions: a case study at Fater S.p.A.

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Piero

Chapter 1: Introduction

1.1 Background

Disruptive events affect companies in many ways, from deteriorating their reputation to causing operational damages (Altay & Ramirez, 2010). Indeed, a study conducted by Deloitte (2022) highlights different key elements that companies must address to deal with Covid-19. These go from more strategy-grounded topics to more operations-related ones. The Covid-19 pandemic is a recent event that has been highly challenging many firms throughout the world. For instance, some great companies such as Hertz, Brooks Brothers and Virgin Atlantic have even been facing bankruptcy (Jain, 2021).

Whenever these disruptions occur within the external environment, the challenge consists in ensuring the right level of Supply Chain Resilience (SCRes). This has been defined by Tukamuhabwa et al. (2015) as “the adaptive capability of a supply chain to prepare for and/or respond to disruptions, to make a timely and cost-effective recovery, and therefore progress to a post-disruption state of operations – ideally, a better state than prior to the disruption”. Akkermans & Van Wassenhove (2018) further argue that this means coping with the events’ consequences through either supply chain robustness or agility. Robustness is “the ability to preserve the supply chain’s functions against disruptions”, which is related to the capability of steadily maintaining current business. Conversely, agility is described as “the ability to adapt or respond to the following marketplace’s changes”, involving flexibility and adaptability towards a new state. Both robustness and agility are extremely grounded on supply chain collaboration since partners must coordinate their activities thoroughly to ensure them.

As defined by Cao et al. (2010), supply chain collaboration is “two or more autonomous firms that form long-term relationships and work closely to plan and execute supply chain operations toward common goals, thereby achieving more benefits than acting independently”. Collaboration in the supply chain is a topic that has countless implications on firms’ performance and can be studied under different circumstances because of this (e.g., contractual, normative, operational). Barratt (2004) states that collaboration emerged among supply chain’s studies in the mid-1990s. When we refer to this theme, we deal with something very broad and encompassing.

A major classification adopted by the literature to better frame the concept of collaboration involves making a difference between contractual and relational governance (Poppo & Zenger, 2002; Bonatto et al., 2020). Contractual governance is grounded on Transaction Cost Theory (Williamson, 1987)

and refers to contracts signed between trading partners. The object of these stems from the possibility of incurring in opportunism and conflict. For instance, the supplier can exploit its position to the detriment of the buyer whether he has more information about the products or the service provision. Since both parties want to preserve themselves, they achieve this through formal agreements which attempt to cover as many potential contingencies as possible (Lumineau & Malhotra, 2011).

Relational governance is based on Social Exchange Theory (Emerson, 1976) and refers to elements such as trust, solidarity, and information sharing. The goal of relational governance is to build an enduring collaboration between parties by reducing the application of authoritative relationships intended at minimising opportunism (Cai et al., 2009).

Acquiring a broad perspective, Scholten & Schilder (2015) state that literature is characterised by a general agreement that collaboration plays a pivotal role in ensuring SCRes. However, they also underline there are not many studies that explain how exactly collaboration makes this possible. This evaluation is reported also by Umar & Wilson (2021), as a need for more empirical insights into how collaboration contributes to providing supply chain robustness and agility towards disruptions should be identified. Rozhkov et al. (2022) report that literature has a gap in the understanding of how different supply chain designs are exposed to the new setting following the pandemics. Going more deeply, there is a certain uncertainty as regards the appropriate balance to adopt between contractual and relational governance under circumstances of supply chain disruptions: are they complementary or exclusive? (Dyer & Singh, 1998; Luo, 2002). Poppo et al. (2008), by examining the conditional limits of relational governance, give a cue about the trade-off between the two types of governance.

On one hand, contractual governance has the advantage of protecting the firm from possible opportunistic behaviours of its suppliers. This trait is particularly desirable in cases of extreme uncertainty, like those caused by disruptions. On the other one, contracts' provisions are usually fixed and not extensively manageable, which makes contractual governance not completely suitable for circumstances of unforeseen overturns (Covid-19 is an appropriate instance).

Conversely, relational governance ensures higher flexibility in managing the buyer-supplier relationship but does not allow the avoidance of opportunistic behaviours from one of the parties. Thus, from the theoretical background a need for more empirical insights about how collaboration should enable SCRes through the right balance between contractual and relational governance under circumstances of external disruptions.

1.2 Company presentation and problem identification

The aim of this research was to fill the previously identified gap through a case study at “Fater S.p.A.”. This is an Italian company belonging to the fast-moving consumer goods (FMGG) industry. It was founded in 1958 and it is a joint venture between “Procter & Gamble” (P&G) and the pharmaceutical group “Angelini Industries”. Fater operates through four plants: two in Italy, one in Portugal and another one in Turkey. The company’s product portfolio is composed of 5 different brands, and each of them corresponds to a specific type of product category: menstrual pads, tampons, laundry and household detergents, diapers, food products for infants’ weaning.

After the pandemic outbreak, Fater faced a rather difficult period in which its supply chain was put under pressure. To better understand this, an example related to the production of detergents may be explanatory. On the 9th of March, the Italian government forced the compulsory lockdown for its citizens. Since people began to stay continuously at home, this led to the increase of some products’ demand from consumers, especially personal care and household products. In the case of Fater, the company witnessed higher demand for its bleach and tampons. Nonetheless, intermittent supply shortages in the upstream segment of the supply chain posed challenges to maintaining optimal inventory levels. The consequence was that the company was not completely able to meet its customers’ demand, and this resulted in a loss of potential profits. This situation made the company aware of the need to leverage collaboration with both existing and new partners, so that challenges created by these types of disruption could be tackled promptly.

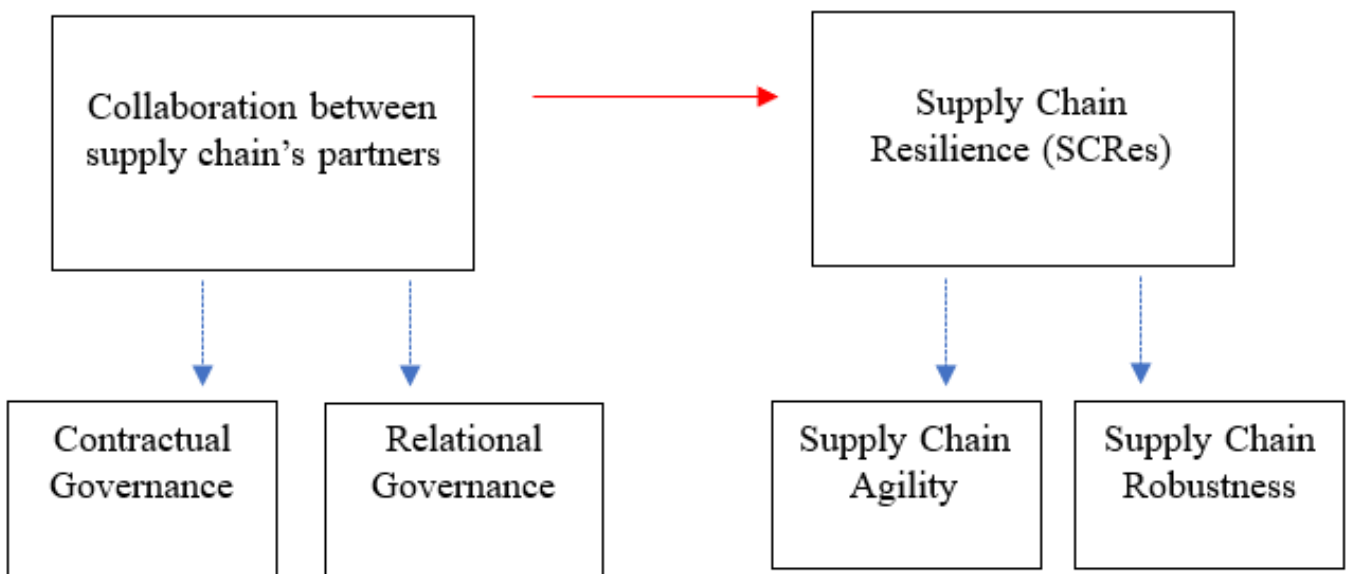
The empirical case of Fater can be connected to the more general background which has been discussed above. Given unforeseen disruptions, companies need to manage collaboration with their partners in the right way. The reason is that they always need to effectively coordinate their activities with those of their upstream segment’s partners. At the same time, it is not completely clear whether in order to do that companies should rely on contractual governance (to reduce opportunism), relational governance (to achieve flexibility), or both of them in a complementary way. The case study at Fater allowed to better understand this, bridging the gaps identified in the theoretical background.

1.3 Problem statement and conceptual model

The problem statement of the work, its conceptual model and research questions are defined as follow:

“How does **collaboration between supply chain’s partners**, in the form of contractual and relational governance, contributes to **supply chain resilience in the face of external disruptions?**”

Figure 1.2 Conceptual model



1.4 Research questions

Theoretical RQs:

1. What are supply chain disruptions and supply chain resilience?
2. What are supply chain collaboration and its main antecedents?
3. How does supply chain collaboration, in the form of contractual governance, contribute to supply chain resilience?
4. How does supply chain collaboration, in the form of relational governance, contribute to supply chain resilience?

Empirical RQs:

5. Which supply chain disruptions did Fater experience during the pandemic and what did they do to ensure supply chain resilience?
6. What was the significance of supply chain collaboration in ensuring supply chain resilience for Fater?
7. How did Fater leverage supply chain collaboration, in the form of contractual governance, to ensure supply chain resilience?
8. How did Fater leverage supply chain collaboration, in the form of relational governance, to ensure supply chain resilience?

1.5 Theoretical contributions

To date, it is possible to witness a growing interest in the literature regarding Covid-19 and its implications towards companies (Zackery et al., 2022). Therefore, the relevance embodied by this specific topic is something that would add value to the theoretical intended contributions of the present work. A major theoretical contribution derives from the case-based nature of this research. Indeed, Munir et al. (2020) reports the need to expand the studies about managerial solutions towards the consequences of Covid-19 through more case-based research. Going more deeply, this work will provide a case study related to the FMCG industry. In doing this, the intended contribution of the study will be based on considering the alliance between supply chain partners as the level of analysis. Lastly, as mentioned in the background, additional empirical research is required to gain insights about the appropriate balance between contractual and relational governance mechanisms in the face of external disruptions.

1.6 Practical contributions

The research is intended to provide mainly prescriptive insights for managers. The external environment might be rather risky due to unpredictable events. The consequent sense of uncertainty is something that managers would certainly prefer to avoid. However, in some circumstances, such as the pandemic outbreak, firms are not able to influence the external environment. Therefore, it might be argued that there is only room for buffering the undesired consequences of these events. Actually, we will note that Fater's case offers an empirical instance of proactive approach in the face of external disruptions.

After the last few years, the theme regarding how companies should manage situations of business tsunami deriving from exceptional conditions has been gaining increasing importance among public opinion. It might be just reminded that during the pandemic all news channels mostly talked about the virus.

Even though the topic is rather wide and, as discussed also in the theoretical background, may be studied from different points of view, for the interest of this study it will be narrowed down. The case study conducted at Fater will enrich the understanding of how to manage collaboration, recommending the right balance between the governance mechanisms. Whether in future there might be other unpredictable disruptions, managers will benefit from the support of this case study by knowing in advance which solutions proved more suitable in a similar case like the one of Fater. The overall uncertainty stemming from these circumstances will be reduced, and this will lead to benefits in terms of time required by managerial evaluations, efficiency and, finally, profitability.

Chapter 2: Theoretical Development

The following review was conducted by searching academic papers on the "Web of Science" website using keyword categories. Table 2.1 below summarizes the main papers found through this approach.

Table 2.1 Summary of main literature review's references per category

Category	Initial Keywords	Papers
Supply Chain Collaboration	"Supply chain" AND "collaboration", "supply chain" AND "partners", "supply chain" AND "collaborative relationships"	Angerhofer & Angelides, 2006; Barratt, 2004; Cai et al., 2010; Cao & Zhang, 2010; Cao & Zhang, 2011; Chen et al., 2011; Ellram & Cooper, 1990; Fawcett et al., 2008; Forslund and Jonsson, 2009; Fynes, 2005; Horvath, 2001; Jin & Hong, 2007; Kampstra et al., 2006; Kwon & Suh, 2004; Samaddar and Kadiyala, 2006; Simatupang et al., 2004; Simatupang & Sridharan, 2008; Soosay & Hyland, 2015; Um & Oh, 2020; Walter, 2003.
Contractual Governance	"Contractual governance mechanisms", "supply chain" AND "contracts", "supply chain collaboration" AND "contracts", "contracts" AND "supply chain resilience"	Adler et al., 1996; Cao and Lumineau, 2015; Chaturvedi and Martinezde Albeniz, 2011; Coase, 1937; Das et al., 2001; Fu et al., 2010; Ghosh & Fedorowicz, 2008; Giannoccaro & Pontrandolfo, 2004; Goo et al., 2009; Gulati et al., 2010; Handfield and Bechtel, 2002; Hariga, 2011; Huber et al., 2013; Kim et al., 2010; Keller et al., 2021; Liu et al., 2022; Liu et al., 2009; Lumineau and Henderson, 2012; Mac-neil, 1978; Noordewier et al., 1990; Pattison and Herron, 2003; Poppo and Zenger, 2002; Roxenhall and Ghauri, 2004; Schepker et al., 2014; Sen and Mitra, 2000; Siggelkow, 2002; Snyder et al., 2016; Williamson, 1985; Williamson, 2000; Xu et al., 2020; Zhao et al., 2022.
Relational Governance	"Supply chain" AND "relational governance", "supply chain" AND "trust", "supply chain collaboration" AND "trust", "trust" and "supply chain resilience"	Adler et al., 1996; Akrouit & Diallo, 2017; Andaleeb, 1996; Burt, 1993; Cai et al., 2009; Coleman, 1988; Chunsheng et al., 2020; Das et al., 2001; Emerson, 1976; Cao and Lumineau, 2015; Ghondagsaz & Engesser, 2022; Ghosh & Fedorowicz, 2008; Goo et al., 2009; Gulati et al., 2010; , Handfield and Bechtel, 2002; Huber et al., 2013; Keller et al., 2021; Komiak & Benbasat, 2004; Lewicki and Bunker, 1996; Laeequddin et al., 2010; Liu et al., 2009; Liu et al., 2022; Lui, 2009; Lui and Ngo, 2004; Lumineau and Henderson, 2012; Nikookar and Yanadori, 2022a; Nikookar and Yanadori, 2022b, Paluri & Mishal, 2020; Poppo and Zenger, 2002; Poppo et al., 2016; Powell et al., 2022; Sahay, 2003; Schepker et al., 2014; Siggelkow, 2002; Walker et al., 1997; Zaheer et al., 1998.
Supply Chain Resilience	"Supply chain resilience", "supply chain disruptions", "supply chain collaboration" AND "supply chain resilience"	Akkermans & Van Wassenhove, 2018; Chopra and Sodhi, 2014; Christopher and Peck, 2004; Christopher and Rutherford, 2004; Closs and McGarrell, 2004; Datta et al., 2007; Erol et al., 2010; Folke, 2006; Gao et al., 2016; Keller et al., 2021; Guoping and Xinqiu, 2010; Kleindorfer, 2005; Oxford University Press, 2023; Parast & Shekarian, 2019; Paté-Cornell, 2012; Ponomarov and Holcomb, 2009; Sheffi and Rice, 2005; Simchi-Levi et al., 2018; Snyder et al., 2016; Tang, 2006; Tang and Tomlin, 2008; Wieland and Durach, 2021; Yao and Meurier, 2012.

2.1 Supply chain collaboration

The importance of supply chain collaboration has been addressed as related to the fact that nowadays companies can't just see competition between individual firms. Conversely, it should be preferably identified between entire supply chains or supply networks (Cao & Zhang, 2010). Moreover, there is an increasing trend by which firms are operating in more dynamic environments, where technologies are rapidly changing, and customers are progressively more responsive (Soosay & Hyland, 2015). Ideally, these changes should be sustained by jointly developed efforts among supply chains. Scholars have begun studying with great effort this theme in the mid-1990s, with particular interest in collaborative planning forecasting and replenishment (CPFR) (Barratt, 2004). With the development of this concept, companies have been progressively moving towards a paradigm based on integrated solutions to meet customers' needs. This new paradigm is rather different compared to the conventional one, which was merely aimed at achieving lower prices with supply chain partners, thus obtaining more efficiency (Simatupang & Sridharan, 2008). Some scholars have even addressed supply chain collaboration as the key element in determining the success of supply chain management (Ellram and Cooper, 1990; Horvath, 2001).

The existing literature provides many definitions of supply chain collaboration, which differ in terms of their main focal point. By inspecting them, we argue that this may consist of either the cooperation itself, the firms' customers, or a combination of them.

As regards the first solution, Kampstra et al. (2006) have stated that supply chain collaborators are "financially independent entities that try to get the dependent parts of the chain to play together". The same line of interpretation, namely grounded on the cooperation itself, can be found among the work of Cao and Zhang (2011). These authors claimed that collaboration is "a partnership process where two or more autonomous firms work closely to plan and execute supply chain operations toward common goals and mutual benefits". Samaddar and Kadiyala (2006) also belong to this category, since they specify collaborative relationship "as one in which an organisation initiates and implements a knowledge creation endeavour, and a collaborating organisation shares the expense and benefits of newly created knowledge, including its joint ownership through patents and licences".

Then, there are some authors who provide more customer-centred definitions. Among them, Simatupang et al. (2004) deal with "a cooperative strategy of supply chain partners with a common goal of serving customers through integrated solutions for lowering cost and increasing revenue". "The ability to work across organisational boundaries to build and manage unique value-added processes to better meet customer needs" is the interpretation given by Fawcett et al. (2008). Finally,

also Simatupang & Sridharan (2008) acquire an explicitly customer-centred perspective, as “collaboration describes the cooperation among independent, but related firms to share resources and capabilities to meet their customers’ most extraordinary or dynamically changing needs”.

During the data analysis process, the customer-oriented nature of Fater emerged distinctly. Given this, for the scope of this work supply chain collaboration is expressed in terms of “cooperative strategy involving two or more independent firms aimed at achieving the guiding goal of meeting customers’ needs and all those subsequent objectives that may stem from it.” Considering the several broad definitions provided by scholars, it can be recognised that supply chain collaboration might lack an accurate framing. The concept is rather wide, at times even blurred. In order to elucidate its picture, it may be effective to revise some theoretical works that have been specifying the main antecedents of supply chain collaboration.

1. Commitment: it deals with the extent to which parties are available to engage together and indicates their future orientation towards the efforts needed to face unexpected issues (Chen et al., 2011; Fynes 2005).
2. Trust: a positive attitude of each party regarding the belief that the other party’s actions will be in line with the expectations (Walter, 2003).
3. Stakeholders: it is recognised that all the players of the supply chain are stakeholders (Angerhofer and Angelides, 2006).
4. Topology: the term refers to the specific configuration that the supply chain assumes under the collaborative relationship (Angerhofer and Angelides, 2006).
5. Goal congruence and incentive alignment: in any collaborative relationship, parties must feel that their own objectives depend on the realisation of the entire supply chain’s objectives. In order to achieve this ideal state, it is necessary to align the incentives, which may involve sharing either costs, benefits, or both of them (Simatupang and Sridharan, 2005).
6. Collaborative communication and information sharing: the process through which parties share quantitative and qualitative data (Forslund and Jonsson, 2009). As uncertainty arises, for instance during disruptions, this aspect becomes both a fundamental challenge and an opportunity for the collaborative relationship.
7. Legal agreements and behavioural uncertainty: the collaboration between parties is usually described and formally coded through legal agreements (Cai et al., 2010).
8. Government support: this antecedent can play either a direct or indirect role in the collaboration between parties. However, it is useful to recognise that especially under circumstances of external disruptions, this element may be paramount in defining the relationship (Cai et al., 2010).

9. Asset specificity: it is the specific investment that each party makes in the relationship. This antecedent determines which party would have more negotiating power whether it was necessary to modify part of the agreement during its execution. It also affects the willingness that each party would have to exit the relationship, if allowed. Indeed, the higher the asset specificity from one party, the lower the availability of the same to leave and bear sunk costs (Kwon & Suh, 2004).
10. Organisational culture: this is often overlooked. Yet, common beliefs and values are essential for a smoothly working collaboration among partners. The respective cultures also define the behavioural standards that the parties will adopt in managing their informal relationships (Jin & Hong, 2007).
11. Governance mechanisms: all those formal and informal means through which parties intend to manage their collaborative relationship throughout its lifecycle. The two essentially recognised categories of governance identified are contractual and relational (Um & Oh, 2020). Among the others, these will be the supply chain collaboration's factors selected for the scope of this work.

2.2 Governance mechanisms

For the purpose of this work the attention will be directed towards the so-called governance mechanisms. These have also been defined as those particular rules, policies and behaviours through which two or more supply chain partners interact in order to carry out their respective collaborative activities (Poppo and Zenger, 2002). In particular, literature has highlighted the existence of two main different types of governance mechanisms, namely contractual and relational governance. The following sections are intended to discuss them more in depth. Additionally, it will be reviewed how literature has been addressing the two different views regarding the joint application of contractual and relational governance: are they complements or substitutes?

2.2.1 Contractual governance

Contractual governance refers to contracts signed between trading partners. Formal contracts are arrangements through which two or more parties codify obligations to carry out particular actions (Mac-neil, 1978). According to Giannoccaro & Pontrandolfo (2004), contracts' objective in the field of supply chain are mainly two: formally illustrate the structure of authorities and responsibilities,

and define the way supply chain partners want to share risks and benefits. Contracts can differ in complexity, based on the variety of potential occurrences they cover. Roxenhall & Ghauri (2004) claim that the structure of the organisations involved in the relationship and the nature of their activities play a significant role in establishing the extent to which contracts are more or less exhaustive. By addressing possible future scenarios that the companies may face throughout the trades, formal contracts are intended to reduce as far as possible risks exposure.

The main theory on which contractual governance is grounded is the Transaction Cost Theory. The relevance of this theory as regards contractual governance is conveyed by Williamson (2000) himself, according to whom “any issue that arises as or can be reformulated as a contracting issue can be examined to advantage in transaction cost economizing terms”.

Transaction Cost Theory is based on the idea that transactions between parties entail bearing some costs related to, for instance, formulating the contracts, monitoring performances and potentially dealing with debates (Coase, 1937). Based on that, Williamson (1987) suggests that firms should conduct a comparative analysis of the costs stemming from each possible transaction, thus disclosing the most appropriate way to conduct it. Whether costs associated with potential risk exposure are significantly high, then signing formal agreements would be preferable. Throughout the years, the theory developed by Williamson has been extended to several themes, including some especially related to supply chain management such as vertical integration and channel relations (Noordewier et al., 1990). Its relevance for the theme discussed in this work stems from the fact that it is the basis for the application of governance mechanisms such as contracts to regulate the relationship between supply chain partners. Their exposure to risks increases exceptionally whenever disruptions occur. Therefore, it is argued that contracts enhance the parties’ wish to protect their needs.

Some scholars (Tan et al., 2021; Wang et al, 2011) have also highlighted the main factors related to contractual governance. These can be summarised in the following:

- 1) The application of written documentation. Codifying the agreements secure them and allow parties to establish their applicability.
- 2) The development of an arrangement regarding how parties want to share risks, benefits, and responsibilities. This factor is essential in case of disruptions, due to the subsequent imbalance of risks and benefits that may be spotted.
- 3) The alignment of parties’ respective interests. This is particularly significant as regards collaboration.

- 4) The specification of the time period that will be covered by the relationship between parties. As regards this, supply chain partners should try to understand the right time horizon of their agreements.

2.2.1.1 How contractual governance impacts SCRes

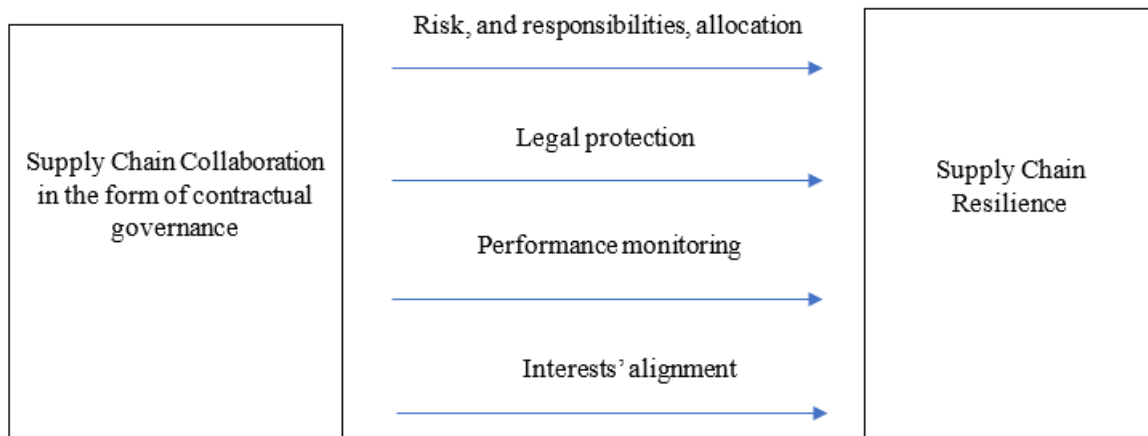
When it comes to the interaction between supply chain collaboration and SCRes, it is paramount to consider how contractual and relational governance may play a significant role. According to Ponomarov and Holcomb (2009), firms' capabilities in resisting under conditions of disruption go along with the level of risk sharing between supply chain partners. As previously stated, one of the main objectives of contractual agreements is precisely this one. The literature further discusses this matter by theorising typical scenarios that may occur within supply chain collaborations.

Snyder et al. (2016) identify the recurring situation in which, due to information asymmetries, the buyer submits to the supplier different contracts from which it could decide according to its risk-aversion. Other authors, instead, carried out studies regarding the benefits of performance-based contracts. Guajardo et al. (2012), for instance, support the effectiveness of these types of agreements in safeguarding the focal firm whenever failures occur in environments with low-frequency, high-impact disruptions. Other academics have conducted studies to identify which type of contract is the most proper for specific scenarios of uncertainty (Xu et al., 2020; Hariga, 2011; Fu et al., 2010).

Furthermore, this kind of studies have been the basis for the development of some companies' strategy, with the Hewlett-Packard's being one of the most popular. Their resulting conclusions argue that companies must not adopt just one type of contract. Instead, they should design entire portfolios of contracts. Long term contracts should be adopted for all those critical requirements that must be ensured in every sort of situation, including disruptions. On the other hand, occasionally it might be preferable to sign flexible, or option, contracts. These are particularly useful to hedge against inventory risk. Finally, the possibility to make spot purchases in the open market exists, either, but does not concern contractual governance within supply chain collaborations.

Considering the literature review, it can be stated that contractual governance contributes to SCRes through the four main ways summarised in the following figure.

Figure 2.4 How contractual governance impacts SCRes



2.2.2 Relational governance

Relational governance is based on Social Exchange Theory (Emerson, 1976) and refers to elements such as trust, solidarity, and information sharing. The goal of relational governance is to build an enduring collaboration between parties by reducing the application of authoritative relationships intended at minimising opportunism (Cai et al., 2009).

Trust is the major principle of relational governance and can be applied to a wide variety of contexts, including individuals, social groups, teams, companies and industries (Lewicki & Bunker, 1996). For the scope of this work, the level of analysis will be the dyadic relationship existing between supply chain partners. The literature has been addressing several types of trust, which is the key element of relational governance. Among them, the most relevant are the following.

- 1) Calculative trust: usually parties cannot rely merely on trust. This particular form entails the application of an approach to relational governance that is grounded on the consideration of payoffs, as suggested by game theory. Calculative trust consists in the development of a process that involves assessing costs and benefits related to a sustained market relationship (Akrouf & Diallo, 2017; Poppo et al., 2016).
- 2) Competence trust: when collaboration among supply chain partners is at its initial stage, parties have to define their own competences, thus determining the tasks that are going to perform respectively. When coping with competence, we refer to either operational or strategic skills (Ghondagsaz & Engesser, 2022; Lui, 2009).

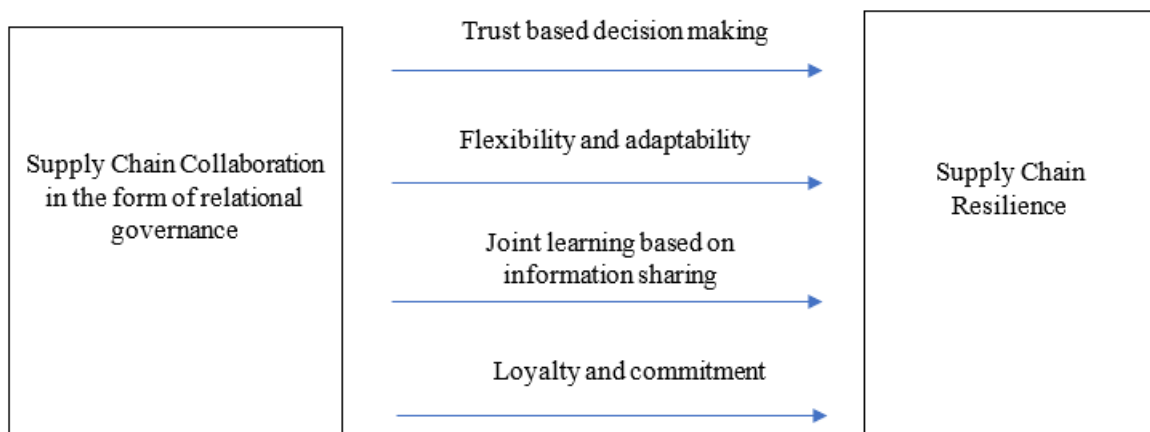
- 3) Trust in integrity: given a trustee and a trustor, this form consists in the confidence that the trustee acts in good faith. Integrity thrives through the principles of loyalty and consistency. Since it derives from the reciprocal experiences and each party's perceptions of the other's past behaviours, trust in integrity pertains to the developing phases of the relationship (Paluri & Mishal, 2020; Komiak & Benbasat, 2004).
- 4) Trust in predictability: it may be considered the other side to the coin of trust in integrity. In particular, acquiring the trustor's perspective, it touches upon the belief that activities carried out by the trustee are consistent to the extent that it will be possible to predict future actions with accuracy. Predictability in the alliance's ongoing course has been defined as an essential precondition to a straightforward functioning of the supply chain (Powell et al., 2022; Laeequddin et al., 2010).

2.2.2.1 How relational governance impacts SCRes

As far as relational governance is concerned, the literature reports many authors that highlight the importance of relationships at the individual level. Burt (1993) has been one of the first, advancing knowledge around the so-called “Social Capital Theory”. This is grounded on the conviction that social relationships within a network of individuals, such as the one emerging from supply chain collaborations, are resources that develop human capital. Strong human relationships at the individual level are key to obtain resources and information from counterparts that would otherwise not be accessible. Coleman (1988) and Walker et al. (1997) support this conclusion, either. Nikookar and Yanadori (2022a) contribute to this topic by carrying out an insightful empirical study related to Covid-19 pandemic. The authors found that social interactions play a significant role in ensuring SCRes. The higher a manager’s embeddedness within its reference network, the higher the quality and timeliness of the support received, the higher the efficacy in ensuring resilience.

When the interest shifts from individual to organisational level, existing literature results somewhat gaunt. A study from Chunsheng et al. (2020), for instance, assigns external integration and supply chain flexibility to the enablers of SCRes. Despite not directly referring to the concept of relational governance, their work proves suitable for our context considering the literature review upholds that both external integration and flexibility are concepts associated with relational governance. Interestingly, the previously discussed work from Nikookar and Yanadori (2022a) has been extended by the same authors to an organisational level analysis (Nikookar and Yanadori, 2022b). Supply chain collaboration exerted at this specific level through relational governance enables visibility, responsiveness, and flexibility, thus enhancing SCRes. To summarise, relational governance ensures trust-based decision-making, flexibility and adaptability, information sharing, and loyalty (Nikookar and Yanadori, 2022; Waler et al., 1997; Burt, 1993). The following figure conveys what discussed so far.

Figure 2.5 How relational governance impacts SCRes



2.2.3 Complementarity and substitutive views: the interaction between contractual and relational governance

Liu et al. (2022) recognize that in the last years, the academic field has been pervaded by a still ongoing debate regarding the interplay between contractual and relational governance. The substance underlying this debate applies to two different perspectives which have been developed as regards the interaction between them, namely the complementarity and substitutive views.

The complementarity view is based on the proposition that applying forms of one type of governance increases the expected benefits of relying also on the other one (Liu et al., 2009). Conversely, supporters of the substitutive view claim that applying forms of one type of governance reduces the expected benefits of relying also on the other one (Lui & Ngo, 2004). This distinction is proposed also by Siggelkow (2002), even though through the more technical concept of marginal benefits. According to his work, if the marginal benefits of one governance increase when the other's benefits increase, then we have the complementarity view. Contrariwise, if the marginal benefits of one governance decrease when the other's benefits increase, then we are dealing with the substitutive view.

From a general overview of the literature, it will be noticed that studies that support either the complementarity or the substitutive view follow two separate streams. First, there are some authors who try to solve this debate by investigating key elements, determinants, and strengths of the two perspectives. Differently, the second stream acquires a situational standpoint, addressing how the two governance mechanisms interact under specific circumstances faced by the parties' relationship during its lifecycle.

The work of Goo et al. (2009) underpins that contractual and relational governance are complements due to the fact that the weaknesses of one are also the strengths of the other. Indeed, contracts may be used to agree on how to cope with predictable events, while relational governance deals with unforeseeable situations. This approach towards the existing debate is grounded on a "compensating logic", which has been advanced also by other studies (Gulati et al., 2010; Adler et al., 1996). According to them, contractual governance is likely to compensate for the limits of relational governance and vice versa. Similarly, Handfield and Bechtel (2002) conclude that contractual agreements can compensate for legal obligations when trust between supply chain partners is poor.

In contrast to compensating logic, the so-called "replacing logic" states that contracts and trust have the same function, that is reducing uncertainty, thus implying that it is not always required to combine them. This particular logic has been accepted, for instance, by Das et al. (2001), and Horgan and

Mühlau (2006). The common final argumentation is that the belief that contracts must be a necessary antecedent of relational governance is a misleading conviction. Contracts can actually play a significant role in the initial phases of supply chain collaborations, as they may set normative rules to fill the gap when trust is absent (Ghosh & Fedorowicz, 2008).

Furthermore, some other scholars have backed the substitutive view by developing another logic, namely the “dampening” one. As far as this is concerned, the suggestion is that contractual governance might threaten an effective use of relational governance mechanisms (Gulati, 1995). It may be sufficient to think about a situation in which one of the parties aspires to such a detailed and comprehensive contractual agreement that the supply chain partner diminishes its perceived trust in the relationship. This is a potential state which is highly likely to occur when supply chains face disruptions that enhance the overall uncertainty.

As opposed to this argumentation, the so-called “enabling one” remarks that each governance can actually favour conditions that enable the other one (Horgan & Mühlau, 2006). The enabling logic is particularly reasonable if we consider that trust may be an effective means towards the realisation of the common goals established by contracts. Dyer and Chu (2003) belong to this logic, as their work finds that, even though contracts increase administrative costs, they are key in developing trusts among parties in the initial stages of the relationship. This is particularly true when companies differ for contingencies such as their organisational sizes. In a nutshell, compensating and enabling logics stand for the complementarity view, while replacing and dampening perspectives give support to the substitutive view. The following figure briefly encloses this taxonomy derived from the literature.

Complementarity view	Substitutive view
<ul style="list-style-type: none"> ● Compensating logic 	<ul style="list-style-type: none"> ● Replacing logic
<ul style="list-style-type: none"> ● Enabling logic 	<ul style="list-style-type: none"> ● Dampening logic

Figure 2.2 Summary of theoretical perspectives regarding interaction between governance mechanisms. Personal figure

Delving into the academic stream that deals with how contractual and relational governance affect SCRes, it is required to discuss their dynamic nature. This has already been introduced in the first chapter. The literature review has demonstrated that studies about this context are rather recent, as confirmed also by Huber et al. (2013). Following their analyses of the four logics previously

discussed, they stated that prior works dealing with the interplay between these two governance types have resulted somewhat static. This conveys that literature has usually taken for granted that contractual and relational governance interplay does not evolve over time. The subsequent conclusion is that they may be only complements or substitutes throughout the collaborative relationship among supply chain partners.

However, the practical contributions from the work of Huber et al. (2013) reveal that theoretical studies might have underestimated the potential nature of this relationship. This has been defined as both dynamic and interwoven. As a consequence, it can be stated that the governance body underlying the relationship between supply chain partners does fluctuate in case of disruptions, thus challenging SCRes. This deduction finds support within the work of Keller et al. (2021), which proves extremely worthwhile as regards the relationship between our conceptual model's variables. The authors reiterate that acquiring a dynamic perspective in alliance governance types whenever disruption occurs is fundamental. They claim the need to go beyond the traditional view that associates contractual governance with formal means and relational governance with informal means. As shown by the following table, extracted by their study, four revised configurations of governance mechanisms have been theorised.

Level of codification of alliance governance mechanisms' ruling principles	Means to enforce alliance governance mechanisms' ruling principles	
	Contractual	Relational
Formal	<p>Formal contractual governance</p> <p>Conceptual definition: the set of codified enforceable promises that define the rights and obligations of the parties; for example, termination, auditing, or lawsuit provisions.</p>	<p>Formal relational governance</p> <p>Conceptual definition: the set of codified patterns of behavior to which parties are expected to conform; for example, exchange of personnel, decision-making rules, or meeting procedures.</p>
Informal	<p>Informal contractual governance</p> <p>Conceptual definition: the set of uncoded enforceable promises that define the rights and obligations of the parties; for example, confidentiality arrangements, task division, or decision making.</p>	<p>Informal relational governance</p> <p>Conceptual definition: the set of uncoded patterns of behavior to which parties are expected to conform; for example, trust and positive interpersonal relationships.</p>

Figure 2.3 Innovative perspectives regarding contractual and relational governance. Source: Keller et al. (2021)

2.3 Supply chain resilience towards disruptions

The following section is intended to discuss the major insights that can be derived from the literature concerning SCRes towards external disruptions. Through this, a deeper understanding of the conceptual model's dependent variable will be furnished.

2.3.1 Supply chain disruptions

Supply chain disruptions can be defined as “random events that cause a supplier or other element of the supply chain to stop functioning, either completely or partially, for a (typically random) amount of time” (Snyder et al., 2016).

The literature regarding this topic is rather wide, due to countless potential determinants of disruptions. As an attempt to better define the outline of this theoretical field, some scholars have been differentiating forms of disruptions in inter-organizational relationships based on the triggering events. Among them, Keller et al. (2021) specify that disruptions can stem from:

1. Internal events that are directly related to the collaborative relationship, but at the very beginning go beyond its agreed scope. An example may consist in one of the partner's misconducts within a business that does not belong to the initially agreed boundaries of the collaboration.
2. Internal events that are directly related to the collaborative relationship and concern its agreed scope since the beginning. The breakdown of a particular engineering system employed by the partners within the collaboration's agreed boundaries may be an example.
3. External occurrences that may not depend on the firm's actual capabilities of preventing them (the situation faced by Fater within the context of the pandemic perfectly suits this case).

Similarly, Chopra and Sodhi (2014) group disruptions according to their roots. These can be either operational and directly related to the partnership, or external (Parast & Shekarian, 2019; Tang, 2006; Kleindorfer & Saad, 2009). In particular, the root causes for supply chain disruptions that belong to the first category are “inaccurate forecasts”, “capacity limitations”, “systems failure”, “delays” and “procurement inefficiencies”. Instead, the root cause identified by Chopra and Sodhi (2014) corresponding to the third category of Keller et al. (2021) work is “disasters”.

Another theoretical stream recognizable within literature which differs from the one previously presented consists in those scholars who address disruptions' frequency of happening. Tang and Tomlin (2008) focus on those risks that are characterised by high likelihood of occurrence, listing supply and demand risks, process risks, behavioural risks and environmental risks. The pandemic is certainly an environmental risk, even though it cannot be denied that all the others might originate from it. For instance, it is plausible to believe that behaviours from a supply chain partner coming after a disaster like the pandemic might end up in behavioural risks.

There are also other theoretical conceptualizations found in the literature that are grounded on the disruptions' likelihood of occurrence. The Covid-19 pandemic falls within the theoretical definition of "black swan", namely a not predictable disruption (Paté-Cornell, 2012), something that has almost never happened before, characterised by low-probability and massive immediate impact on firms (Akkermans & Van Wassenhove, 2018).

2.3.2 Supply chain resilience

The basic notion of resilience consists in "the ability of people or things to recover quickly after something unpleasant, such as shock, injury, etc." (Oxford University Press, 2023). By generally referring to complex networks, Gao et al. (2016) reports that resilience has been applied to manifold fields as a form of restoration in case of distress situations. When we narrow down our centre of attention to SCRes, a variety of definitions arise from the literature. Even from this preliminary comprehension of the topic, it can be stated that academics are somehow divided into two major schools of thought.

First, some scholars refer to it as the capacity of a supply chain to be stable and solid whenever disruptions occur, that is "supply chain robustness". Christopher and Rutherford (2004) state that "resilience is the ability of a system to return to its original state after being disturbed". Similarly, Guoping and Xinqiu (2010) claim that for a supply chain to be resilient means coming back to its original configuration. Maintaining continuity of operations emerges as the core idea also underlying the theorization of Ponomarov and Holcomb (2009). A further way of conveying this perspective can be found in the work of Yao and Meurier (2012), where supply chains are ideally thought to be resilient when they "bounce back from disruptive events".

A second school of thought widens the span of SCRes by implementing references to elements such as flexibility, adjustment, ability to adapt and commute. In this respect, it is stated as "supply chain

agility”. According to Datta et al. (2007), for instance, “SCRes is not just the ability to recover from mishaps, but is a proactive, structured and integrated exploration of capabilities within the supply chain to cope with unforeseen events”. The possibility to proactively move towards a new, desired system is explicitly stated also by Christopher and Peck (2004), Closs and McGarrell (2004), and Erol et al. (2010).

This twofold perspective concerning SCRes that dominates literature has been interpreted in an interesting different way by Wieland and Durach (2021). Their work is built on the comparison between the literature about SCRes and the empirical assessment of what some companies have carried out during the pandemic to ensure it. In essence, the authors interpret the dichotomy differentiating between “engineering resilience” and “social-ecological resilience”.

The first type is the most common and suits the traditional school of thought that views SCRes as the capacity to bounce back to a pre-established steady equilibrium (Rice & Sheffi, 2005). The basic assumption is that networks function as engineered systems completely managed by firms. Simchi-Levi et al. (2018) have even provided a solution to quantify this concept, introducing the metrics of time-to-recovery (TTR) and time-to-survive (TTS). Engineering SCRes is obtained when TTR does not exceed TTS, with the system capable of restoring its original state. However, the assumption that resilience involves stability around a desired equilibrium could cause the system to fall into long term rigidity. This is particularly true when exceptional disruptions occur, with the pandemic belonging to this instance.

Suggesting this reasoning, Folke (2006) states that SCRes might also require the system moving from one behaviour to another, adapting itself to the new conditions. The social-ecological perspective is then presented. Supply chains are complex, open systems in which organisations, teams, and individuals interact as it was an ecological one. This perspective involves the possibility to experiment new configurations of the whole system, so that in the long run this could evolve and adapt towards disruptive events.

Chapter 3: Methodology

The objective of this chapter is to provide details about the research approach adopted to carry out this work. First, the nature of the research will be addressed. Afterwards, the reader will be issued with the specific research design applied, including the main justifications behind this choice. At this point, the data collection process will be examined. The chapter will end by disclosing how data have been analysed in order to achieve findings. Notice to both reliability and validity of the methodology will be covered, either.

3.1 The nature and design of the research

Theoretical research questions were addressed using existing literature. Conversely, empirical ones were addressed through research which is exploratory in nature. The aim is to achieve new and valuable insights concerning the research topic (Swedberg, 2020; Stebbins, 2001).

The applied methodology consisted in a cross-sectional, retrospective case study through a qualitative, inductive approach based on primary data. It can be stated that the choice of this specific research nature directly stems from the particular issue at hand. Indeed, the variables identified through the conceptual model would be more properly spotted and discussed through a qualitative approach. This is especially true for a variable like relational governance, as from the literature the distinctly abstract nature of trust has raised. Qualitative research can indeed enable exploring complex phenomena and the hidden causal relationships underlying them, obtaining in-depth insights that could otherwise be omitted by quantitative studies.

The previously described approach had defined a case study held at the Italian company Fater S.p.A., one of the leading firms of the FMCG industry. This was cross-sectional and retrospective as data referred to the past and were collected at one point in time (Hua & David, 2008). Chosen as research design, a single case study ensures the benefit of a great depth into the topic at hand, allowing for identifying complex causal relationships that might be neglected by other types of study (Yin, 2009). The unit of analysis consisted in the FMCG supply chain, in which the lens has been directed towards the collaborative relationships existing between a focal firm and its supply chain partners on an organizational level. The FMCG industry is a highly complex one, with particular regards to the diversified product portfolios characterising its companies. This feature determines we are dealing

with a rather intricate business environment, which in turn calls for interest towards how a company within it has been coping with challenges deriving from external disruptions.

3.2 Data collection

3.1.1 Sampling

Having selected the specific case of Fater S.p.A., two data sources have been identified. First, some data arose from introductory meetings with Fater's managers aimed at discussing the project behind the present study and being informed about their support to the research.

However, the predominant primary data source consisted in semi-structured interviews. Relying on the worthwhile support of Fater's Initiative Senior Manager, it was possible to reach out to the interviewees. Therefore, two sampling methods were used in this study, namely purposive sampling and snowball sampling.

Purposive sampling is a non-probabilistic technique through which selection is grounded on detailed characteristics requested by the researcher (Zikmund et al., 2013). In this particular instance, some managers were chosen because of their specific role. They were selected from different functions, namely purchasing (raw materials and packaging), management of the equipment, logistics and distribution, outsourcing components, and production planning.

Snowball sampling-wise, we are dealing with a non-probabilistic technique through which new units are recruited by already existing sampling units (Goodman, 1961). Indeed, the final number of interviews was achieved thanks to the support provided by the initially contacted Initiative Senior Manager, who indicated other potential interviewees for the case study at hand.

3.1.2 Interviews

Respondents were contacted through email, and one-to-one online meetings lasting 32 minutes on average were organised for the purpose of collecting data through interviews. Figure 3.1 reports the interviews' details: participants' role, the date and the length. These are a type of non-standardised interviews, which are thought to give access to richer information (Saunders et al., 2012).

Figure 3.1 Interviews' details

Interviewees' role	Length	Date
Senior Initiative Manager	00:23:04	10/03/2023
Senior Initiative Manager	00:20:00	11/04/2023
Senior Initiative Manager	00:19:37	11/04/2023
EMEA Physical Distribution Manager	00:26:18	05/04/2023
Senior Buyer Fabric & Home Care	00:35:00	13/03/2023
Product Demand Planner	1:03:06	06/04/2023
Materials Demand Planner	00:45:01	06/04/2023
Distribution Manager	00:18:50	05/04/2023
Materials Buyer	00:31:02	12/04/2023
Senior Buyer	00:50:44	06/04/2023

Eventually, ten interviews were successfully arranged. They were always recorded, so that no data could be lost due to the inability to write down everything. However, notes were still jotted down to enable an easier afterwards identification of the most interesting interviews' insights.

As far as the meetings' structure is concerned, conversations were ordered in four main sections. To initiate, questions regarding the managers' specific role were asked to better frame their respective duties and responsibilities. Secondly, respondents were interviewed on the consequences, both threats and opportunities, witnessed by Fater during the Covid-19 crisis. At this stage, interviews moved towards topics directly related to contractual governance. To conclude, the last section dealt with relational governance. Appendix 3.2 contains an interview protocol, which is intended to provide a cue about the interviews' body. Additionally, Appendix 3.3 presents the transcription of one of the conducted interviews. Should further examination of the interviews be required, the remaining transcripts can be obtained upon request. Interviews helped answering the empirical research questions as Fater's managers provided comprehensive information on the approach adopted by the company during the pandemic.

Having achieved this stage in the research process, it was then necessary to transcribe the interviews and translate them from Italian to English. Data was now set to go through the analysis process, which will now be discussed in detail.

3.3 Data analysis

A common concern occurring in case of qualitative data gathered through interviews consists in managing a widespread amount of information (Skjott & Korsgaard, 2019). Then, it might be challenging to systematise it and carry out a scientific analysis process that would not overlook significant insights. Since the objective of an effective methodology is to avoid this potential instance, for the scope of this work a widely adopted approach to qualitative data analysis was applied, namely the coding.

At its core, the coding method implies identifying particular meanings within data and labelling these with a code, that is “a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” (Saldaña, 2015). Henceforth, this method was applied to all interviews’ transcriptions. More specifically, the data analysis process of this study complied with the so-called “inductive coding”, which reflects the inherent nature of grounded theory. Indeed, through an inductive coding approach, the research methodology remains robustly anchored to available data since codes are formulated, as far as possible, from terms and phrases expressed by participants themselves. Nonetheless, this approach was also backed by referencing findings from extant literature. In chapter 2, determinants of supply chain collaboration and resilience have been established as their respective measures. As a commitment to this theoretical review, codes were determined supporting the inductive coding scheme by constantly searching for those theoretical-grounded determinants.

Proceeding through the analysis course, it was still needed to make order among the countless codes recognised. Since coding is an approach to qualitative data analysis that leads to the identification of knowledge for nascent theories in a progressive way, it was then required to advance additional coding cycles (Gioia et al., 2013). Eventually, three coding cycles were carried out.

The first one is commonly known among scholars as “open coding”. Being a descriptive phase of the process, it was tightly aligned with the basic form of inductive coding previously discussed. Classification-wise, the units of meaning to which codes have been applied were either single words, sentences, or entire paragraphs. In order to follow a more detailed procedure to open coding, the “5W-

1H” (that is Who, What, Where, When, Why, How) solution suggested by Flick (2009) was taken as a guide throughout the whole cycle. Basic descriptive codes were then identified, so that supply chain collaboration, SCRes, and their sub variables, could have been subsequently spotted from interviews’ transcriptions.

The following cycle of coding is known as “axial coding” and is intended to further refine and categorise the codes derived from the first level of analysis. Therefore, correlations and overlaps among codes were tracked in order to define distinct thematic categories. Thanks to this refinement, an upper level of data framing was achieved, allowing a better understanding of the causal relationships hidden behind the concepts. The “Six Cs Model” (Larossa, 2005) worked as a guiding principle at this phase of the study. Basically, “Causes, Contexts, Contingencies, Consequences, Covariance, and Conditions” were the factors through which categorization was conducted. “Core codes” from the most interconnected open codes emerged. In particular, while open codes labelled extremely basic elements, core ones were formulated to create thematic categories that could reflect the model’s variables. As argued by Larossa (2005), axial coding establishes the moment in qualitative data analysis when research “begins to fulfil its theoretical promise”.

Eventually, the third and last coding cycle, namely “selective coding”, enables ultimate theory generation. Carrying out the conclusive step of data analysis consisted in systematically relating each core category to other categories and filling the categories that needed further refinement. Flick (2009) stated that selective coding brings axial coding to a “higher level of abstraction, leading to the formulation of the story of the case”. As an attempt to exhibit better (Verdinelli & Scagnoli, 2013) the overarching structure derived from the qualitative analysis conducted, either causal relationships’ trees or summary tables were created. The consequential coding cycles enabled a systematic categorization of the initially chaotic load of information which eventually led to main findings and conclusions. Answers to empirical research questions, then, were finally achieved. These will be more deeply discussed in the upcoming chapters.

3.4 Data reliability and validity

Inductive coding guarantees to a great extent the validity and reliability of data analysis, since text is let speak for itself, avoiding that prior conceptualisations could potentially bias the entire process (Linneberg & Korsgaard, 2019). The last mentioned is just one of the means employed within the research process to guarantee data validity and reliability. In order to effectively summarise them,

the following tables provide a list of the major solutions on which these scientific requirements to data collection and data analysis are grounded.

Table 3.1 Means for data validity
<ul style="list-style-type: none">● Inductive coding approach backed by literature: researcher's bias is tackled since codes are based on both words expressed by interviewees and insights from existing literature (Saldaña, 2015).● Recording of interviews through OBS studio (McDonnell & McPhail, 2018).● Additional recording with smartphone (McDonnell & McPhail, 2018).● Validation of notes through comparison with recordings (Charmaz, 2014).● Calls organised mainly through one-to-one online sessions. The risks of confounding data in case of group interviews are high (Seidman, 2013).● Purposive sampling, respondents were chosen based on their job positions (Patton, 2015).● Snowball sampling, most suitable respondents were chosen considering suggestions from the initially contacted manager (Patton, 2015).

Table 3.2 Means for data reliability
<ul style="list-style-type: none">● Inductive coding approach backed by literature: researcher's bias is tackled since codes are based on both words expressed by interviewees and insights from existing literature (Saldaña, 2015).● Member checking: Data analysis check from interviewees (Saldaña, 2015).● Triangulation: use of recurring, more general, questions (e.g., regarding the consequences faced by Fater's supply chain after the pandemic outbreak), with following comparison of replies from different interviewees (Rubin & Rubin, 2012).● Reflexivity: the process of reflecting on personal biases and assumptions (Finlay, 2002).

Chapter 4: Findings

Findings will be presented in a structured way, namely following the empirical research questions. That said, the chapter will begin by analysing the major disruptions that the company faced during the pandemic, which have been clarified throughout the data collection process. The ensuing discussion will primarily focus on the essential particulars pertaining to Fater's collaborative efforts with its supply chain partners during the Covid-19 crisis. Starting from the general approach adopted to ensure SCRes, afterwards contractual and relational governance will be covered more deeply.

4.1 Fater's supply chain disruptions

During the interviews all the managers that were involved felt the need to discuss in detail Fater's supply chain disruptions, so that the following information regarding how collaboration ensured SCRes would have been more thoughtful and structured. The pandemic had a dual impact on the company, manifesting itself through both environmental and business-related perspectives.

As far as environmental disruptions are concerned, these were either regulative or cognitive. Regulative problems mainly depended on the countless restrictions that, especially during the initial stages of the health crisis, governments had been applying. Not only it was a matter of practical constraints following these decisions, but also of keeping up with the huge amount of information coming every day from the countries where either Fater or its partners operated: one of the managers from the distribution's logistics said: *"sometimes it was also a matter of going to receive, or rather going to look for, updates on a day-to-day basis, sometimes on the website of the various countries they were in English, other times in the local language, so cooperation with logistics service providers was crucial in this"*. Rather, cognitive issues are more consciousness-related and stem from the overall complexity characterising the pandemic.

Many business-related disruptions occurred during the pandemic, either. These were either economic or operational and can be considered the most significant from a supply chain perspective. For instance, demand planners highlighted more than once that Fater experienced an unbelievable increase in demand during the pandemic, especially regarding its bleach: *"first of all, the crisis was largely due to increases in demand. In particular, there has been a significant increase in demand for bleach"*. Keeping the demand's trend was somewhat arduous, as there might have been materials'

shortages, logistics' constraints, or closed plants. Table 4.1 reports the main data related to these issues that were identified during the interviews.

Table 4.1 Main disruptions caused by the pandemic		
Regulative issues	Inhomogeneous restrictions	<i>"[...] because restrictions outside the EU were not uniform." (EMEA Physical Distribution Manager)</i>
	Rapidly changing normative prescriptions	<i>"First, we are highly connected with official news sources, the government, etc., because you need to know the rules of the game which rapidly changed" (Senior Buyer)</i>
	Blocks at the customs	<i>"We had difficulties at customs...especially in the case of non-European customs" (EMEA Physical Distribution Manager)</i>
Cognitive issues	Uncertainty	<i>"There was an amazing uncertainty" (Senior Initiative Manager)</i>
	Emergency	<i>"A whole series of suppliers have been introduced, even during the emergency, some of whom may not have been initially qualified" (Senior Initiative Manager)</i>
	Short time to act	<i>"[...] what we did? An immediate reaction" (Demand Planner)</i>
	Anomalies	<i>"Covid brought anomalies in many aspects of Fater's operations" (Distribution Manager)</i>
	Completely changed context	<i>"[...] a chain that completely changed its way of working, a completely changed context" (EMEA Physical Distribution Manager)</i>
	Exogenous events	<i>"That's why I'm telling you, during that specific period, you found yourself dealing with issues that went just beyond us [...]" (EMEA Physical Distribution Manager)</i>
Economic issues	Increase in demand	<i>"First of all, the crisis was largely due to increases in demand. In particular, there has been a significant increase in demand for bleach." (Senior Initiative Manager)</i>
	Less regular sell-out	<i>"Sometimes even in our relationships with customers who placed orders with us... there was a lack of regularity in sell-out." (EMEA Physical Distribution Manager)</i>
	High delivery costs	<i>"The issues were mainly related to [...], higher delivery costs [...]" (EMEA Physical Distribution Manager)</i>
	Prices' volatility	<i>"The energy prices were more volatile [...]" (Materials Buyer)</i>
Operational issues	Materials' shortages	<i>"When the industry restarted, some basic materials that are also used in other sectors were missing" (Materials Buyer)</i>
	Critical items	<i>"This means...production by production, line up by line up we understood which were the critical materials...critical for, let's say, industrial reasons, geographical, supply chain-related" (Senior Initiative Manager)</i>
	Lower availability of means of transportation	<i>"The issues were mainly related to [...], and a relative decrease in the availability of suitable vehicles for loading" (EMEA Physical Distribution Manager)</i>
	Ill carriers	<i>"During the Covid period, you could have, for example, 10 drivers who got sick or had symptoms and couldn't go to load, and therefore there were another 10 who were also in isolation, waiting for a test, who couldn't leave either. It's a difficult problem to solve in such a challenging context" (EMEA Physical Distribution Manager)</i>

4.2 Fater’s supply chain collaboration

What looks crystal clear from data gathered among Fater’s managers is that supply chain collaboration played a crucial role in ensuring SCRes during the pandemic. Fater's extensive network of partners allowed the company to respond to the unprecedented increase in demand experienced by the FMCG industry since March 2020. What emerged is that this is particularly true as regards the upstream segment of the supply chain. Indeed, as previously described, the main operational issues that occurred were related to materials’ shortages. Some items showed critical availability for either industry-related reasons, geographical reasons, or technical reasons. For instance, interviewees underlined that tampons share many raw materials with masks, for which the whole world witnessed an incredible increase in demand during the health crisis: “*Consider that we are a company that produces diapers, absorbents, and those fabrics that you see in these products are in many ways the same ones used for masks*” (Senior Initiative Manager). Consequently, the major challenge consisted in balancing demand with a supply that was globally shrinking, and occasionally even ceasing.

Fater mainly collaborates with suppliers to outsource some materials’ production. Interviews with the “Initiative Manager” and the “Senior Buyer Fabric & Home Care” allowed to understand that there are three cases in which Fater relies on outsourcing strategies: in case of small productions, capital-intensive ones, and specific know-how required. Basically, Fater’s outsourcing strategy is driven by the need to achieve efficiency without putting quality at risk.

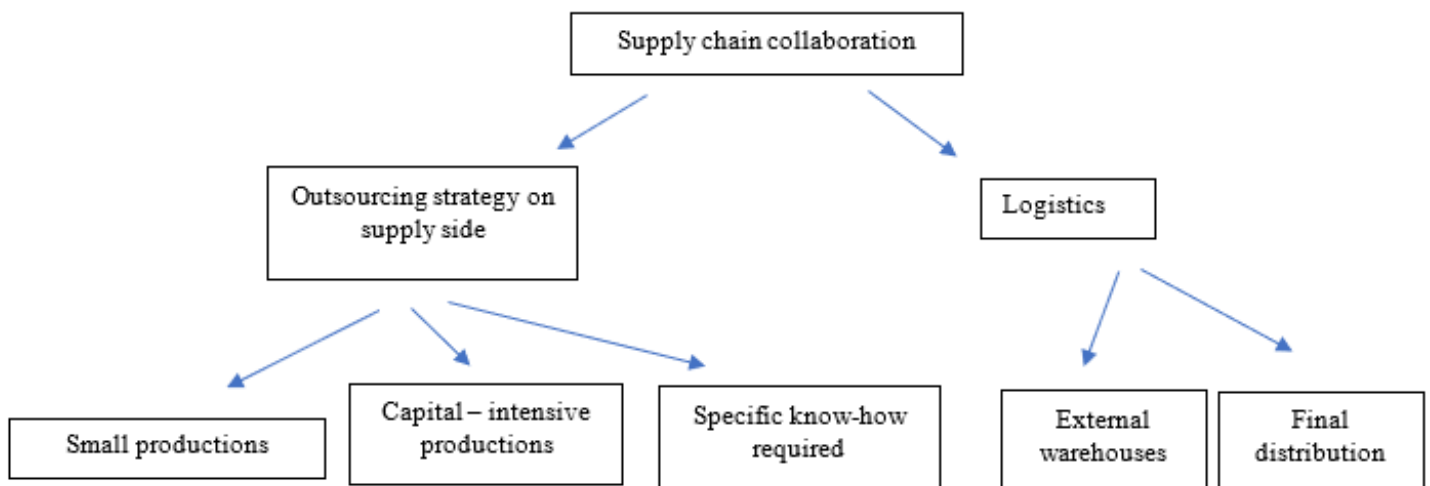


Figure 4.2 Fater’s supply chain collaboration tree

When it comes to logistics, Fater collaborates with 3PL in managing external warehouses, and distributing its final products to customers. Figure 4.2 shows what said, enclosing “Fater’s supply chain collaboration tree”.

To gain an idea of the frequency with which interviewees mentioned collaboration as response to disruptions, it might just be reminded that it was the core category with the highest number of codes, namely 23 out of 125, around 18% of the total. For additional insights, these can be retrieved from Appendix 4.1, which reports the main codes identified during data analysis. *“Dealing with these suppliers has been a key element during the Covid-19 pandemic”*, mentioned the Initiative Senior Manager. Specifically, this has been *“true with suppliers where you have a great bargaining power [...], and I would say to you that we can define this as a great example of collaboration”*. *“All the system was adapting itself to the new rules of the game”*, then *“it was necessary to collaborate more”* (Demand Planner). Another manager told that *“it was a moment in which the only solution was to come closer to both suppliers and partners”*.

One statement which effectively summarizes Fater’s attitude towards supply chain collaboration comes from the Senior Buyer, who reminded what one of his superiors used to say years before. Under circumstances of supply chain disruptions, where materials could be either scarce or inaccessible, collaboration between a focal firm and its partners is put under pressure. Therefore, this manager from procurement told his colleagues: *“ok, reach out to our competitors and see if they have these materials”*. This affirmation is rather “on the edge”, yet it conveys quite successfully to which extent the company relies on collaboration with external partners in order to deal with complex situations like the one caused by the Covid-19 pandemic.

What emerged from the data is that collaboration was essential not only in the relationships between Fater and its suppliers, but also with 3PL as far as logistics is concerned. From this function, interviewees claimed that *“[...] as you see, let’s say, collaboration was paramount on everything, including logistics”*.

Concisely, interviewees have reported many statements that outline the importance supply chain collaboration has for Fater and its partners. This proved to be even more significant when a complex and unpredictable disruption such as the pandemic broke out.

Before delving into how both contractual and relational governance could enable the application of supply chain collaboration to ensure SCRes, it may be valuable to consult the most impactful statements about this aspect that emerged from the interview. Table 4.3 comes to this purpose.

Table 4.3 Main statements emerged about “Supply chain collaboration”	Interviewee
<i>“Dealing with these suppliers has been a key element during the Covid-19 pandemic”</i>	Senior Initiative Manager
<i>“All the system was adapting itself to the new rules of the game, then it was necessary to collaborate more”</i>	Materials Demand Planner
<i>“[...] as you see, let’s say, collaboration was paramount on everything, including logistics”</i>	Physical Distribution Manager
<i>“It was a moment in which the only solution was to come closer to both suppliers and partners”</i>	Final Product Demand Planner
<i>“Supply chain collaboration was fundamental, absolutely, both internally and externally”</i>	Physical Distribution Manager
<i>“It’s been a moment of higher sharing”</i>	Final Product Demand Planner
<i>“All the system adapted itself to the new rules, not only Fater”</i>	Final Product Demand Planner
<i>“It was necessary to collaborate more, to tell things as they truly were”</i>	Final Product Demand Planner
<i>“We completely changed the way of working with external partners, more availability, more transparency”</i>	Final Product Demand planner

4.3 Fater's supply chain resilience

Previously reported findings clearly express the relevance that supply chain collaboration with its partners had for Fater in ensuring SCRes within a context of extreme uncertainty. Both contractual and relational governance were revealed as mechanisms adopted by the company to guarantee its resilience. However, before addressing in more detail each of these and derive the optimal balance between them, it is necessary to frame the general approach that the company had been embracing, both before and during the crisis. Consequently, it will be feasible to recognize more deeply the role played by both governance mechanisms.

First, when talking about SCRes, Fater's managers referred mainly to the so called "Business Continuity Plans" (BCPs), with three types of plans in place: permanent, crisis-mode, and detailed for specific materials.

- A permanent BCP is one which the company had been implementing even before the breakout of the pandemic, with the objective of anticipating potential disruptions, like the one that eventually occurred in 2020.
- A crisis-mode BCP is a general plan expressly formulated to tackle the issues caused by an emergency.
- Detailed BCPs, instead, were those put in place whenever the firm suddenly ran out of specific materials that could be critical for business continuity.

Permanent and crisis mode BCPs result in "backup plans". A Senior Planning Manager described in detail the system adopted by Fater within these BCPs, that is a "traffic lights system". This is grounded on the more general "sourcing strategy" and "plan of commercial initiatives", and categorises outsourced materials in a structured way, as follows:

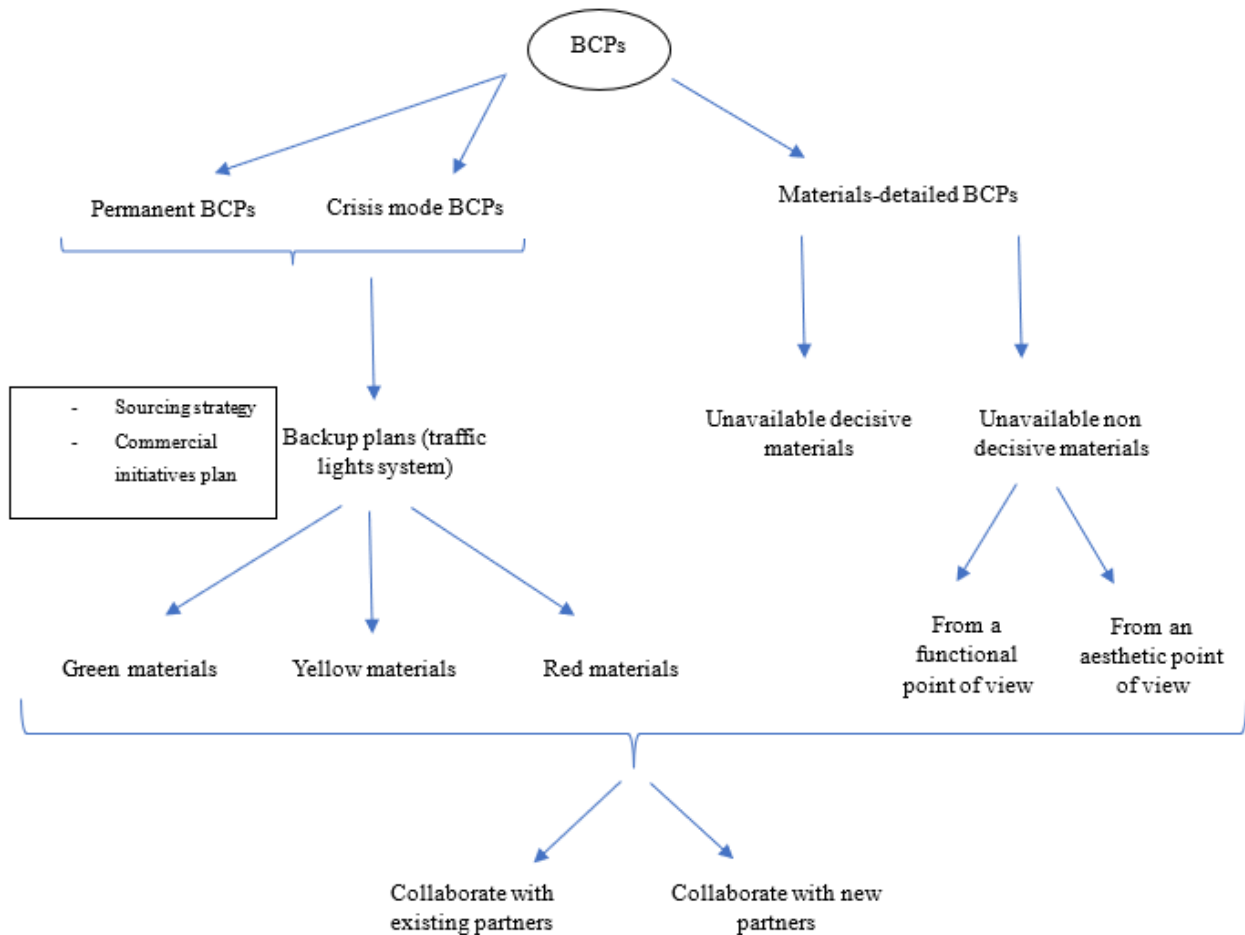
- Green materials: all those materials for which the company has already fulfilled a backup plan with its partners.
- Yellow materials: there is a certain risk of shortages for which Fater should conceive a detailed backup plans that could anticipate supply chain disruptions. In this case the plans are usually short-term oriented and consist in either increasing stocks or looking for spot purchases.
- Red materials: in some instances, there is no room for creating immediate backup plans. The only possibility is to collaboratively work in the long term to check if red materials can be shifted to yellow. This usually requires qualifying alternative suppliers, a long-standing process that has been necessarily shortened and simplified during the pandemic.

Detailed BCPs-wise, these initially sort materials by their current availability. If materials are available, then managers evaluate the possibility of modifying its productive mix in order to guarantee more efficiency for both Fater and its suppliers. As regards unavailable items, instead, these are further classified in:

- Unavailable decisive materials. A typical example is the one of those critical chemical materials that are necessary to create products such as bleach. In this case, Fater resorted to materials' dilution, reducing the percentage of those items within reasonable margins that would not have impacted excessively the performance. Another example consists in the resin's shortages. This is an essential raw material to produce plastic bottles. Therefore, Fater collaboratively worked with its customers to change their usual production mix, thus offering less bottles' sizes.
- Unavailable non decisive (from a functional point of view) materials. For instance, Fater's partners experienced shortages of paper to make packaging. In this case, the company accommodated its suppliers' need by reducing promotional and double packages. This is done at the expense of some service level, thus requiring certain compromises.
- Unavailable non decisive (from an aesthetic point of view) materials. The Senior Buyer Fabric and Home care reported the example of the triggers used for surfaces' disinfectants. These are of different colours according to the type of disinfectant. However, if the company had experienced a lack of, for instance, red triggers, then they would have standardized the products and used the same trigger for different products. Again, this might have been done at a slight expense of final consumers' perception.

Having made it this far, Fater then mapped its current partners' network to evaluate whether it was necessary to collaborate with existing ones ensuring supply chain robustness, or it was preferable to modify it thus adapting to innovative configurations with new partners. This final assessment is the same in which also the more general crisis mode and permanent BCPs result in. Figure 4.4, which resulted from the coding method, display the overall decision-making process described so far and lay the foundations to better understand how contractual and relational governance were employed throughout the course of action from Fater.

Figure 4.4 Fater's decision-making process for supply chain collaboration and materials' mapping



4.4 How Fater ensured resilience with contractual governance

Fater regards contractual mechanisms as an essential, albeit not the primary means of mitigating supply chain disruptions (we will notice that relational governance prevails). Measures of contractual governance emerged from different interviews. The Senior Buyer Fabric & Home Care stated that the company “formally establishes many quality requirements, performance standards, and certifications”. The EMEA Physical Distribution Manager noted that “as for the requirements, these are filtered and standardized upstream before the supplier selection”. Means like the aforementioned ones are codified by Fater and its suppliers in order to ensure the highest possible service level, which can in turn guarantee SCRes. The importance of ensuring availability and quality of products was emphasized repeatedly by the managers, who viewed the company as being service-oriented. Indeed, the “service” code was one of the most recurring, being mentioned 25 times.

An additional measure of contractual governance adopted by Fater consists in a code-of-conduct applied by the company to standardize ethical behaviours between them and their supply chain partners. Fines are contractually established too for instances of non-compliance, but mainly used as deterrent. Indeed, *“generally, you never want to resort to legal aspects because it means you have reached a point of no return... you always try to use more collaborative approaches... what is called “win-win” in jargon, which is the very concept of partnership”* (Demand Planner). The so-called “force majeure clauses” are a further measure of contractual mechanisms that Fater adopts in the relationship with its partners. *“The contract helps because...when companies face force majeure... if a supplier, especially a multinational one, cannot fulfil orders because their capacity has decreased, the first thing they do is to cut those who do not have a contract ...then having a contract with them protects you”* (Buyer). Interestingly, Fater mainly drafts very short contracts. They don’t last more than one year, because *“supply chain partners are frequently questioned, which ensures us they are always up to speed”* (Buyer). Moreover, they are usually extremely flexible, with a margin of 20/30% on the orders that the company regularly place to its suppliers. Orders-wise, the absence of minimum commitment should be remarked too: *“many times, we don’t even establish minimum commitment because we think a more flexible approach can enhance our partnerships”* (Buyer).

The economic crisis prompted Fater to revise some of its contracts. The Senior Buyer claimed that three main elements were added to contracts with supply chain partners to enhance their safeguard function. First, *“the “energy contractual term” has been included in many contracts”* in order to protect against the volatility of energy price. Second, *“” transportation contractual term” has been emphasised”*. Third, Fater and its partners *“made the so called “conversion cost” explicit”*. This represents the total cost incurred by the company to transform raw materials into a finished product, and includes both direct costs, such as labour and materials directly used in production, as well as indirect costs, such as energy and depreciation of equipment. As a result, Fater protected itself from excessive price fluctuations. The following tables summarize the major contractual governance measures and modifications so far presented.

Table 4.5 Fater's main contractual governance measures emerged
Codified quality requirements
Codified performance standards
Certifications
Absence of minimum commitment
Code of conduct
"Force majeure clauses"
Flexible margins on orders
Short contractual agreements

Table 4.6 Fater's main contractual changes occurred after the crisis
The contractual term 'energy' has been added to the contracts in order to protect against the volatility of energy prices
The contractual term "transportation" has been emphasised
"Conversion cost" made explicit

After outlining the key contractual mechanisms employed by Fater, it is pertinent to examine the extent to which these measures were employed to ensure the company's SCRes. Interviews revealed that the company was primarily hesitant in enforcing contracts and applying fines, as they were secondary with respect to other means of ensuring supply chain continuity. Contracts are basically seen as deterrence tools within Fater's supply chain collaborations. The Senior Buyer asserted that: *"having a contract is important, because it protects you from above (as a deterrent), but do not mention it...it is not the main solution [...] If I do it, it will be not even once a year"*. Similarly, *"we will never go to court, and while you are negotiating you never mention the contracts"*. The company prefers to manage external relationships with suppliers in a more lenient and informal manner. Then, contracts are primarily adopted from Fater as deterrents.

Only two ways of proactive contracts' application emerged from the interviews. First, Fater drafted new contractual agreements with additional suppliers to diversify its supply network and reduce risks of shortages. However, given the emergency scenario, the company promoted a much leaner procedure. The qualification of alternative suppliers usually requires much effort and time. Likewise, these new contracts reported more detailed terms regarding energy prices, transportations prices, and conversion cost to protect the firm from high volatility. The qualification on alternative suppliers belongs to one of the main actions adopted by Fater to secure its SCRes, being one of the possible results of the previously described backup plans. Second, the firm guaranteed pre-emption on materials orders from suppliers through contractual agreements. *"When the industry restarted, some basic materials that are also used in other sectors were missing...however, you were a long-standing contracted buyer...the volumes are guaranteed to you"*, the Senior Buyer stated. The Senior Buyer Fabric & Home Care confirmed this approach, that is: when a supplier is unable to confirm all the orders, the first thing consists of excluding whoever does not have codified contractual agreements.

Therefore, Fater relied on both contractual agreements and consolidated partnership to secure pre-emption on items' purchases.

4.5 How Fater ensured resilience with relational governance

Observations from empirical data suggested that relational governance was paramount in enabling Fater enhancing its SCRes during the pandemic. Trust had been the pillars of Fater's long-lasting partnerships strategy, leading the company's attitude towards its governance. Contractual governance mechanisms are merely complementary to relational ones. The words of the EMEA Physical Distribution Manager were emblematic of this approach, as he did not *"see them as alternatives, there's a formalization of relationships at the core, but there are several suppliers that Fater has been working with for years, in some cases for decades... for over ten years, and when people, contacts, and managers are always the same... the relationship that is formed is also a bit more informal"*. *"Just the piece of paper doesn't protect us and the supplier, many times there is trust between the two companies"*, one of the managers highlighted. The complexity that stemmed from the economic crisis enhanced the need for trust, as the Demand Planner stated, *"there were so many new rules of the game, that trust was the most important thing"*.

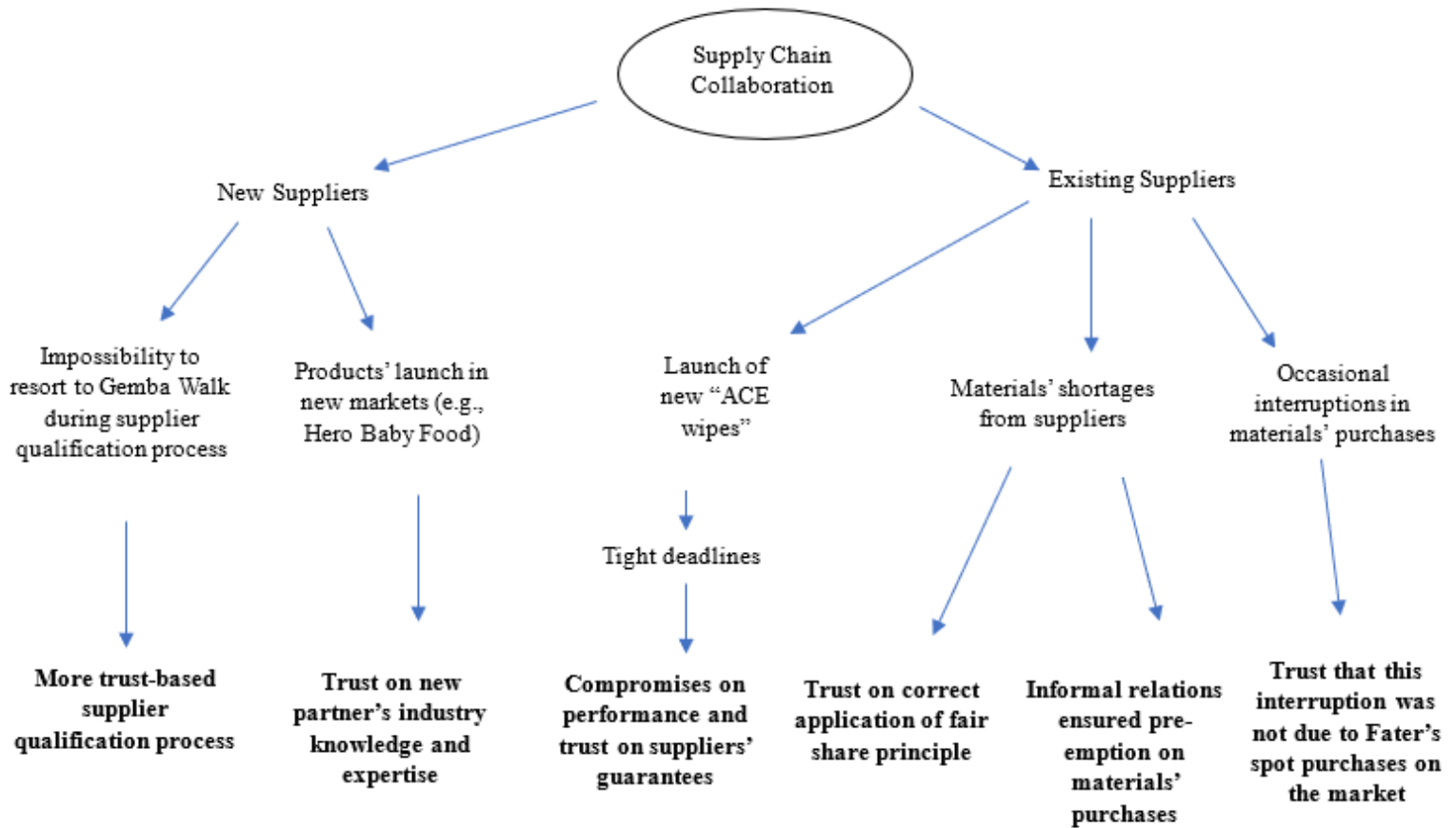
As far as collaboration with new suppliers is concerned, relational governance manifested itself in two aspects. The first aspect pertains to the supplier qualification process. Under normal circumstances, one of the expected steps in this process would include an on-site visit to the supplier's facility to conduct a comprehensive assessment of their operations (Gemba Walk). However, due to the lockdown restrictions during the pandemic, such visits were not feasible, and procurement managers had to rely more on trust-based evaluations: *"You go to visit the suppliers, but not just to take a stroll, but because they are the experts, and often you only see the things to ask when you are with them. During Covid, the physical relationship with suppliers was missing [...], qualifications were more trust-based"*. From this point of view, trust was an enabler of the previously discussed contracts signed with new suppliers. The second aspect relates to a new product category, "Hero baby food" that Fater launched during the pandemic in collaboration with the Spanish firm "Hero". Prior to this, Fater had not offered this type of product to the market, as its knowledge in this area was somewhat limited. In this context, Fater recognized the strategic potential of this new product launch and trusted Hero's expertise in the baby food industry to facilitate its development and production. *"It was the fantasy within the fantasy... launching a new product in a business that was not ours and importing food from Spain... you had to trust their knowledge and capabilities"* (Demand Planner).

To meet the surge in demand, trust was expressed in the relationships with existing partners, either. In addition to the foray into the baby food market with Hero, the company recognized a potential opportunity in the wipes market, fuelled by the surging consumer demand for personal hygiene products. This eventually resulted in the “ACE wipes” launch. The challenges here were largely in line with those posed by Hero baby food. Nevertheless, in this case there were more tight deadlines, as the explosion in demand might have been just temporary. Due to this, Fater leveraged its established partnerships with existing suppliers to capitalize on their capabilities. In order to achieve significant reductions in product development time, the company had to make compromises on its performance and rely on its suppliers' assurances regarding certain features that would otherwise have necessitated direct evaluation from Fater.

Another illustration of trust is evident in situations where Fater's suppliers implemented a fair-share principle to distribute items among their customers. According to Fater's buyers, this was the guiding principle employed by their suppliers to determine the allocation of items during times of scarcity, after the exclusion of those without contractual agreements. Although at times the application of the fair-share principle led Fater to obtain meager quantities, the company refrained from contesting the supplier and instead chose to place trust in them to preserve the partnership. The accuracy of the fair-share principle's implementation could not always be determined with certainty, but Fater chose to prioritize trust over potential conflict. Likewise, Fater's suppliers demonstrated their trust in the company even when it refrained from making purchases, acknowledging that it was an involuntary decision and not a preference for spot purchases in the market.

The informal relations built through years of partnerships was key also in ensuring materials' availability in case of shortages from suppliers. As previously reported, contracts were the first means that protected Fater in these situations, and yet informal personal relations played an important role too. Words from one of the buyers might just be sufficiently reminded: “*During that period, we were able to obtain additional materials beyond those outlined in our contracts thanks to our long-standing, well-established relationships with partners and suppliers. These relationships afforded us priority access to the materials, which was crucial in securing them. Thus, there is a significant qualitative and informal component to this achievement*”. To display the primary relational governance measures emerged in the interviews, a related coding scheme summarising what we discussed so far is presented in Figure 4.7.

Figure 4.7 How Fater ensured SCRes with relational governance



Chapter 5: Discussion

The objective of this chapter is to provide a structured discussion to answer the two empirical questions by comparing theoretical and practical findings previously discussed.

5.1 Collaboration to ensure resilience towards external disruptions

Fater's managers repeatedly underlined that supply chain collaboration was paramount during the pandemic. The company strives to enhance relationships with its partners in order to effectively deal with uncertainty stemming from external disruptions. Findings also showed that Fater interprets collaboration as a means for its customer and service-centred strategy (Fawcett et al., 2008; Simatupang et al., 2004).

It is evident that Fater encountered supply chain disruptions due to external occurrences that were arduous to prevent, being due to the pandemic. Indeed, Fater's case falls within the third disruption category identified by Keller et al. (2021). Moreover, findings revealed that the company faced regulative, cognitive, economic, and operational damages (Tang and Tomlin, 2008). Given the unpredictability of a large-scale event such as the pandemic, the firm's response was inherently reactive in nature. However, Fater's attitude towards building long-lasting relationships with its partners, as well as the permanent BCPs, show that the company had also taken preventive measures to tackle this type of events.

Fater deeply adapted its supply chain, working with current partners as well as with newly contracted ones. This agility is evidenced by the incorporation of new product categories, as well as the streamlined qualification process for new suppliers. Hence, Fater's resilience did not consist in reacting to just bounce back to its original state, but was actually a dynamic approach, one that incorporates ongoing evolution and adaptation (Folke, 2006). The way Fater tried to tackle the pandemic surely aligns with the concept of supply chain agility. We remind that the theoretical review illustrated supply chain resilience can be interpreted in terms of either robustness or agility, additionally interpreted as engineering and social-ecological resilience by Wieland and Durach (2021).

5.2 Ensuring resilience with contractual governance

Fater's case demonstrates the possibility of using contracts just as deterrents in situations of extreme uncertainty, without challenging them. In this way the company guarantees legal protection (Giannoccaro & Pontrandolfo, 2004) and attempts to minimise litigations as far as possible. Indeed, contractual governance mechanisms are protective measures adopted by parties to reduce their exposure to risks, as suggested by scholarly literature (Zhao et al., 2022; Pattison & Herron, 2003; Sen & Mitra, 2000)

Fater's approach to supply chain governance exemplifies an adaptable strategy as regards drafting contractual arrangements. The company employs highly flexible contracts. Short contractual agreements are preferred by Fater in order to continuously challenge its partners and ensure optimal performance. Theory evidenced that to increase the robustness of the supply chain, it is ideal for contracts to cover as many potential scenarios as possible (Tan et al., 2021; Wang et al, 2011; Lumineau & Malhotra, 2011;). Accordingly, Fater's case moves away from that part of the literature. Nevertheless, some contractual terms regarding prices were still enhanced in order to protect the company from high price volatility.

Proactive use of contracts is observed in Fater's onboarding of new suppliers, with such contracts primarily addressing the performance expected from newly contracted partners. Fater's case is then consistent with literature that supports the effectiveness of performance-based contracts in safeguarding the firm when low-frequency, high-impact disruptions occur (Guajardo et al., 2012).

5.3 Ensuring resilience with relational governance

The theoretical background identified that there are four main types of trust, namely calculative trust, competence trust, trust in integrity, and trust in predictability. When examining them, the results stemming from Fater's case study did not provide conclusive evidence for each of them.

No explicit references to calculative trust (Akrouf & Diallo, 2017; Poppo et al., 2016) were detected in the study's findings. However, competence trust (Ghondagsaz & Engesser, 2022; Lui, 2009) was revealed to be present within the trust that Fater had placed in its recently onboarded suppliers, as part of the company's streamlined qualification process. Additionally, Fater's trust in suppliers' integrity (Paluri & Mishal, 2020; Komiak & Benbasat, 2004) is evidenced by the confidence regarding correct application of the fair-share principle when allocating available resources. Lastly,

compromises and trust on guarantees from suppliers regarding products' performance are an example of trust in predictability (Powell et al., 2022; Laeequddin et al., 2010).

However, it was the emergence of strong informal relationships between supply chain partners, which proved to be the most significant theoretical insight that can be extracted from Fater's case. These, put in place with long-lasting collaborators, enabled pre-emption on materials' purchase and ultimately provided a solution to Fater's supply constraints. This was the predominant way in which Fater adopted relational governance to ensure SCRes (Nikookar and Yanadori, 2022; Zaheer et al., 1998; Coleman, 1988; Walker et al., 1997).

5.4 Interaction between contractual and relational governance

The case of Fater supports the complementarity view (Liu et al., 2009; Goo et al., 2009), as evidenced by interviews indicating that both contractual and relational governance mechanisms were adopted to ensure supply chain resilience. However, Fater's approach heavily favours the application of trust, with contracts perceived as a protective tool that is not actively preferred for legal action. Partners within the supply chain are aware of contracts' existence and tend to respect them almost unconsciously, but legal solutions are rarely pursued in favour of informal trust-based relationships to address issues (Nikookar and Yanadori, 2022). These ensured Fater's SCRes by enabling supply chain agility, in the form of a more efficient and fast permanent adaptation of the supply chain itself (Erol et al., 2010; Datta et al., 2007). New suppliers, as well as new product categories, were introduced in a streamlined way thanks to the trust that partners placed in each other. Existing suppliers-wise, instead, SCRes was achieved by leveraging informal relationships to obtain pre-emption on materials' purchases.

This approach leaning towards relational governance was mainly attributed to the high uncertainty caused by external disruptions such as the COVID-19 pandemic. Fater's long-standing partnerships proved valuable in this scenario since they enabled faster, leaner interventions. This insight aligns with the compensating logic emerged from the literature (Gulati et al., 2010; Adler et al., 1996; Handfield and Bechtel, 2002). The latter suggests using contracts for predictable events and relational governance for unforeseeable situations. At the same time, also the enabling logic (Horgan and Mühlau, 2006; Dyer and Chu, 2003) found many confirmations. For instance, trust played a critical role in the execution of contracts with recently onboarded suppliers, who were integrated rapidly and without adherence to the customary, meticulous procedures. Instead, Fater has been relying on its capacity to cultivate long-lasting informal and trust-based partnerships.

Chapter 6: Conclusions

6.1 To summarise

“How should **collaboration between supply chain’s partners**, in the form of contractual and relational governance, ensure **supply chain resilience in the face of external disruptions?**”

The premise underlying the conclusion of this study is that in the case of Fater a situation of extreme uncertainty occurred due to exogenous events. This necessitated a more flexible reliance on supply chain collaboration, with respect to both contractual and relational governance mechanisms.

Contractual governance mechanisms were adopted by Fater through different ways. First, contracts were utilized as deterrence tools. Basically, Fater did not want to go to litigation, as this would have been a costly and time-consuming process, not advisable in case of critical circumstances. Nevertheless, some specific contractual means arise from empirical findings, as well as specific changes implemented just after the crisis. First, codified standards, codes of conduct and quality requirements were employed to guarantee suppliers’ performance. Second, “force majeure clauses” protected against unprecedented events’ consequences. Third, Fater’s contractual arrangements were usually short and flexible, so that suppliers could be continuously challenged. Finally, the company implemented either new or reinforced contractual terms, that is “energy “, “transportation”, and “conversion cost” terms, to protect from price volatility.

As far as relational governance is concerned, this was paramount in contributing to SCRes. Fater heavily relied on it to collaborate with both existing and new partners. Informal relations that the company had been building were leveraged to guarantee pre-emption on materials’ purchases in case of shortages within suppliers’ stocks. Trust played a pivotal role also in safeguarding business relationships whenever tensions could put them at risk. For instance, trust was essential in acknowledging that purchases’ interruptions were not indicative of Fater seeking spot purchases from the market. Similarly, trust in the correct application of the fair-share principle avoided potential litigations. Furthermore, trust was key in enabling a streamlined onboarding process for new suppliers, as well as for the launch of new products for which Fater had to make some compromises on performance and trust suppliers’ knowledge and expertise, so that development time could be reduced drastically. Taking everything into account, Fater heavily adapted its supply chain, providing an empirical instance for supply chain agility.

6.2 Theoretical implications

The present research enabled an enrichment of the existing literature through a cross-sectional, retrospective case study at Fater S.p.A. Being focused on the pandemic as an instance of external disruption, this study contributed to the literature regarding Covid-19 and its implications towards companies. Specifically, it expanded the theoretical background by examining the proactive and powerful response of a company, Fater, to the challenges posed by the pandemic, going beyond mere mitigation of negative effects. Munir et al. (2020) reported the need for this type of research. More in depth, this study contributes to the part of literature regarding the FMCG industry. The case of Fater exemplifies the immense complexity of this industry, which amplifies the difficulties encountered during unpredictable disruptive events. The importance of supply chain collaboration emerges as a decisive factor in effectively managing such situations.

As mentioned at the beginning, additional empirical research was required to gain insights about the appropriate balance between contractual and relational governance mechanisms in the face of external disruptions. Fater's case study supports the view of complementarity between these mechanisms and highlights the preference for a significant reliance on relational governance.

Finally, the results of this study are generalizable to a certain extent. It is reasonable to assert that they can be extended to FMCG companies that unexpectedly encounter similar disruptions witnessed by Fater during the pandemic, including increased demand, supply constraints, and price volatility.

6.3 Managerial implications

Managerial implications of the present study can be derived from its practical novelty, which is the following. In case of external disruptions, firms might believe that conservative solutions would be preferable. Actually, Fater's case study demonstrated that proactively adapting the supply chain with the launch on new products, the identification of new product mixes, and the introduction of new suppliers may be an effective solution. In doing so, supply chain collaboration plays a pivotal role. In particular, the flexibility guaranteed by relational governance mechanism is crucial as long as the complexity increases. Relational governance is also a great enabler of contractual solutions, then a complementary approach would be ideal.

Contractual governance mechanisms may be just utilized as deterrence tools, pushing partners towards compliance with their clauses almost inadvertently. Challenging the contract may not be

preferable in case of extremely critical and uncertain situations, then. Furthermore, contractual terms relating to prices may be revised and enforced to mitigate the impact of market volatility. In addressing supply constraints resulting from external disruptions, contracts serve as a primary means of guaranteeing pre-emption on items' purchases. New contracts may also be employed to qualify additional suppliers, thereby enhancing the diversification of the supply chain. Providing additional contractual terms to protect from price volatility is highly recommended, either.

Even relational governance may have many applications, which are sometimes also enablers of previously summarised contractual means. For instance, trust could enable swift contract execution with newly onboarded suppliers and promote experimentation with existing suppliers, leading to the introduction of new product mixes and launches of innovative products. Compromises on products' performance might be another solution for SCRes, then. Finally, after contracts' provisions, informal long-lasting relations may further guarantee pre-emption on items' purchases in case of shortages. Managers ought to establish close relationships with their partners to develop enduring informal connections that would be vital in the event of external disruptions. Based on our study, when confronted with extreme uncertainty, it is not advisable to resort to challenging contracts. Instead, it is more advantageous to engage in collaborative efforts that foster innovative and flexible adaptations of the entire supply chain.

Taking all the evidence into account, it is recommended to apply the two governance mechanisms in a complementary way, with relational governance being primary, and enabler of contractual one.

6.4 Limitations

This study has certain limitations that should be appointed. First, the number of interviews conducted was relatively low. Fater has an international presence and is part of a colossus company like P&G. Consequently, the magnitude of the organisation itself would require achieving as many points of view as possible regarding the analysed topic.

Additionally, it is worth noting that this study solely relies on the viewpoint of Fater's managers and does not account for the perspective of its partners. Incorporating such insights could potentially lead to varying data interpretation.

A third limitation is associated with the time dimension, which has not been directly appointed. It might be argued that conducting this study on a two-level time horizon, that is analysing both short and long-term perspectives, could result in divergent results.

Lastly, the study omitted considering contextual factors that could have moderated the relationship between variables. These could have been, for instance, features of either the partners or the environment.

6.5 Future research

Some paths for future research can be identified, also considering the work's limitations. To obtain a more comprehensive understanding through data collection, it would be first recommended to increase the sample size, interviewing as many managers as possible. Fifteen should be a sufficient number. Furthermore, methodology could be enriched with other types of approaches. As a suggestion, system dynamics could enable a mathematical modelling study with scenarios analysis.

Second, conducting a comparative analysis among different supply chain partners may be another interesting path. Indeed, research would benefit from a more comprehensive understanding of the matter at hand. These additional studies could assess whether findings associated with a focal firm are in line with those related to its respective partners. The research may also be extended to the supply chain's downstream segment.

Third, another suggestion would be to address both short- and long-term effectiveness of governance mechanisms, having been claimed as part of the current work's limitations.

Finally, more studies concerning contextual factors are required. This research expanded the knowledge about contractual and relational governance, but may contextual factors affect the way supply chain resilience can be ensured by them? Partners' organizational size, geographical location, and cultural aspects are some elements that could be taken into consideration.

Appendices

Appendix 3.1 Interviews’ participants, length and date

Interviewees’ role	Length	Date
Senior Initiative Manager	00:23:04	10/03/2023
Senior Initiative Manager	00:20:00	11/04/2023
Senior Initiative Manager	00:19:37	11/04/2023
EMEA Physical Distribution Manager	00:26:18	05/04/2023
Senior Buyer Fabric & Home Care	00:35:00	13/03/2023
Product Demand Planner	1:03:06	06/04/2023
Materials Demand Planner	00:45:01	06/04/2023
Distribution Manager	00:18:50	05/04/2023
Materials Buyer	00:31:02	12/04/2023
Senior Buyer	00:50:44	06/04/2023

Appendix 3.2 Interview protocol

INTRODUCTION

- Request to register the conversation and self-presentation.
- Explanation of the research project.
- “Could you tell me more about your role at Fater? What is your position and what are your responsibilities?”

DISCUSSION ABOUT COVID-19 CRISIS

- “How did Covid-19 impact Fater as far as your role is concerned? What were the consequences faced by the supply chain?”
- “How did the crisis enhance the level of uncertainty throughout the supply chain?”
- “To which extent was the crisis related to supply? To which extent, instead, was it related to changes in demand?”
- “Did Fater bounce back to its original supply chain configuration after the “lessons” learnt from the crisis (supply chain robustness)?”

- “Did Fater change the configuration of its supply chain after the “lessons” learnt from the crisis (supply chain agility)?”

SUPPLY CHAIN COLLABORATION: CONTRACTUAL GOVERNANCE

- “To which extent did Fater employ its contractual agreements to safeguard against risks related to the crisis?”
- “Have contracts with supply chain partners been revised after the pandemic?”
- “Which, if any, minimum requirements do Fater establish with its partners through contractual agreements?”

SUPPLY CHAIN COLLABORATION: RELATIONAL GOVERNANCE

- “Were informal relationships with supply chain partners put at risk during the crisis? Or, instead, were they seen as a means against disruption?”
- “To which extent did Fater rely on informal and uncodified relationships with its partners during the crisis?”
- “To which extent did Fater rely on trust toward its partners during the crisis?”
- “Has the crisis reinforced or weakened the trust relationships between Fater and its partners?”

Appendix 3.3 Interview’s transcription (Senior Buyer, 06/04/2023)

[...]

SENIOR BUYER: You never go to litigation, and while you are negotiating you never challenge contracts. Personally, if I do, it's not even once a year, not even.

INTERVIEWEE: It's not the first thing you think of....

SENIOR BUYER: It depends on the type of business you have, if your company is a “brand company” and your goal is that there is product on the shelf and that the product is of quality...you work to create relationships...and you're not looking for the penny to be saved. So, you prefer a stable, quality supply, and only as a third point is price...there are hidden costs in quality defects or delivery delays, so you don't just rely on the €/kilo, €/piece, but you have to look at the “total cost” organisation. When you think of the buyer, of the world of purchasing, you think of the classic reality in which you go into the shop with your wallet and the salespeople throw themselves at you... this is

not always true in the industry because you think that the players you talk to are multinationals that invoice 60/70 times more than you do... with these it is a little more difficult to build a relationship of trust... because the managers change from time to time... but how can you build this relationship: in any market situation, if you have an agreement, which can be verbal, by mail... not necessarily a contract, but I confirm that there are contracts... if you in all market situations, whether the supplier is more or less competitive, you have guaranteed a supply over the years, so you have always ordered and respected what was agreed more or less, when the times come when the market is short, as with Covid (so much demand and so little supply), it is obvious that you go to prefer the historical partners. If a supplier, especially a multinational, is unable to guarantee orders because capacity has been reduced, the first thing they do is cut those who do not have a contract, telling the spot buyers 'look, I'm not selling to you because right now I'm in force majeure'...those who have the contract are guaranteed a 'fair share'... that is, if you used to buy me 100 but I now have 70 of availability I will give you, pro quota, 70. So the contract was important, having the agreement, in those cases where the suppliers declared force majeure, which by the way is also regulated by law [...]. If you ask me, did you appeal to contracts during Covid? No, a few times, but it is the importance of having a contract, but never citing it. When the industry broke down, some basic materials that are also used in other sectors were missing...you were however a historical buyer, contracted...volumes are guaranteed. Contracts are always there, but how do we work? We work by building partnerships, which you build in this way...buying, doing...but a computer could also do this job...it's not just that, there is so much relationship. You go and see the suppliers, but not to go for a health walk, but because they are the experts and very often you only see the things to ask when you are with them. During the covid the physical relationship with the suppliers was lacking, but thanks to a historicity we had we did not miss a delivery [...] Fater always delivered, yes always...did the suppliers respect the agreements? More or less all...because what do you have to have there? you have to have the flexibility you mentioned to me, you build your own flexibility as a buyer. By flexibility we mean "Business Continuity Plan"... that is, of a material I will never have a single supplier but I diversify the risk ... but what does it mean: I imagine the supplier A, the historical one, from which I buy from always and I will give him certain volumes (80/90 %), contracted, and then I will have suppliers B and C where I always maintain the connections ... I will lose money on the table because in general for the economies of scale to give the volumes to a single player saves me money...this is not always true of course because maybe a supplier who buys me 80% of the volumes...but during the year you move the allocations around, in the end he will always make me 80% but there will be a month when he only supplies me 40%...because opportunities open up. You have to have these continuity plans and you don't simply create them with...OK I know there's this other material...I'll call him when I

need him...you know you leave money on the table and you pay a little bit more to have this guarantee...We learnt during Covid that maybe it was better to leave even more money on the table...I pay "x supplier" more but I make the guarantee...I make the brand, for me it's more dangerous not to deliver products to the customer, not to sell rather than to spend something more on the product. Instead, just imagine...whoever is purely a trader...so he buys and resells, buys and resells... yes, he must always have the product available, but at a certain point he has to worry about his marginality...the marginality of the trader...I am exaggerating...8%?...so he will never reason...OK, to guarantee a supply I spend a little more...while we, who work with brands, focus on this thing. But that's because... we said, guys, we had some tense situations, so we risked not delivering the product to the market... if we want to do that, we have to take risks away...to take risks away we have to spend x euros more to have other alternatives. So there was more openness on the part of the organisation to see this, because before Covid you only cared, if you saw the purchasing part, about the total cost and you never thought about possible disruptions because in the previous decade there were never any major supply problems... so if you say to me "are you buying at the lowest price?" the answer is no..."is your total cost of ownership lower?" maybe yes...because I have less risks.

INTERVIEWEE: What has Covid impacted on the most for what you deal with?

SENIOR BUYER: Look I'll tell you, covid was simply an amplifier of what the agreements were like...the supplies...if a supply was clear, stable and worked well it worked well that time too, if one creaked it continued to creak. So, the uncertainty was there at that time...I won't deny you that at one point you were with your phone trader style looking for volumes left and right...because there was a rush to the shelves, the houses were full of products...everyone wanted to stock...if you see the balance sheets of FMCG companies during the covid they spiked. The big tension is in that, that my volumes exploded. [...] What changed...in those supplies that weren't strong before, where there wasn't a strong relationship...I mean you know what I'll tell you about "there wasn't a strong relationship"? I didn't know the name of the owner, I didn't know him, and I had never seen him, that's what makes the difference.

INTERVIEWEE: Even going there in presence helps a lot, right?

SENIOR BUYER: Believe me, I was the first and the last of Fater to leave...it was me, to guarantee the supplies, and I tell you...to show up physically...during the covid with all the mess...I also went to Eindhoven that's why I remember it well...I come here and I tell you we have a problem... and I was obliged because before there was not a strong relationship behind, you had to build it...but since before you didn't care because it was a very long market where there was no need...at that moment there was and I tell you, since you built it in a moment of difficulty, you built it badly, and in fact the

effect now you still see it. So when you talk about building relationships you see the buyer travels, the buyer is always at the supplier, to do that you have to learn new things, to learn new things means to see the new technology evolving and ask yourself "ok, can you use this technology within my business? because I would be interested", why not think that everything is available on a handout and it's all clear in the industry.

INTERVIEWEE: No of course, then I guess going there in the presence is useful to better understand collaboratively what aspects of the supply chain need to be improved to ensure the supply...

SENIOR BUYER: Exactly...

[...]

INTERVIEWEE: To which extent did Fater employ its contractual agreements to safeguard against risks related to the crisis? What about more informal relationships?

SENIOR BUYER: In the case of shortages...suppliers give you the volumes first because there are contracts behind us...but if these are not sufficient because, for instance, shortages go beyond these...then we rely on our informal long-lasting relationships...that is, because we did not respect the contracts because we were asking for more... the contracts have an availability of 20/30% of the volumes... when I ask for 100, it's a different matter... so this is very important... no contract will ever protect you from this amount of variance and we have never thought of reviewing the contracts and having 200% of the capacity available, because you pay for the capacity, if you want to ensure it. You will never get the supplier you have a relationship with to say...look this year you have not fulfilled my agreements...if you explain to them "look it's because I didn't sell, not because I went and bought spot".

INTERVIEWEE: so, you always try to create a collaborative, more lenient relationship, don't you?

SENIOR BUYER: You always try to create a collaborative relationship, absolutely yes, because the benefit is that when there is an urgency I know that I can call my supplier on Saturday night and he gives me what I need on Sunday, but because when he needed something and there was a common good for both companies...that is, you have to think that I am a professional who works to protect the assets of Fater, I have to manage the lowest cost of ownership for the company...if the lowest total cost means at some time having to pay more for a material to a supplier who is in crisis, is in difficulty...he has badly closed an energy contract and so his prices are going up more than the others...it's easy to say "ok I'll leave you and then I'll come back", then you've lost that relationship...at that moment one...the flow is that you make this extra cost explicit, you make it known to the organisation while you know it will be worth it in the future...while some organisations work very

much in turnover in the position like mine, so the goals are different. My goal is to do the best for this company for the next 10 to 20 years, obviously also working on today, if you imagine a person who only cares about two years, he will do his best for the next two years, which can create tears in the fourth year, some organisations work this way. Fater has a different approach, because its size also makes you work with both multinationals and family companies.

INTERVIEWEE: Have contracts been changed as a result of Covid?

SENIOR BUYER: There has been either an implementation or enforcement of some clauses to protect us especially from price volatility. I am talking about the energy price, transportation, and conversion cost contractual terms.

INTERVIEWEE: While have they been challenged?

SENIOR BUYER: Never challenged, rarely but it happens once a year to say: 'we have a contract you have to respect it', but there you are already on the tear. Because even with those you have partnerships, the relationship is not always linear...there are moments when there are strong tensions and strong tears that you leave the table where you were sitting, and instead moments...so it's not always friends...there are really ups and downs.

INTERVIEWEE: To what extent do you think trust in supplier relations played a key role in managing the crisis?

SENIOR BUYER: Fundamental...but you have to think that the flexibility was not only on the supply side, it was also as a buyer...sometimes it happened that we had to accept materials that we had never tested, but the supplier assured us that it would work and we did a lot of material qualification in just few days, so you know what changed on the Fater side? What changed was the speed of adaptation, that was key. If the market suggested you move and use another material, up until the pre-covid Fater would take years to test it, because in any case the market was always guaranteed, you would put the shelf product on, but now that there was a risk...do I put it on or not? The whole innovation machine had stopped at that time, all the R&D was supporting the supply chain, if I lack material A but I have material B, which is very similar, test it and qualify it. The shelf product can never be missing...like...a quote we always use here in the company...15 years ago a material was missing, and the old general manager said: "ok, go to our competitors and ask if they have it"...at this level...it must not be missing, it must be there.

INTERVIEWEE: Was the relationship between partners put under pressure?

SENIOR BUYER: Absolutely yes but as I said, where it was strong it remained strong, where it was weak it became even weaker. The covid strengthened the stable relationships and revealed the weak relationships for what they were...you don't have to imagine the covid just as...everything was closed, all the factories closed, lack of product...you have to see the post covid...an increase in prices, yes ok the energy crisis and whatever else but well before that this price increase had started, energy increased in July 21...but some materials had already gone very short in April because there was the unbalance of the containers...did we have to change the contracts to manage the higher prices? Yes, because transport had absurd impacts...so you had to move, modify the supply chain...instead of buying in China, it was convenient to buy in Europe some materials...so I changed my strategy, instead of buying worldwide, it was 1 year, 1 and a half, actually 2 years...I am buying exclusively in Europe. And what did the Europeans do? Because they knew that it cost too much to ship from China and therefore in Europe the prices went up...that's the dynamics of the market exactly, now because transport has increased the prices have to go down in Europe because streams and streams of products arrive from the Far East. So, you ask me if there have been changes? Between 21-22 there was a change of a supply that was no longer global, but because of transport it was local, European...so you had to reduce transport as much as possible, the next problem was that energy had gone up so much...so you had a trade-off between European producer with skyrocketing energy costs or do I go and buy from Asian where energy remained low, but transport is high but going down? The trade-offs have been these. Contracts have been changed...yes, because for example the energy item has been included in many contracts and by inserting the transport item separately, sharper [...] When you buy a material you buy with three distinctions: raw, packaging and the converting cost, where there is the supplier's margin, the cost of the workers, the energy, the depreciation of the machines...its box. To define the cost of a product you need to know these three components. Raw and pack are the ones that vary, because the prices of oil, plastic vary. paper varies... these are the basic commodities ... as the commodities vary you adjust the prices of raw and pack... and many agreements are quoted like this... "if the price of oil goes up x, the price of packaging goes up y"... the converting, because you had an energy price that was more or less fixed, it was not made explicit...because of Covid, the much more volatile energy price, the contracts had to be modified and inserted... "the cost of converting varies according to how the euro megawatt price changes", so that was the change that was inserted.

[...]

Appendix 4.1 Codes emerged from the interviews

SUPPLY CHAIN COLLABORATION		
#	code	times
1	Enhancing relationships	4
2	Small suppliers highly dependent on Fater	4
3	Huge suppliers	4
4	Business continuity plans (BCPs)	4
5	Building a partnership	3
6	Collaboration for small productions	2
7	Collaboration for capital intensive productions	2
8	Rare spot market	2
9	"Bridge plans"	1
10	3PL	1
11	External warehouses	1
12	Transportation companies	1
13	Knowledge about others' expectations	1
14	Long lasting partnerships (logistics)	1
15	External collaboration	1
16	Flexibility in managing relationships	1
17	Helping suppliers' standardizing processes	1
18	Win-win relationship	1
19	Economic relevance towards partners	1
20	Plans with R&D	1
21	Small suppliers	1
22	Systemic planning of the supply chain	1
23	Systemic level approach	1

SCRes		
#	code	times
1	Qualification of suppliers	5
2	Launch of ACE wipes	3
3	Creating new products' versions	2
4	Permanent BCPs	1
5	Changing bill of materials	1
6	Creating new product categories	1
7	More structured BCPs	1
8	High speed of new ACE wipes' development	1
9	Productive continuity	1
10	Equipment backups	1
11	Flexibility	1
12	Higher availability of materials (from new suppliers)	1
13	Commercial initiatives	1
14	Traffic light analysis	1
15	Materials' backups	1

CONTRACTUAL GOVERNANCE		
#	code	times
1	Resistance towards challenging the contracts	4
2	Resistance towards fees' application	3
3	Contracts' flexibility	2
4	No changes of the contracts during the pandemic	2
5	Quality standards	2
6	Resistance towards contractual definitions	2
7	Code of conduct	1
8	Compliance	1
9	Frozen zones	1
10	Knowledge about expectations (codified)	1
11	Limitations of contracts	1
12	Majeure force's clause	1
13	Mandatory delivery windows	1
14	Norms regulating transports	1
15	Performance standards	1
16	Pre-established volumes	1
17	Reliance on norms regulating transports	1
18	Very brief contracts	1

RELATIONAL GOVERNANCE		
#	code	times
1	Trust	17
2	Compromises	7
3	Flexibility	2
4	Absence of contractual minimum commitments	2
5	Standardizing the requests to the partners	2
6	Turbulent relationships (trust is needed)	1
7	Qualification of new materials in few days	1
8	Acceptance of materials never tested (but assured by the partners)	1
9	Knowledge about expectations (uncodified)	1
10	Knowledge about suppliers	1
11	Priority on the purchases	1
12	Orders compensated based on weekly forecasts	1
13	Putting under stress the suppliers (requires trust to maintain the relationship)	1
14	Fast decision-making process	1
15	Simplification of the qualification process	1
16	Recognizing partners' difficulties	1
17	Impossibility to recover to Gemba Walk	1

SUPPLY CHAIN ROBUSTNESS		
#	code	times
1	Fair share principle	2
2	Priority on materials' purchase	2
3	Suppliers' striking off customers without contracts	2
4	Diversification of supplies with current partners	1
5	Preference of closer partners (geography)	1
6	Intermodal transportation	1
7	Protection of current supply chain	1
8	Continuing with current partners (logistics)	1
9	"Second level buying"	1
10	Relying on current distribution partners	1

SUPPLY CHAIN AGILITY		
#	code	times
1	Qualification of new suppliers	4
2	Flexibility	4
3	Adaptability	3
4	Reformulation of chemical products	2
5	ACE wipes' project	2
6	Changing productive mix	2
7	Systemic level approach	1
8	Change management	1
9	New masks' project	1
10	Local supply	1

SUPPLY CHAIN DISRUPTIONS		
#	code	times
1	Increase in demand	4
2	Completely changed context	3
3	Limited availability of materials	3
4	Different regulations	3
5	Uncertainty	2
6	Emergency	1
7	Lower availability of means of transportation	1
8	Critical items (supply chain technical reasons)	1
9	Interruption within suppliers' plants	1
10	Ill carriers	1
11	Critical items (geographical reasons)	1
12	Transportation issues with China	1
13	Critical items (industry-related reasons)	1
14	Short time to act	1
15	Anomalies	1
16	Less regular sell-out	1
17	Blocks at the customs	1
18	Higher delivery costs	1
19	Prices' volatility	1

OTHER		
#	code	times
1	Internal collaboration	6
2	Added value	5
3	High service level	4
4	Margins	3
5	Value creation	3
6	New markets' profitability	2
7	Internal production	1
8	Economies of scale	1
9	Exploitation of the crisis	1
10	Production's line efficiency	1
11	Consumer noticeable actions	1
12	Consumer non noticeable actions	1
13	Total cost of ownership	1

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Summary

Abstract

Scholars and practitioners widely acknowledge the benefits that companies can derive from engaging in supply chain collaboration. In particular, analysed through the perspective of governance mechanisms such as contractual and relational governance, collaboration can be leveraged, for instance, to ensure supply chain resilience in the face of external disruptions. The Covid-19 pandemic has particularly emphasized the criticality of collaboration among supply chain partners. However, literature highlights the necessity for more empirical insights on how both contractual and relational governance can contribute to resilience, as well as the optimal balance to be achieved between them. The following study is aimed at enriching this knowledge through a cross-sectional, retrospective case study held at the Italian fast-moving consumer goods (FMCG) company “Fater S.p.A.” with a qualitative, inductive approach based on primary data. Findings revealed that, conversely to the conventional passive response aimed at minimising damages, companies can leverage collaboration to behave in a proactive way, adapting the supply chain through many initiatives.

Introduction

Disruptive events affect companies in many ways, from deteriorating their reputation to causing operational damages (Altay & Ramirez, 2010). The Covid-19 pandemic is a recent event that has been highly challenging many firms throughout the world. Whenever these disruptions occur within the external environment, the challenge consists in ensuring the right level of Supply Chain Resilience (SCRes). This has been defined by Tukamuhabwa et al. (2015) as “the adaptive capability of a supply chain to prepare for and/or respond to disruptions, to make a timely and cost-effective recovery, and therefore progress to a post-disruption state of operations – ideally, a better state than prior to the disruption”. Literature review will highlight that SCRes can be interpreted in the form of either robustness, or agility. Robustness refers to the ability to bounce back to the initial state of the system, almost like an engineering one. Instead, agility refers to adapting the system in a proactive way, thus moving towards a new, desired system’s equilibrium.

Supply chain collaboration has been addressed as a key element in ensuring SCRes. As defined by Cao et al. (2010), supply chain collaboration is “two or more autonomous firms that form long-term

relationships and work closely to plan and execute supply chain operations toward common goals, thereby achieving more benefits than acting independently”. A major classification adopted by the literature to better frame the concept of collaboration involves making a difference between contractual and relational governance (Poppo & Zenger, 2002; Bonatto et al., 2020).

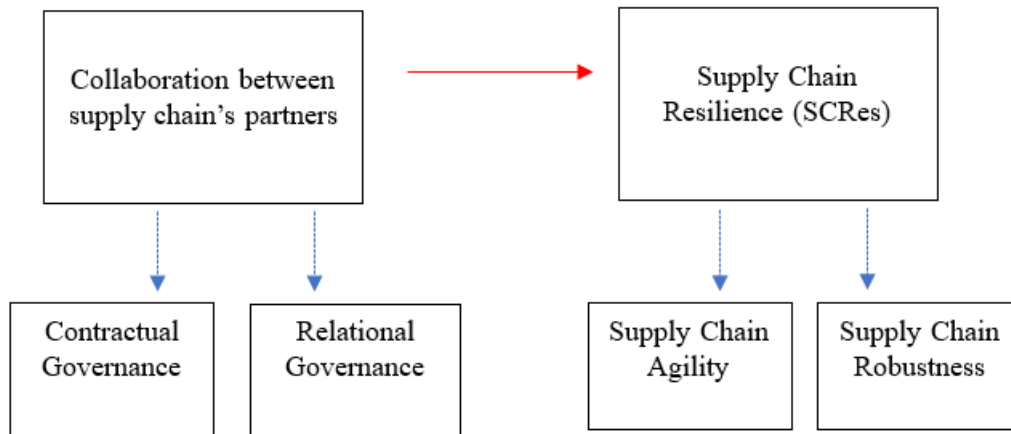
Contractual governance is grounded on Transaction Cost Theory (Williamson, 1987) and refers to contracts signed between trading partners. The object of these stems from the possibility of incurring in opportunism and conflict.

Relational governance is based on Social Exchange Theory (Emerson, 1976) and refers to elements such as trust, solidarity, and information sharing. The goal of relational governance is to build an enduring collaboration between parties by reducing the application of authoritative relationships intended at minimising opportunism (Cai et al., 2009).

From the theoretical background a need for more empirical insights about how collaboration should enable SCRes through the right balance between contractual and relational governance under circumstances of external disruptions arise. The aim of this research was to fill the previously identified gap through a case study at “Fater S.p.A.”. This is an Italian company belonging to the fast-moving consumer goods (FMGG) industry. It was founded in 1958 and it is a joint venture between “Procter & Gamble” (P&G) and the pharmaceutical group “Angelini Industries”. The company’s product portfolio is composed of 5 different brands, and each of them corresponds to a specific type of product manufactured: menstrual pads, tampons, laundry and household detergents, diapers, food products for infants’ weaning. After the pandemic outbreak, Fater faced a rather difficult period in which its supply chain’s resilience was put under pressure. Since people began to stay continuously at home, this led to the increase of some products’ demand from consumers, especially personal care and household products. In the case of Fater, the company witnessed higher demand for its bleach and tampons. Nonetheless, intermittent supply shortages in the upstream segment of the supply chain posed challenges to maintaining optimal inventory levels. The consequence was that the company was not completely able to meet its customers’ demand, and this resulted in a loss of potential profits. This situation made the company aware of the need to leverage collaboration with both existing and new partners, so that challenges created by these types of disruption could be tackled promptly.

The problem statement of the work, its conceptual model and related research questions have been defined as follows: “How does **collaboration between supply chain’s partners**, in the form of contractual and relational governance, contributes to **supply chain resilience in the face of external disruptions?**”

Figure 1.2 Conceptual model



Theoretical RQs:

1. What are supply chain disruptions and supply chain resilience?
2. What are supply chain collaboration and its main antecedents?
3. How does supply chain collaboration, in the form of contractual governance, impact supply chain resilience?
4. How does supply chain collaboration, in the form of relational governance, impact supply chain resilience?

Empirical RQs:

5. Which supply chain disruptions did Fater experience during the pandemic and what did they do to ensure supply chain resilience?
6. What was the significance of supply chain collaboration in ensuring supply chain resilience for Fater?
7. How did Fater leverage supply chain collaboration, in the form of contractual governance, to ensure supply chain resilience?
8. How did Fater leverage supply chain collaboration, in the form of relational governance, to ensure supply chain resilience?

Literature Review

Supply chain collaboration

Companies have been progressively moving towards a paradigm based on collaborative solutions to meet customers' needs. The existing literature provides many definitions of supply chain collaboration, which differ in terms of their main focal point. By inspecting them, we argue that this may consist of either the cooperation itself, the firms' customers, or a combination of them.

As regards the first solution, Kampstra et al. (2006) have stated that supply chain collaborators are "financially independent entities that try to get the dependent parts of the chain to play together". The same line of interpretation, namely grounded on the cooperation itself, can be found among the work of Cao and Zhang (2011).

Then, there are some authors who provide more customer-centred definitions. Among them, Simatupang et al. (2004) deal with "a cooperative strategy of supply chain partners with a common goal of serving customers through integrated solutions for lowering cost and increasing revenue".

Governance mechanisms

Contractual governance is based on Transaction Cost Theory (Williamson, 1987) and refers to codified arrangements signed between trading partners. Formal contracts, in particular, are arrangements through which two or more parties codify obligations to carry out particular actions (Mac-neil, 1978). Some scholars (Tan et al., 2021; Wang et al, 2011) have also highlighted the main factors related to contractual governance. These can be summarised in the following: the application of written documentation, the development of an arrangement regarding how parties want to share risks and benefits, the specification of each party's specific responsibilities, and the specification of the time period that will be covered by the relationship between parties.

Conversely, relational governance is based on Social Exchange Theory (Emerson, 1976) and refers to elements such as trust, solidarity, and information sharing. The goal of relational governance is to build an enduring collaboration between parties by reducing the application of authoritative relationships intended at minimising opportunism (Cai et al., 2009). Trust is the major principle of relational governance and can be applied to a wide variety of contexts, including individuals, social groups, teams, companies and industries (Lewicki & Bunker, 1996).

Four main types of trust have been identified from the literature. First, “calculative trust” entails the application of an approach to relational governance that is grounded on the consideration of payoffs, as suggested by game theory (Akrouf & Diallo, 2017; Poppo et al., 2016). Second, “competence trust” consists in defining the parties’ competences, thus determining the tasks that are going to perform respectively (Ghondagsaz & Engesser, 2022; Lui, 2009). Third, “trust in integrity” involves confidence that the trustee acts in good faith and thrives through the principles of loyalty and consistency. (Paluri & Mishal, 2020; Komiak & Benbasat, 2004). Lastly, “trust in predictability” may be considered the other side to the coin of trust in integrity. In particular, acquiring the trustor’s perspective, it touches upon the belief that activities carried out by the trustee are consistent to the extent that it will be possible to predict future actions with accuracy (Powell et al., 2022; Laeequddin et al., 2010).

As regards interaction between these two governance mechanisms, two main perspectives have been identified from existing literature. The “complementarity view” is based on the proposition that applying forms of one type of governance increases the expected benefits of relying also on the other one (Liu et al., 2009). Conversely, supporters of the “substitutive view” claim that applying forms of one type of governance reduces the expected benefits of relying also on the other one (Lui & Ngo, 2004).

Supply chain resilience towards disruptions

Supply chain disruptions can be defined as “random events that cause a supplier or other element of the supply chain to stop functioning, either completely or partially, for a (typically random) amount of time” (Snyder et al., 2016). The literature regarding this topic is rather wide, due to countless potential determinants of disruptions. As an attempt to better define the outline of this theoretical field, some scholars have been differentiating forms of disruptions in inter-organizational relationships based on the triggering events. Among them, Keller et al. (2021) specify that disruptions can stem from four possible circumstances. First, internal events that are directly related to the collaborative relationship, but at the very beginning go beyond its agreed scope. Second, internal events that are directly related to the collaborative relationship and concern its agreed scope since the beginning. Third, external occurrences that may not depend on the firm’s actual capabilities of preventing them (the situation faced by Fater within the context of the pandemic perfectly suits this case).

When we narrow down our centre of attention to SCRes, a variety of definitions arise from the literature. First, some scholars refer to it as the capacity of a supply chain to be stable and solid whenever disruptions occur, that is “supply chain robustness”. Christopher and Rutherford (2004) state that “resilience is the ability of a system to return to its original state after being disturbed”. A further school of thought widens the span of SCRes by implementing references to elements such as flexibility, adjustment, ability to adapt and commute. In this respect, it is stated as “supply chain agility”. According to Datta et al. (2007), for instance, “SCRes is not just the ability to recover from mishaps, but is a proactive, structured and integrated exploration of capabilities within the supply chain to cope with unforeseen events”.

Analysis of existing literature led to state that both governance mechanisms contribute to SCRes through four main ways, as displayed in the following figures. On one hand, contractual governance allows for allocating risks and responsibilities, guaranteeing legal protection, monitoring performance, and aligning interests (Tan et al., 2021; Wang et al, 2011). On the other hand, relational governance ensures trust-based decision-making, flexibility and adaptability, information sharing, and loyalty (Nikookar and Yanadori, 2022; Waler et al., 1997; Burt, 1993). The following figure summarise the major ways through which governance mechanisms contribute to SCRes.

Figure 2.4 How contractual governance impacts SCRes

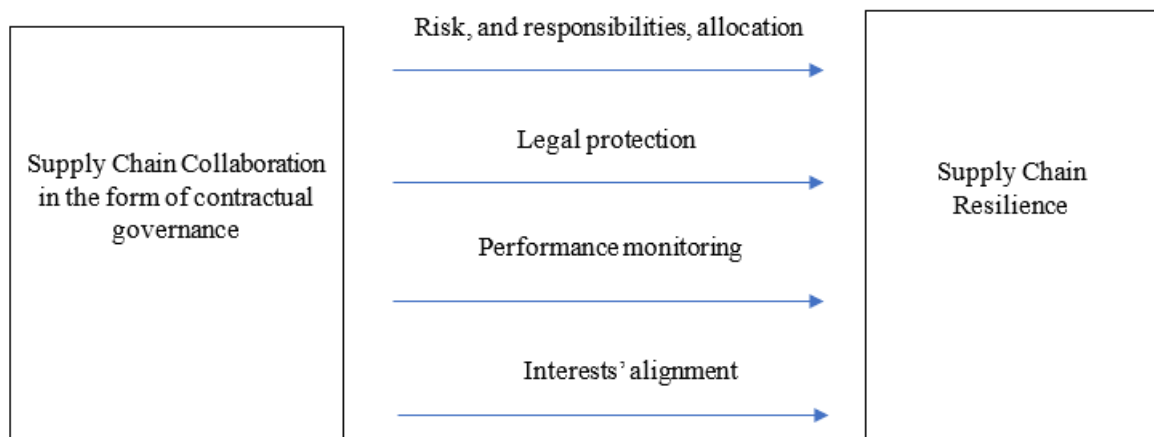
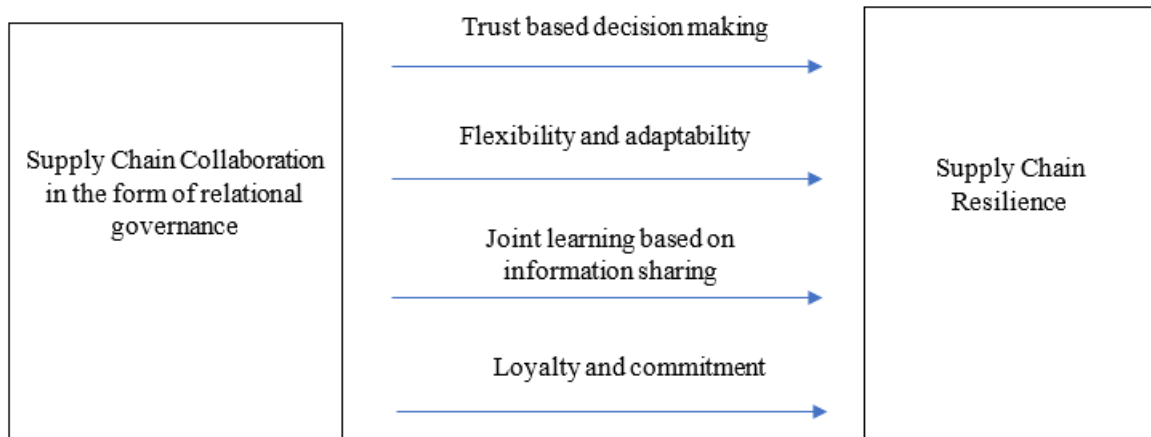


Figure 2.5 How relational governance impacts SCRes



Methodology

The applied methodology consisted in a cross-sectional, retrospective case study through a qualitative, inductive approach based on primary data. Having selected the specific case of Fater S.p.A., two data sources have been identified. Some data arose from introductory meetings with Fater’s managers aimed at discussing the project behind the present study and being informed about their support to the research. However, the predominant primary data source consisted in semi-structured interviews. Appendix 3.2 contains an interview protocol, which is intended to provide a cue about the interviews’ body. Additionally, Appendix 3.3 presents the transcription of one of the conducted interviews. Should further examination of the interviews be required, the remaining transcripts can be obtained upon request. Collected data then has been analysed through three cycles of “coding”, namely open, axial, and selective coding.

Findings

From the interviews it clearly emerged that **supply chain collaboration was paramount** to guarantee Fater’s SCRes. *“Dealing with these suppliers has been a key element during the Covid-19 pandemic”*, mentioned the Initiative Senior Manager. Specifically, this has been *“true with suppliers where you have a great bargaining power [...], and I would say to you that we can define this as a great example of collaboration”*. *“All the system was adapting itself to the new rules of the game”*, then *“it was necessary to collaborate more”* (Demand Planner). Another manager told that *“it was a moment in which the only solution was to come closer to both suppliers and partners”*. When talking

about SCRes, Fater's managers referred mainly to the so called "Business Continuity Plans" (BCPs), with three types in place: permanent, crisis-mode, and detailed BCPs for specific materials.

Both contractual and relational governance have played a role in guaranteeing supply chain resilience. In particular, Fater regards contractual mechanisms as an essential, albeit not the primary means of mitigating supply chain disruptions (we will notice that relational governance prevails). The Senior Buyer Fabric & Home Care stated that the company "*formally establishes many quality requirements, performance standards, and certifications*". Fines are contractually established too for instances of non-compliance, but **mainly used as deterrent**. Indeed, "*generally, you never want to resort to legal aspects because it means you have reached a point of no return... you always try to use more collaborative approaches... what is called "win-win" in jargon, which is the very concept of partnership*" (Demand Planner). Interestingly, Fater mainly drafts very **short and flexible contracts**. The economic crisis also prompted Fater to revise some of its contracts. The Senior Buyer claimed that three main elements were added to contracts with supply chain partners to enhance their safeguard function. First, "*the "energy contractual term" has been included in many contracts*" in order to protect against the volatility of energy price. Second, "*transportation contractual term" has been emphasised*". Third, Fater and its partners "*made the so called "conversion cost" explicit*".

Relational governance-wise, managers claimed that **trust** was paramount in enabling Fater enhancing its SCRes during the pandemic. As far as collaboration with **new suppliers** is concerned, relational governance manifested itself in two aspects. The first aspect pertains to the supplier qualification process. Under normal circumstances, one of the expected steps in this process would include an on-site visit to the supplier's facility to conduct a comprehensive assessment of their operations (Gemba Walk). However, due to the lockdown restrictions during the pandemic, such visits were not feasible, and procurement managers had to rely more on **trust-based evaluations**: "*You go to visit the suppliers, but not just to take a stroll, but because they are the experts, and often you only see the things to ask when you are with them. During Covid, the physical relationship with suppliers was missing [...], qualifications were more trust-based*". Similarly, launching the new product "Hero baby food" in collaboration with a Spanish company, Fater showed trust in their industry knowledge and capabilities. Indeed, never had Fater produced baby food before the pandemic.

Fater highly leveraged also established partnerships with **existing suppliers** to capitalize on their capabilities. For instance, the company was successful in launching a new product, that is the "ACE wipes" in the midst of the pandemic. In order to achieve significant reductions in product development time, the company had to make **compromises on its performance** and rely on its

suppliers' assurances regarding certain features that would otherwise have necessitated direct evaluation from Fater. Another illustration of trust is evident in situations where Fater's suppliers implemented a **fair-share principle** to distribute items among their customers. **Informal relations** built through years of partnerships were key also in ensuring materials' availability in case of shortages from suppliers, as these favoured long-lasting partnerships (like the one with Fater).

Discussion

It is evident that Fater encountered supply chain disruptions due to external occurrences that were arduous to prevent, being due to the pandemic. Indeed, Fater's case falls within the third disruption category identified by Keller et al. (2021). Fater deeply adapted its supply chain, working with current partners as well as with newly contracted ones. This agility is evidenced by the incorporation of new product categories, as well as the streamlined qualification process for new suppliers. Hence, Fater's resilience did not consist in reacting to just bounce back to its original state, but was actually a dynamic approach, one that incorporates ongoing evolution and adaptation (Folke, 2006). The way Fater tried to tackle the pandemic surely aligns with the concept of **supply chain agility**, as opposed to supply chain robustness.

Theory evidenced that it is ideal for contracts to cover as many potential scenarios as possible (Tan et al., 2021; Wang et al., 2011; Lumineau & Malhotra, 2011). Fater's approach to supply chain governance demonstrates a more **adaptable strategy**. The company employs **highly flexible contracts**. **Short contractual agreements** are preferred by Fater in order to continuously challenge its partners and ensure optimal performance. Nevertheless, some contractual terms regarding prices were enhanced in order to protect the company from high volatility. Furthermore, Fater's case is consistent with literature that supports the effectiveness of **performance-based contracts** in safeguarding the firm when low-frequency, high-impact disruptions occur (Guajardo et al., 2012).

As regards relational governance, the case study provided empirical evidence to three out of four trust types identified from the literature, that is competence trust, trust in integrity, and trust in predictability. Nevertheless, it was the emergence of **strong informal relationships** between supply chain partners, which proved to be the most noteworthy theoretical insight that found evidence within Fater's case. From this point of view, our case study reflects what emerged from the literature (Nikookar and Yanadori, 2022; Zaheer et al., 1998; Coleman, 1988; Walker et al., 1997).

The case of Fater supports the **complementarity view** (Liu et al., 2009; Goo et al., 2009), as evidenced by interviews indicating that both contractual and relational governance mechanisms were

adopted to ensure supply chain resilience. However, Fater's approach **heavily favours the application of trust**, with contracts perceived as **deterrence tool** that is not actively preferred for legal action.

Conclusion

“How should **collaboration between supply chain’s partners**, in the form of contractual and relational governance, ensure **supply chain resilience in the face of external disruptions**?”

Contractual governance mechanisms may be just utilized as deterrence tools, pushing partners towards compliance with their clauses almost inadvertently. Challenging the contract may not be preferable in case of extremely critical and uncertain situations, then. Furthermore, contractual terms relating to prices may be revised and enforced to mitigate the impact of market volatility. New contracts may also be employed to qualify additional suppliers, thereby enhancing the diversification of the supply chain.

Even relational governance may have many applications, which are sometimes also enablers of previously summarised contractual means. For instance, trust could enable swift contract execution with newly onboarded suppliers and promotes experimentation with existing suppliers, leading to the introduction of new product mixes and launches of innovative products. Compromises on products’ performance might be another solution for SCRes, then. Finally, informal long-lasting relations may further guarantee pre-emption on items’ purchases in case of shortages.

Taking all the evidence into account, the two governance mechanisms should be applied in a complementary way, with relational governance being primary, and enabler of contractual one.

Theoretical and managerial implications

The present research expanded the theoretical background by examining the proactive and powerful response of a company, Fater, to the challenges posed by the pandemic, going beyond mere mitigation of negative effects. As mentioned at the beginning, additional empirical research was required to gain insights about the appropriate balance between contractual and relational governance mechanisms in the face of external disruptions. Fater’s case study supports the view of complementarity between these mechanisms and highlights the preference for a significant reliance on relational governance.

Finally, the results of this study are generalizable to a certain extent. It is reasonable to assert that they can be extended to FMCG companies that unexpectedly encounter similar disruptions witnessed by Fater during the pandemic, including increased demand, supply constraints, and price volatility.

Managerial implications of the present study can be derived from its practical novelty, which is the following. In case of external disruptions, firms might believe that conservative solutions would be preferable. Actually, Fater's case study demonstrated that proactively adapting the supply chain with the launch on new products, the identification of new product mixes, and the introduction of new suppliers may be an effective solution. In doing so, supply chain collaboration plays a pivotal role. In particular, the flexibility guaranteed by relational governance mechanism is crucial as long as the complexity increases. Relational governance is also a great enabler of contractual solutions, then a complementary approach would be ideal.

Limitations and future research

This study has certain limitations that should be appointed. First, the number of interviews conducted was relatively low. Additionally, it is worth noting that it solely relies on the viewpoint of Fater's managers and does not account for the perspective of its partners. A third limitation is associated with the time dimension, which has not been directly appointed. Lastly, the study omitted considering contextual factors that could have affected the relationship between variables.

Based on the limitations, some suggestions for future research can be provided. To obtain a more comprehensive understanding through data collection, it would be first recommended to increase the sample size, interviewing as many managers as possible. Second, conducting a comparative analysis among different supply chain partners may be an additional interesting path. Third, another suggestion would be to address both short- and long-term effectiveness of governance mechanisms. Finally, partners' organizational size, geographical location, and cultural aspects are some elements that could be taken into consideration as contextual factors to study in the way they could moderate how collaboration contributes to supply chain resilience.