Horizontal supplier-supplier coopetition in supply networks: Formation, Performance, and Measurement

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List of Abbreviations

BSS	Buyer-Supplier-Supplier
BT	Balance Theory
fsQCA	Fuzzy-set Qualitative Comparative Analysis
RDT	Resource Dependence Theory
SET	Social Exchange Theory

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1. Introduction

Throughout the last few decades, firms have faced numerous challenges, including globalisation, rapid digitalisation, rising sustainability requirements, more frequent supply chain disruptions, and, recently, increasing geopolitical uncertainty (Choi et al., 2002; Moradlou et al., 2021; Sodhi & Tang, 2021; Wilhelm et al., 2016). Consequently, supply networks are becoming more complex, dispersed, interconnected, and vulnerable to volatility, making it impossible for firms to operate in isolation (Ateş & Luzzini, 2024; Franke et al., 2024; Moradlou et al., 2024). As firms cannot produce all required components or services internally, they rely on multiple suppliers (Mena et al., 2013). This has given rise to a growing number of horizontal supplier-supplier relationships, where firms at the same tier in a supply chain interact directly with each other. These relationships frequently combine elements of cooperation and competition—commonly referred to as "coopetition" (Nalebuff & Brandenburger, 1996)—as suppliers may share resources, technology, or capacity while simultaneously competing for market shares. As global supply networks expand and interdependencies deepen, understanding how these horizontal relationships function and how they can be managed to balance cooperation with competition is essential for ensuring operational performance and resilience against disruptions in an increasingly volatile business environment.

Coopetition can be a crucial enabler for enhancing performance, innovation, and resilience (Park et al., 2014; Potter & Paulraj, 2020; Shi et al., 2014), offering benefits to supply network members in these areas (Bengtsson & Raza-Ullah, 2016; Xie et al., 2023). At the same time, coopetition is inherently paradoxical, creating tensions between value creation and appropriation, knowledge sharing and protection of competitive advantages, and collaboration and opportunism (Gnyawali & Ryan-Charleton, 2018; Raza-Ullah et al., 2014; Wilhelm & Sydow, 2018). Toyota's supply network, for example, has been and still is widely studied as a benchmark of cooperative supply network management (Dyer & Nobeoka, 2000; Nishiguchi & Beaudet, 1998; Potter & Paulraj, 2020; Potter & Wilhelm, 2020), yet even they have faced issues with collusion scandals among key Japanese suppliers (Bunkley, 2012), illustrating the double-edged nature of coopetition for buyers. Accordingly, understanding and managing both the structural and behavioural aspects of these paradoxical tensions is essential for successful coopetition in supply networks (Ketchen et al., 2004; Wilhelm, 2011; Wilhelm & Sydow, 2018).

Network relationships have been widely studied in interfirm contexts, often focusing on vertical buyer-supplier relationships, yet horizontal supplier-supplier relationships in supply networks remain underexplored (Chiambaretto & Dumez, 2016; Lazzarini et al., 2008; Marques et al., 2020). Horizontal supplier-supplier relationships can be particularly exposed to paradoxical tensions, as buyers can intensify competition and influence network relationships to their own benefit (Choi & Wu, 2009c; Madhavan et al., 2004; Wilhelm, 2011). In this regard, the triad is highly relevant as the smallest unit of the network, allowing us to observe how one node of the network (e.g., the buyer) can affect another node (e.g., the supplier) and one link between two nodes (e.g., the buyer-supplier relationship) can affect another link (e.g., the supplier-supplier relationship) (Choi & Wu, 2009b, 2009a). Building on the transitivity of triads (Madhavan et al., 2004), studies have used triads to draw network-level inferences about relationships and performance within the network (Swierczek, 2019; Swierczek & Szozda, 2024). Furthermore, scholars conceptualised distinct triadic archetypes and relational dynamics rooted in socio-psychological theories (Bastl et al., 2013; Choi & Wu, 2009c).

However, from a behavioural perspective, we still lack a network-level understanding of when suppliers from the same tier choose to cooperate and how these coopetitive relationships in a buyer-supplier-supplier (BSS) triad translate to supplier performance. Within a buyer's supply network, suppliers form coopetitive relationships by coordinating and exchanging information and resources to sustain production while competing for contracts and order volume simultaneously (Pathak et al., 2014; Wu et al., 2010). The performance implication of these interactions, however, remains inconclusive, with studies suggesting a positive (Bouncken & Fredrich, 2012; Crick & Crick, 2021b), a negative (Durach et al., 2020; Wu et al., 2010) or an inverted U-shaped relationship (Crick & Crick, 2021a). Although evidence links horizontal supplier-supplier coopetition to improved innovation and resilience, its effects on suppliers' operational performance, as received by the buyer, remain unclear (Durach et al., 2020; Le Roy & Czakon, 2016; Xie et al., 2023). These dynamics cannot be fully explained by structural or contractual governance mechanisms alone. The perceptions and behaviours of both buyers and suppliers influence how relationships develop (Czakon et al., 2020; Nair et al., 2018; Schorsch et al., 2017). These behaviours often coincide in coopetitive relationships. For example, trust and vigilance, as well as open communication and knowledge protection, often go hand in hand (Gnyawali & Ryan-Charleton, 2018; Raza-Ullah et al., 2014). This gap highlights the need for further research into how horizontal supplier-supplier coopetition is formed and impacts performance in supply networks, as well as how its contradictory and

paradoxical nature can be accurately reflected in the measurement of these relationships in networks.

The inconclusive findings of prior works can likely be attributed to two reasons: First, the dominance of dyadic perspectives that overlook how perceptions of the focal buyer's and the competing supplier's behaviours shape the behaviour and decisions within the triad. Second, coopetition measures that do not adequately capture the interplay of the paradoxical forces of cooperation and competition. Therefore, the objective of this dissertation is to develop a triadic, network-level, behavioural explanation of horizontal supplier-supplier coopetition by integrating perceptions of behaviours with structural configurations and by developing construct measures that reflect the core dimensions of coopetition. Accordingly, the guiding research question of this dissertation is: *How do perceptions of supply network relationships influence the formation of horizontal supplier-supplier coopetition and its performance implications, and how can coopetition be measured in a way that adequately captures its paradoxical nature?*

To address the first half of the research question, manuscripts 1 and 2 investigate BSS triads, treating horizontal supplier-supplier coopetition as a social exchange (Blau, 1964; Emerson, 1976; Homans, 1958) between two competing suppliers within a common buyer's supply network. Manuscript 1 focuses on the supplier and employs social exchange theory (SET) to explain how the supplier's perceptions of distributive, procedural, informational, and interpersonal justice (Colquitt & Rodell, 2011; Liu et al., 2012; Narasimhan et al., 2013) influence their willingness to cooperate with the competing supplier. Resource dependence theory (RDT) (Pfeffer & Salancik, 2003) is used to complement SET as a fundamental feature of relationships in a BSS triad. For example, the level of dependence of the supplier on other network members may shape their reaction to justice perceptions, enabling or inhibiting coopetition. The research uses two sequential studies, employing a mixed-methods design. The first study uses a fuzzy-set Qualitative Comparative Analysis (fsQCA) (Ragin, 2008) to identify configurations of justice dimensions and dependencies that lead to cooperative supplier-supplier relationships. The second study employs quasi-experiments and regression analysis to examine the impact of justice dimensions under varying dependency relationships. The regression analysis is complemented by qualitative data from participants, who offer a rationale for their decisions. FsQCA reveals that interpersonal justice from both the buyer and the competing supplier is a core condition for suppliers' willingness to coopete. The experiments show that the other three justice dimensions, particularly from competing suppliers, significantly increase supplier willingness to cooperate. The thematic analysis

indicates that coopetition is often a response to imbalances, considering fairness, trust and reputation risks.

Manuscript 2 moves from the antecedents of coopetition to the outcomes. In manuscript 2, balance theory (BT) (Heider, 1944, 1946) provides a framework to explain how network members strive to minimise cognitive tensions and categorise configurations of buyer-supplier and supplier-supplier relationships in terms of their stability and performance. SET provides the framework for investigating why firms exhibit high or lower performance and adjust or dissolve their relationships. The study employs a mixed-methods design, using fsQCA to identify high- and low-performance configurations. It finds that high-performing suppliers are typically found in triads characterised by close buyer-supplier relationships and competitive supplier-supplier relationships. Utilising process tracing, it illustrates how supplier engagement, monitoring, and control can enhance competition between suppliers and lead to improved performance for buyers.

Addressing the second part of the research question, Manuscript 3 employs Paradox Theory (Lewis, 2000; Lewis & Smith, 2014), viewing cooperation and competition as interdependent yet contradictory logics of coopetition that must be measured separately and analysed in combination. This perspective motivates the development of separate validated measures based on the core dimensions of coopetition. To this end, the study employed a sequential, multi-phased, mixed-methods approach. (1) a review-of-reviews to identify the dominant coopetition dimensions; (2) a literature synthesis based on Qualitative Comparative Analysis (El Sherif et al., 2024; Onwuegbuzie & Weinbaum, 2017) to identify core cooperative and competitive conditions; (3) item generation and refinement via content analysis, expert interviews, and structured Q-sorting to secure face/content validity; and (4) a field validation and replication to test psychometric properties and demonstrate utility in an established empirical setting. The resulting scale aims to align the operationalisation with the paradoxical nature of coopetition and enable a more precise and nuanced understanding of the balance between cooperation and competition.

This dissertation aimed to contribute to coopetition literature and advance the configurational approach in supply network research. Taken together, the three manuscripts advance theory, methods and practice by extending the behavioural aspects of interactions in supply networks (Schorsch et al., 2017), by applying configurational methods, acknowledging the causal complexity and equifinality of interorganisational relationships (Ketchen et al., 2022) and by proposing validated measurement scales that reflect the paradoxical nature of coopetition (Wilhelm & Sydow, 2018). In doing so, the dissertation advances the understanding

of when suppliers intend to coopete by viewing coopetition from a behavioural perspective and identifying perceptions of the behaviours that lead to coopetition. It explains the varying performance implications of coopetition by linking distinct triadic configurations to buyer-perceived supplier performance. It offers a possible resolution to the fragmented operationalisation of horizontal supplier-supplier coopetition. It addresses prior inconclusive findings by providing a scale that allows for the development of different configurations of the interplay between cooperation and competition in coopetitive relationships.

In the remainder of this dissertation, Chapter 2 provides an overview of the literature on triads, coopetition, and behavioural perspectives in operations and supply chain research. Chapter 3 outlines the research agenda and presents an overview of the applied methods and the three manuscripts. Chapters 4, 5 and 6 present the three empirical studies. Chapter 7 presents a comprehensive discussion of the studies, critically evaluating their contributions, limitations, and potential avenues for future research. Finally, Chapter 8 concludes the dissertation.

2. Literature Review

2.1. The triad and horizontal supplier-supplier coopetition

2.1.1. The Triad

Early studies on supply chain relationships primarily focus on the buyer-supplier dyad, examining governance, trust, commitment, and performance to offer insights into how the buyer-supplier relationship shapes outcomes (Cannon & Perreault, 1999; Ganesan, 1994; Heide & Miner, 1992). While this stream of literature is foundational and still highly valuable to supply chains, providing essential insights into relational dynamics (Dubois, 2009), the dyadic focus also overlooks the indirect influences in supply networks. For example, how a buyer's treatment of suppliers affects other relationships (Choi et al., 2002; Lazzarini et al., 2008), or how behaviours and capabilities developed in one dyad spillover to other relationships in the network (Mesquita et al., 2008; Ried et al., 2023). Therefore, a purely dyadic perspective may struggle to explain empirical findings when other network relationships influence behaviours in the network (Choi & Wu, 2009b).

A triad represents the smallest unit of a network that captures these indirect effects and dependencies (Choi & Wu, 2009b; Swierczek & Szozda, 2024). Notably, in a BSS triad, buyers can often influence cooperation and competition within the supplier-supplier relationship (Choi & Wu, 2009a; Madhavan et al., 2004; Wu & Choi, 2005). Choi and Wu (2009c) conceptualise triadic archetypes to explain how buyer-supplier and supplier-supplier relationships may influence each other, and how these relationships influence triads to align or dissolve. Broadly, triadic structures are transitive, in which competitive and cooperative relationships influence the flow of information and the use of power (Bastl et al., 2013; Madhavan et al., 2004). Relationships within the triad influence governance, performance, and the stability of the triad (Broekhuis & Scholten, 2018; Swierczek & Szozda, 2024; Wilhelm, 2011). In short, a triadic (and, by extension, network) lens is necessary when competing suppliers in a BSS triad interact under a common buyer, because it allows for observing the indirect interactions and mechanisms that drive outcomes.

In terms of investigating triads, BT (Heider, 1944, 1946) provides a framework for understanding triadic configurations, their stability and evolution. Originating in socio-psychology and graph theory, BT posits that certain configurations of positive/negative relationships in a triad are balanced and thus stable, whereas others are susceptible to tensions and change (Cartwright & Harary, 1956; Heider, 1946). Davis (1963, 1967) formalised how

balance conditions shape equilibrium in larger structures, such as organisations. Applied to supply networks (Choi & Wu, 2009c; Madhavan et al., 2004; Mena et al., 2013), BT suggests that the buyer-supplier and supplier-supplier relationships will condition interactions and outcomes. Further research demonstrates how balance and imbalance in triads impact opportunism and power, coordination costs, and ultimately, supplier and buyer outcomes (Zou & Wang, 2022). In the context of horizontal supplier-supplier coopetition, BT complements behavioural perspectives by allowing for predictions of when cooperation between competitors will stabilise or dissolve triads, given the ties to the buyer, thereby motivating theorising and analysis sensitive to different configurations of relationships that lead to these outcomes.

Therefore, the move beyond dyads to triads enables research to consider the dynamics of different factors at various levels of the triad, both vertically between the supplier and buyer, and horizontally among the suppliers. Furthermore, studies on the archetypes of triadic configurations illustrate how structural aspects, such as powerful buyer positions, often interact with behavioural aspects as suppliers calculate their costs and benefits of responding to behaviours and relationships in the triad (Bastl et al., 2013; Choi & Wu, 2009c; Wu & Choi, 2005). Therefore, different configurations of relational factors may lead to the same outcome, while other outcomes may only appear when specific combinations of factors are present. This complexity also requires methodological approaches that can address the equifinality and causal complexity of outcomes in triadic relationships (Karatzas et al., 2016; Ketchen et al., 2022). Triads, as a fundamental, transient, and adaptive unit of supply networks, are crucial for valid insights into the interactions in triads (Choi et al., 2001; Choi & Wu, 2009b; Madhavan & Gnyawali, 2004).

In summary, using the triad as the smallest unit enables us to capture the buyer's influence on supplier relationships and how behaviours within the triad influence other relationships in the triad. This perspective allows us to infer that not a single dyadic relationship leads to higher performance, but rather a specific configuration of relationships. At the same time, behaviours within the triad are relevant, as they are part of the considerations suppliers take when deciding whether to cooperate with competing suppliers. Therefore, a focus on dyadic relationships systematically neglects the interactions between relationships in supply networks.

2.1.2. Horizontal supplier-supplier coopetition

The term "coopetition" was coined by Nalebuff and Brandenburger (1996) and refers to the strategy of interfirm relationships in which firms simultaneously engage in competitive and cooperative activities (Bengtsson & Kock, 2000). In practice, leading companies utilise

coopetition to secure market access, accelerate innovation, and expedite product development (Brandenburger & Nalebuff, 2021). Reflecting this managerial relevance, scholarly attention to coopetition has expanded across various fields, including strategic management (Hannah & Eisenhardt, 2018; Lundgren-Henriksson & Kock, 2016), marketing management (Lacoste, 2012; Rodrigues et al., 2011), innovation management (Bouncken et al., 2018; Chiambaretto et al., 2020; Ritala, 2012) and entrepreneurship (Gast et al., 2015; Soppe et al., 2014). Coopetition in supply networks is often associated with innovation and knowledge sharing (Dai et al., 2024; Dyer & Nobeoka, 2000; Potter & Wilhelm, 2019, 2020), learning and capability development (Bouncken & Fredrich, 2016; Estrada & Dong, 2020), operational efficiency and cost reduction (Bouncken & Fredrich, 2012; Le Roy & Czakon, 2016), and resilience and risk mitigation (Bakshi & Kleindorfer, 2009; Durach et al., 2020).

Within supply chains, coopetition can manifest vertically, for example, between buyers and suppliers, often under conditions of buyer dominance, or horizontally, for instance, between two suppliers at the same tier with similar activities (Chiambaretto & Dumez, 2016; Wilhelm, 2011; Wilhelm & Sydow, 2018). Early coopetition research focused on the dyadic perspective of vertical coopetition, investigating the effects of managing cooperation and competition in various industries and scenarios (Brandes et al., 2007; Lacoste, 2012; Nair et al., 2011; Soppe et al., 2014). Later, horizontal supplier-supplier coopetition, where suppliers cooperate on specific tasks while competing for the same buyer's business, gained strategic and operational relevance (Massari & Giannoccaro, 2021; Pathak et al., 2014; Wu et al., 2010). This specific form of coopetition is increasingly important in today's supply networks, as buyers can manage the supplier-supplier relationship, encouraging information sharing or joint problem-solving among them (Choi et al., 2002; Choi & Dooley, 2008; Wu & Choi, 2005), thus shaping competition and cooperation between suppliers to their advantage.

However, coopetition is perceived as a paradoxical relationship, and the simultaneity of cooperation and competition is a source of tensions that must be managed (Bengtsson et al., 2016). Beyond the tensions regarding value creation and value appropriation, coopetition can also cause relational tensions related to trust and opportunism, information sharing, and protecting against knowledge leaks, as well as between short-term gains and long-term positioning (Bengtsson et al., 2016; Raza-Ullah, 2020; Ricciardi et al., 2022). The tension is suggested to be necessary and beneficial for coopetition, but it is essential to balance cooperation and competition, as the dominance of one logic risks undermining the relationship altogether by moving into one extreme (Gnyawali et al., 2016; Gnyawali & Ryan-Charleton, 2018). Therefore, firms must carefully manage the balance between cooperation and

competition (Gnyawali et al., 2016; Gnyawali & Ryan-Charleton, 2018; Madhavan et al., 2004). This management is particularly relevant in horizontal supplier-supplier relationships, where firms often possess similar capabilities and compete for the same customers (Wilhelm, 2011). As the buyers' influence in the supply network amplifies complexity.

Therefore, understanding the mechanisms of horizontal supplier-supplier coopetition is highly relevant. Especially as the outcome implications of coopetition remain ambiguous (Xie et al., 2023). While early studies considering dyadic coopetitive relationships predict that stronger relationships and cooperation enhance performance outcomes (Bouncken & Fredrich, 2012; Bouncken & Kraus, 2013), later triadic studies produce a more mixed picture, finding positive and negative impacts of coopetition performance (Crick & Crick, 2021b; Durach et al., 2020; Wu et al., 2010).

In summary, horizontal supplier-supplier coopetition is not merely a dyadic collaboration; it is often embedded in a network, where a buyer influences relationships, and different tensions and ambiguities underscore the need for further inquiry into triads and the implications of network interactions for horizontal supplier-supplier coopetition in terms of formation and performance.

2.2. The behavioural perspective in supply chain management

2.2.1. Social Exchange Theory

From a SET perspective, coopetition is not only a structural or contractual arrangement, but also an ongoing social exchange, influenced by expectations of reciprocity and rewards (Cropanzano & Mitchell, 2005), perceptions and relational histories that shape whether cooperation with a competitor is initiated, sustained, or dissolved (Czakon et al., 2020; Kraus et al., 2019; Rajala & Tidström, 2017). In the supply chain context, the expectation of rewards is crucial, as value is often created within the relationship and over time, which requires tolerating short-term imbalances in anticipation of future returns, making the norms of reciprocity and obligations central, following SET, cooperation becomes more likely when the expected value of reciprocity exceeds the perceived risks, and less likely when the expected returns deteriorate (Masterson et al., 2000; Narasimhan et al., 2009). In triads, these calculations reveal interdependence across ties, as behaviours in one relationship influence beliefs about reciprocity in the other, producing spillover effects that affect the willingness to engage (Swierczek, 2019; Tortoriello et al., 2011; Wu & Choi, 2005).

Central to behaviours in relationships are social bonds rooted in SET, comprising trust, commitment, and satisfaction with the relationship; these bonds can drive cooperative

behaviour (Gernsheimer et al., 2021; Gupta & Gupta, 2019; Kaufmann & Carter, 2006). These bonds complement contractual obligations and are associated with stronger cooperation and performance (Gupta & Gupta, 2019; Kaufmann & Carter, 2006). Trust mitigates the perceived risks of opportunism and fosters confidence that shared resources will not be misused (Gernsheimer et al., 2021; Gupta & Gupta, 2019; Lascaux, 2020). Commitment reflects the intention to invest in and sustain the relationship, which provides stability (Kaufmann & Carter, 2006). According to Kaufmann and Carter (2006), these bonds can serve as safeguards that complement contractual obligations, motivating firms to cooperate beyond what they are formally required to do.

While these bonds are expected to be associated with better performance in dyads, in triads (and, by extension, in networks), the link between trust and cooperation with competing suppliers is more complex than in isolated dyads. Interactions with one network member can spill across the triad and wider network, so these trust-based bonds can positively influence adjacent relationships, whereas weak or misaligned bonds can amplify distrust and opportunism (Czakon et al., 2020; Swierczek, 2019; Swierczek & Szozda, 2024). Even though building trust-based bonds appears highly relevant, our understanding of how such social bonds influence horizontal supplier-supplier coopetition in triads remains limited, due to the increased complexity and dyad focus of prior research (Czakon & Czernek, 2016; Le Roy & Czakon, 2016; Zou & Wang, 2022).

2.2.2. Justice dimensions

Another critical aspect of evaluating relationships from a social exchange perspective is perceptions of justice. Justice perceptions capture whether firms perceive the relationship as fair and thus may shape their willingness to cooperate (Alghababsheh et al., 2023). Firms evaluate exchange through perceptions of distributive, procedural, informational and interpersonal justice (Alghababsheh et al., 2023; Colquitt & Rodell, 2011; Luo, 2007), relating it to the fair sharing of the outcomes, set-up of fair processes, and fair sharing of relevant information. In the supply chain context, these perceptions condition the willingness to share information, invest, and coordinate, because justice indicates the likelihood of reciprocal, non-opportunistic behaviour (Bouazzaoui et al., 2020; Griffith et al., 2006; Liu et al., 2012). Procedural and distributive justice tend to stabilise long-term collaboration by reducing the likelihood of conflicts and opportunism, while informational and interpersonal justice sustain the exchange of information under high information asymmetry and improve the quality of day-to-day interactions, which is particularly important when cooperating with other suppliers

(Alghababsheh et al., 2023; Liu et al., 2021). These justice perceptions are central to the development of supply chain relationships, as they shape the intent of firms to share resources, knowledge, align processes, or invest in cooperation (Bouazzaoui et al., 2020; Cropanzano et al., 2002; Griffith et al., 2006; Liu et al., 2012). In terms of SET, justice perceptions provide a framework for ascertaining the reciprocity of network members and calculating the risks of opportunism and the benefits of cooperation (Huo et al., 2016; Luo et al., 2015).

2.2.3. Dependence

Beyond social bonds and perceptions of justice, behaviours in exchange relationships are also strongly conditioned by dependence asymmetry, the degree to which one firm needs another more than the other does, which creates power differences and shapes strategic options (Emerson, 1962, 1976). RDT further formalises these reasons and argues that organisations are interdependent, relying on external actors for critical resources (Pfeffer & Salancik, 2003), forming a key characteristic of interfirm relationships. In interfirm interactions within networks, symmetrical dependence can foster cooperation, trust and stability (Golicic, 2007; Golicic & Mentzer, 2006; Handley et al., 2019), while the more common asymmetric dependence makes the dependent firm more vulnerable (Huo et al., 2022; Kim & Fortado, 2021; Lee et al., 2015), yet more compliant in terms of long-term orientation, information sharing (Carr et al., 2008; Villena & Craighead, 2017; Yigitbasioglu, 2010). However, if the power is used opportunistically by the more powerful firm, the less powerful firms may react by, for instance, limiting cooperation (Handley et al., 2019; Huo et al., 2017).

Considering the interaction between justice and dependence, studies indicate that the coercive use of power may erode perceptions of justice, while rewards can strengthen them; however, dependence may compel suppliers to tolerate coercion (Griffith et al., 2017; Hoppner et al., 2014). From a triadic perspective, research suggests that suppliers may adapt by redirecting efforts within the network, by examining justice and dependence in triads where horizontal, coopetitive ties can mitigate vulnerability and rebalance power (Brito & Miguel, 2017). Firms may be able to address the tensions of coopetition through relational governance mechanisms and informal norms. However, in terms of coopetition behavioural aspects, specifically justice perceptions in network contexts, remain underexplored (Bouazzaoui et al., 2020; Zhang et al., 2023). Similarly, research often focuses on established coopetitive relationships; however, research on the antecedents of coopetition remains limited (Czakon et al., 2020; Klimas et al., 2023; Kostis & Näsholm, 2020).

In terms of coopetition, suppliers already face the inherently paradoxical tensions of coopetition, as they must coordinate with partners while simultaneously guarding their competitive advantage (Bengtsson et al., 2016; Raza-Ullah, 2020). Introducing the triadic lens intensifies tensions, as the influence of the third member, for instance, the buyer, makes the relationship more complex (Wilhelm, 2011), and managers must observe and evaluate not only their direct relationships but also the indirect relationships in the triad (Choi & Wu, 2009c; Madhavan et al., 2004). From a behavioural perspective, perceptions of justice and social bonds under conditions of dependence can either increase or decrease the tension, making cooperative relationships more workable or less sustainable. Recent research highlights the significance of these behavioural aspects of coopetition, demonstrating that perceived justice and dependence asymmetries influence cooperation with competitors, affecting when firms are willing to share information, align processes, or jointly solve problems despite these behavioural tensions (Chen et al., 2023; Crick & Crick, 2021a). In supply networks, the perception of the behaviour of the other network members can be especially relevant, as cooperation can also be a strategy to balance power imbalances (Bastl et al., 2013; Touboulic et al., 2014). These cooperative and competitive dimensions must be measured correctly to obtain precise and coherent results, allowing for different configurations of these coopetitive relationships to occur.

2.3. The paradox and measurement of coopetition

2.3.1. The paradox of coopetition

Returning to the paradoxical relationship of coopetition (Raza-Ullah, 2020; Wilhelm & Sydow, 2018) and the mixed results of coopetition research in terms of performance (Crick & Crick, 2021b; Durach et al., 2020; Wu et al., 2010), the various possible configurations of triads, in which horizontal supplier-supplier cooperation can take place, and the various antecedents that lead to coopetitive relationships may provide the first indication why results appear inconclusive. However, the performance implications of coopetition remain unclear and are shaped by how it is measured (Xie et al., 2023).

Conceptual perspectives have evolved from a broad strategy (Nalebuff & Brandenburger, 1996) to highlighting the tension between similar firms on a horizontal level (Bengtsson & Kock, 2000). Madhavan et al. (2004) introduced a network perspective, and subsequent works extended the concept to multiple levels, including dyad, triad, and network perspectives, considering tensions and paradoxes (Bengtsson et al., 2016; Bengtsson & Raza-Ullah, 2016). Gnyawali et al. (2016) and Gnyawali and Ryan-Charleton (2018) emphasise the tensions and the need to manage them to balance value creation and value destruction. A challenge that is

even greater in horizontal supplier-supplier coopetition, characterised by buyer influence and dependence asymmetries (Choi & Wu, 2009c; Wilhelm, 2011), as previously discussed.

At the same time, coopetition research has shifted from its game-theoretic roots (Nalebuff & Brandenburger, 1996) to management theories, such as the resource-based view and transaction cost economics, to explore how firms access resources and form competitive advantages (Bouncken et al., 2015; Ritala, 2012). More recently, Paradox theory (Lewis, 2000; Lewis & Smith, 2014) has taken a central role, emphasising the contradictory yet interdependent logics of cooperation and competition, focusing on the balance between cooperation and competition (Bengtsson et al., 2016; Raza-Ullah, 2020; Wilhelm & Sydow, 2018).

2.3.2. The measurement of coopetition

The majority of operationalisations of coopetition use a single construct (Bouncken et al., 2018; Bouncken & Fredrich, 2016; Bouncken & Kraus, 2013; Chai et al., 2019; Crick & Crick, 2021a; Liu et al., 2021). Other studies focus on cooperation in competitive contexts, measuring cooperation directly and treating competition as an implicitly underlying condition (Bakshi & Kleindorfer, 2009; Wu et al., 2010). Recently, research turned to multidimensional approaches to measure coopetition (Guo et al., 2023; Seepana et al., 2020). Multidimensional approaches treat cooperation and competition as distinct yet interdependent forces, allowing for a more nuanced analysis of how their combinations affect outcomes. This appears particularly appropriate in horizontal supplier-supplier coopetition. In this regard, taking a configurational approach towards the operationalisation of coopetition may be well-suited (Pathak et al., 2014; Ricciardi et al., 2022), emphasising how multiple factors combine in different ways to shape outcomes (Fiss, 2007; Furnari et al., 2021; Ketchen et al., 2022). A multidimensional operationalisation, grounded in a configurational approach, may therefore allow for the reflection of paradoxical tensions as well as nuances in the interaction of forces of cooperation and competition on the horizontal level, encompassing behavioural aspects.

3. Research agenda

This dissertation identifies several gaps in the literature that it aims to address. Prior research is dominated by the buyer's perspective, which neglects interactions beyond the focal dyad. Within the triad literature, there is a lack of understanding of when suppliers decide to coopete with competing suppliers and how the supplier-supplier relationship impacts performance for the buyer. Lastly, there is a lack of a measurement scale that adequately captures the paradoxical nature of these coopetitive horizontal supplier-supplier relationships.

To this end, the first and second manuscripts focus on this triadic context, while the third focuses directly on the coopetitive relationship, as shown in *Figure 1*.

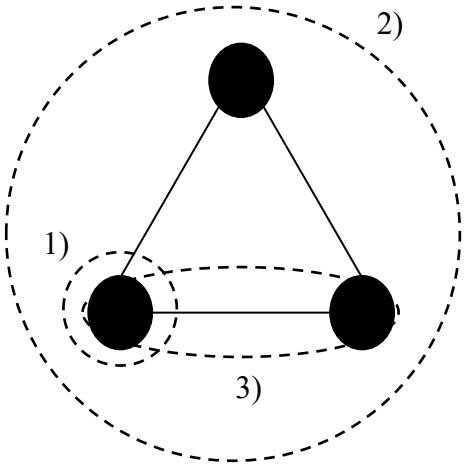

Figure 1: Unit of Analysis

1) **Manuscript 1**, titled *"The influence of buyer-supplier justice and dependence perceptions on suppliers' intention to coopete",* focuses on the perception of the supplier as the observatory unit, within a triadic context as an explanatory unit (Wilhelm, 2011), using an integrative theoretical framework applying SET and RDT. Focusing on the first part of the research question, it considers how perceptions of behaviour in the triad affect the supplier's willingness to cooperate with competitors.
2) **Manuscript 2**, titled *"Relationships in buyer-supplier-supplier triads: Implications for supplier performance",* focuses on the entire triad and considers the different structural configurations and their implications for the BSS triad in terms of the supplier performance as perceived by the buyer. Considering the first part of the research question, the study employs an integrative framework, utilising BT to address the structural aspects and SET to examine the behavioural mechanisms leading to the outcome.

3) **Manuscript 3**, titled *"Horizontal supplier-supplier coopetition: Scale development and measurement validation",* focuses on horizontal supplier-supplier coopetition and its measurement. The study employs Paradox Theory to reflect the paradoxical nature of coopetitive relationships and capture the tensions between the cooperative and competitive dimensions of coopetition, primarily considering the latter part of the research question.

3.1. Research approach and research methods

All three studies employ an abductive approach, primarily utilising a mixed-method design. Configurational methods are the central method, which are complemented by quantitative and qualitative methods. QCA originates in political science but is increasingly applied in management and the OSCM field, especially when multiple factors need to be considered and outcomes are equifinal and causally complex (Ketchen et al., 2022; Russo et al., 2019; Timmer & Kaufmann, 2019). While Manuscripts 1 and 2 employ fsQCA (Ragin, 2008), Manuscript 3 adopts a literature synthesis approach grounded in Boolean logic (Onwuegbuzie & Weinbaum, 2017) and crisp-set QCA (El Sherif et al., 2024). The abductive approach is closely linked to QCA research, as the method's concepts require an iterative approach that moves from theory to data and back (Misangyi et al., 2017; Ragin, 2008). In terms of the goal of the studies, an iterative approach helps build different typologies (Chiambaretto & Dumez, 2016), such as the types of configurations of perceptions in Manuscript 1, or for creating the triadic configurations of triads in Manuscript 2. From a QCA perspective, the combination of methods with QCA contributes to its explanatory power and may help to explain findings, identifying directional relationships (Meuer & Rupietta, 2017). In line with many QCA applications, we employ an exploratory research approach to conduct an initial inductive exploration of typologies (Misangyi et al., 2017) followed up by quantitative or qualitative complementary methods to either explore, explain or refine the initial findings.

Manuscript 1 uses fsQCA on survey data. This initial study is followed by another study that utilises vignette experiments to explore further the configurations of justice and dependence, while also conducting follow-up interviews to provide explanations for the identified relationships.

Manuscript 2 uses fsQCA on survey data but conducts follow-up interviews within the same sample. The sequence of quantitative and qualitative data analysis helps explain the findings of the initial analysis. We employed process tracing (Beach & Pedersen, 2013) to understand the mechanisms underlying the identified configuration.

Manuscript 3 employs a QCA-based synthesis approach, following an initial "review of reviews", in the second phase of a multiphase study to identify core conditions based on dimensions developed from a prior review of reviews. A qualitative phase then followed the configurational phase to develop scale items, and a final quantitative phase refined and validated the developed scale.

3.2. Overview of Manuscripts

The dissertation comprises three studies that focus on horizontal supplier-supplier coopetition in triads. The studies investigate the formation of horizontal supplier-supplier coopetition, the performance of horizontal supplier-supplier coopetition in BSS triads, and the measurement of horizontal supplier-supplier coopetition. *Table 1* gives an overview of the three studies.

Manuscript 1 is under review in the *International Journal of Operations and Production Management*. It examines how the perception of justice and dependence from the supplier's perspective in a triadic context influences the intent to cooperate with a competing supplier in the manufacturing sector in German-speaking countries. In doing so, the study advances our understanding of behavioural dynamics in BSS triads and how they influence coopetition.

Manuscript 2 is accepted in the *International Journal of Operations and Production Management*. It examines buyer-supplier triads in the manufacturing sector in German-speaking countries, investigating how configurations of social bonds and dependence affect supplier performance as perceived by the buyer. This study contributes to our understanding of relationships in triads, demonstrating how the relationships among network members impact supplier performance.

Manuscript 3 is a working paper; it develops two scales for coopetition, based on the cooperative and competitive dimensions of coopetition. Based on a multiphase approach, the work contributes to addressing the increasingly fragmented operationalisations of coopetition in the OSCM field.

Table 1: Overview of Manuscripts

	Manuscript 1	**Manuscript 2**	**Manuscript 3**
Title	The influence of buyer-supplier justice and dependence perceptions on suppliers' intention to coopete	Relationships in buyer-supplier-supplier triads: Implications for supplier performance	Horizontal supplier-supplier coopetition: Scale development and measurement validation
Authors	Vijai Mani Christian F. Durach	Vijai Mani Christian F. Durach Frank Wiengarten	Vijai Mani Florian Wissuwa Christian F. Durach
Status	1st Major Review	Conditionally Accepted	Working Paper
Outlet	International Journal of Operations and Production Management	International Journal of Operations and Production Management	Target Journal: Journal of Business Logistics

4. Manuscript 1

Table 2: Status of Manuscript 1

Title:	**The influence of buyer-supplier justice and dependence on supplier's intention to coopete**
Authors:	Vijai Mani, Christian F. Durach
Journal:	International Journal of Operations and Production Management
Status:	Revise and Resubmit
Conference:	30th EurOMA Conference
—Available upon request—	

Abstract

Purpose: How do justice and dependence perceptions shape coopetition between suppliers in a buyer-managed network? Drawing on Social Exchange and Resource Dependence Theory, this study investigates how a supplier's perceptions of justice (procedural, distributive, interpersonal, and informational) and dependence within a buyer-supplier-supplier triad influence coopetition. This study contributes to research on interorganisational ties by theorising how relational dynamics beyond the buyer-supplier dyad jointly shape triadic behaviour.

Design/methodology/approach: This research employs two complementary methods. Study 1 employs fuzzy-set Qualitative Comparative Analysis (fsQCA) on survey data from 47 buyer-supplier-supplier triads to identify equifinal configurations that lead to coopetition. Study 2 uses vignette-based quasi-experiments with 85 suppliers responding to scenarios involving potential coopetition. The responses are analysed using regression and thematic analysis. The two studies provide configurational and causal insights into the antecedents of coopetition in supply networks.

Findings: FsQCA results show that interpersonal justice from the buyer and the competing supplier is a core condition for coopetition. Dependence asymmetries further shape this dynamic. Complementing these findings, Study 2 reveals that procedural, distributive, and informational justice from the competing supplier are important drivers of coopetition. Thematic analysis shows that decisions are driven by perceived fairness, trust, and transparency.

Originality/value: This study advances our understanding of coopetition by highlighting justice from a competing supplier, an underexplored factor in triadic supply networks, and reveals how dependence asymmetries condition supplier's willingness to engage.

Keywords: buyer-supplier-supplier triads, coopetition, justice, and dependence.

5. Manuscript 2

Table 3: Status of Manuscript 2

Title:	**Relationships in buyer-supplier-supplier triads: Implications for supplier performance**
Authors:	Vijai Mani, Christian F. Durach, Frank Wiengarten
Journal:	International Journal of Operation and Production Management
Status:	Published
Conference:	none
Citation:	Mani, V., Durach, C. F., & Wiengarten, F. (2025). Relationships in buyer-supplier-supplier triads: Implications for supplier performance. *International Journal of Operations & Production Management*. https://doi.org/10.1108/IJOPM-02-2024-0161

Abstract

Purpose: Although supply chain research has extensively examined various aspects of network dynamics, insight into how these relationships affect supplier performance remains limited. This study utilises triads as the smallest observable unit of the supply network and draws on balance theory, complemented by social exchange theory. The study examines how different configurations of buyer-supplier-supplier triads affect the supplier's operational performance as perceived by the buyer.

Design/methodology/approach: A multi-method approach is employed to capture the conjunctive and equifinal nature of triadic relationships. First, a sample of 33 buyer-supplier-supplier triads was surveyed in 2017. This survey data was analysed using fuzzy-set Qualitative Comparative Analysis. Then, a selection of triad members was interviewed in 2021. This interview data was analysed using a process tracing approach to contextualise the survey results.

Findings: The results show that high supplier performance in a buyer-supplier-supplier triad is achieved through strong social bonds between the buyer and one supplier, high supplier dependence and intense competition among the two suppliers. In contrast, low-performing triads show weak social bonds between the buyer and suppliers, low interdependencies, and coopetition between the two suppliers.

Originality: Research has primarily focused on the dyadic buyer-supplier relationship when considering the impact of relationships in the supply network on supplier performance. This study offers the first indications of how buyer-supplier and supplier-supplier relationships jointly influence supplier performance and provides relevant insights for managers to leverage the relationships with and among their suppliers to their advantage.

Keywords: Coopetition, social bonding, dependence, operational performance, triad, balance theory, social exchange theory

6. Manuscript 3

Table 4: Status of Manuscript 3

Title:	**Horizontal supplier-supplier coopetition: Scale development and measurement**
Authors:	Vijai Mani, Florian Wissuwa, Christian F. Durach
Journal:	
Status:	Working Paper
Conference:	85th Annual Meeting of the Academy of Management
—Available upon request—	

Abstract:

Coopetition, the simultaneous collaboration and competition between firms, is a critical aspect of supplier-supplier relationships. However, our understanding of how coopetition affects firms and their supply chains is limited, partly due to the varied ways in which previous studies operationalized coopetition. In this paper, we propose core conditions of coopetition developed from a review synthesis based on a Boolean logic and then develop and test corresponding measurement scales to better capture the broad definition of horizontal supplier-supplier coopetition. The first phase involves a review of reviews, followed by a QCA-based synthesis of empirical studies on coopetition in supply networks. In the third phase, we utilized structured interviews with 15 practitioners and a systematic sorting process with 129 business students. In the last phase, we replicate a study on supplier-supplier coopetition and resilience using data from 205 key respondents to assess the psychometric properties of our scales. Our results demonstrate that our scales have sufficient psychometric properties and can be used by researchers to build, test, or refine supply chain theory. Our scales contribute to the growing body of supply chain measurement and should help to offer more reliable knowledge for academics and managers in the long run.

Keywords: Supply chain management, coopetition, scale development, supplier-supplier relationships, resilience

7. Discussion

Beyond the individual contributions of the studies, the combination of the findings offers further insight into the behavioural dynamics in supply networks and their implications for the coopetition formation to performance.

The main findings of Manuscript 1 are that the perceived justice dimensions have varying impacts on the supplier's willingness to cooperate with the competing supplier of the triad. The fsQCA analysis revealed that interpersonal justice from both the competing supplier and the buyer is a core condition for coopetition to form, while dependence acts conditionally; dependence on the buyer is a core condition for coopetition in some configurations, and independence from the buyer is a core condition in others. The other justice dimensions (procedural, distributive, and informational justice) appear less relevant in the configurational analysis but emerge as drivers of cooperative behaviour in the experiments.

Manuscript 2 extends the buyer-supplier-supplier triadic configurations conceptualised by Choi and Wu (2009c) by its performance implications. We find that the "promoter" configuration, characterised by one positive and one negative buyer-supplier relationship, exhibits high performance. A configuration that allows the buyer to promote cooperation or competition between the suppliers to their benefit. The "mediator" configuration, with two positive buyer-supplier relationships, exhibits higher performance in a competitive supplier-supplier relationship than in a cooperative one. While the "common adversary" generally experiences lower performance, especially when suppliers are not dependent.

Manuscript 3 presents two measurement scales that specifically capture the cooperative and competitive dimensions of coopetition, enabling the assessment of various configurations of these dimensions within the context of coopetition. This measurement approach provides greater nuance to the analysis of coopetition outcomes, as evidenced by the results of the replication study.

Taken together, these studies address several gaps by indicating that indirect interactions, beyond the dyadic relationship, shape decisions and behaviours in supply networks.

In the findings of manuscripts 1 and 2, dependence emerges as a conditional factor under which suppliers may tolerate injustice when they are dependent, while they might disengage when they are independent (Manuscript 1). Similarly, high supplier dependence towards the buyer allows the buyer to incentivise higher performance from the supplier (Manuscript 2). The rationale provided by participants for forming or avoiding coopetition, or increasing performance, largely aligns with explanations from SET and RDT, and appears to be driven

primarily by cost-benefit calculations under conditions of dependence. Interestingly, we also observe that theoretical balance tendencies seem to be overridden by these considerations. Here, together, the two works paint a slightly more nuanced picture of dependence: Unjust behaviour from the buyer appears more acceptable under dependence, at the same time, this dependence seems to facilitate coopetition when the competing supplier is perceived as just. Manuscript 2 shows how a buyer can influence both positive and negative relationships to elicit higher performance from the suppliers. Taken together, the studies reveal a shift in the supplier's focus, while the behaviour of the competing supplier is the main driver for the decision to coopete, the buyer appears to be the focal point when it comes to performance. One possible interpretation is that cost/benefit calculations and expectations of reciprocity offset the cognitive dissonance postulated by BT. This could possibly help to explain why unbalanced triads sometimes persist: as the supplier in the positive buyer-supplier relationship may not feel compelled to engage in coopetition defensively. At the same time, a supplier in a negative buyer-supplier relationship may tolerate injustice due to the dependence and simultaneously view the competing suppliers' (justice) behaviour more critically.

Providing a supplier-focused behavioural explanation for relational dynamics within the triad, the two studies demonstrate how suppliers evaluate network relationships beyond the immediate buyer-supplier and supplier-supplier ties. At the same time, it has to be recognised that some of the drivers for supplier behaviour lie outside the triad, as spillover effects from other relationships can influence the choices and outcomes in the triad, suggesting the potential need to extend the triadic perspective to a tetrad (Choi & Holmen, 2023).

The results further illustrate the causal complexity and equifinality of triadic relationships, as various resulting configurations lead to cooperative or competitive relationships and high or low performance. The configurational perspective in Manuscript 2 not only questions the benefits of purely cooperative supplier-supplier relationships but also reveals the need to measure both aspects of coopetitive supplier-supplier relationships to fully understand the implications of these paradoxical relationships.

Considering the results of Manuscripts 1 and 2, the measurement scale developed in Manuscript 3, based on configurational logic, may provide a more precise picture of the coopetition formed by suppliers under varying configurations of justice and dependence perceptions. For example, coopetition formed under conditions of dependence is likely to be more competitive (e.g. to protect order volumes from the buyer) than coopetition formed under relative independence. Similarly, performance differences between "balanced mediator" and "balanced common adversary" configurations may stem not only from the buyer-supplier

relationship but also from variations in the competitive intensity of coopetition. In particular, a "balanced mediator" configuration may face more competitive pressure (resulting in higher performance), a nuance that cannot be fully measured by leaving the competition dimension implicit.

Therefore, we also address our last research gap by developing a measurement for coopetition that captures the nuances of horizontal supplier-supplier coopetition. Taken together, this work highlights the relevance of the triadic perspective and the behavioural dynamics that shape coopetition within triads, as well as the significance of configurations in these often equifinal and causally complex relationships. The complex performance implications of buyer-supplier-supplier triads further underscore the need for a measurement tool that can address the contradicting forces of coopetition.

7.1. Theoretical contribution

The dissertation makes significant contributions to various fields of research within the OSCM field.

First, manuscripts 1 and 2 shift the behavioural perspective to horizontal supplier-supplier coopetition and the triadic context, providing an initial indication of how relationships and perceptions of behaviours influence the formation and performance of coopetitive relationships, dynamics that have mainly been conceptualised (Bastl et al., 2013; Choi & Wu, 2009c). Moreover, the work contributes to the emerging streams of literature that investigate these behavioural aspects of complex triadic interfirm relationships (Swierczek & Szozda, 2024; Taubeneder et al., 2024). In doing so, the studies contribute to the extension of SET from dyads to triads (Huo et al., 2022) and provide a relational view of supplier decision-making and behaviour that is embedded within the triad. As such, the studies illustrate that the cooperative behaviour of suppliers is not only a direct result of direct buyer-supplier or supplier-supplier relationships, but also the result of the perception and interpretation of behaviour within the triad and sometimes even outside (and inside the tetrad).

Secondly, taken together, the findings of manuscripts 1 and 2 contribute to the power and dependence literature (Brito & Miguel, 2017; Huo et al., 2022; Zou & Wang, 2022), suggesting that dependence generally conditions the behaviour and decisions of suppliers within the triad, as dependencies seem to influence how suppliers react to injustice or adversarial behaviour. From this perspective, the studies contribute to the application of social exchange and RDT within a triadic perspective, exploring the interaction of dependence with other relational factors.

In terms of the application of BT, our studies suggest two complementary insights. First, the studies illustrate how relational behaviours and exchange consideration may be able to override cognitive tensions, weakening the tendency towards balance. Second, the findings extend the understanding of relational dynamics in triads by suggesting that expectations of reciprocity and cost-benefit considerations may be able to sustain unbalanced triads despite structural tensions.

In terms of the inconclusive performance implications of horizontal supplier-supplier coopetition, the studies provide some initial indications that the varying levels of cooperation and competition in the triadic configurations may condition the supplier performance received by the buyer. Furthermore, we contribute to the growing applications of configurational methods in the field by demonstrating that configurational approaches can be an effective measure to address the complexities of triadic relationships and behavioural dynamics (Franke et al., 2024; Ketchen et al., 2022). In addition, the configuration-based operationalisation of coopetition contributes to the literature, which shows a growing interest in a context-specific view of coopetition, acknowledging the trade-off between competitive and cooperative elements (Klimas et al., 2025). Notably, the first application demonstrates the ability to reflect the implications of the tensions inherent in coopetition.

7.2. Managerial implications

From a practical perspective, the studies offer some actionable guidance for both buyers and suppliers. Managers interested in developing an environment where fruitful cooperation among competitors is possible should institutionalise structural justice dimensions as the principal drivers of coopetition. Clear codes of conduct, agreed-upon evaluation frameworks and performance metrics can increase the perceived fairness among suppliers. Moreover, shared governance dashboards and audit mechanisms can reinforce procedural consistency. Especially from a supplier perspective, these measures appear relevant as they enable influencing the perception of other suppliers, considering that respectful and friendly interactions are considered foundational for the willingness of suppliers to coopete.

Furthermore, the introduction of conflict resolution measures and roundtables may not only improve the supplier-supplier relationship but also facilitate the timely resolution of conflicts between buyers and suppliers, which would help avoid destructive cooperative relationships that may be formed to counter powerful buyers. Unwanted collusion between suppliers can harm even large firms, such as Toyota, as illustrated in the initial example. Therefore, buyers may also be interested in controlling and monitoring supplier relationships. Moreover, the

buyer can actively intervene and influence supplier relationships, for instance, by benchmarking and ranking suppliers, thereby inducing competition. At the same time, it can also strategically incentivise cooperation among suppliers. However, buyers need to be aware of the relationship among suppliers and the varying impacts of coopetition in triadic relationships.

Considering the context-specific role of dependence, buyers and suppliers should monitor their dependence towards each other, for instance, using risk assessments and balanced scorecard approaches. Based on the context, firms may be able to take measures to reduce dependencies. Similarly, firms need to further reduce the risk of destructive forms of cooperation or competition; again, this may be highly context-specific, where buyers or suppliers must moderate the cooperation or competition in cooperative relationships, for instance, by establishing contractual safeguards.

7.3. Limitations and future research

The dissertation faced many limitations, mainly due to the selected sample and methods. In terms of sample size, all considered samples were relatively small (apart from Manuscript 1's quasi-experiments) and in the manufacturing sector in the German-speaking regions of Europe, which may limit generalisability. However, configurational approaches are typically well-suited for working with smaller samples and still drawing inferences about plausible relationships (Fiss, 2007), especially within the exploratory context, as these samples were utilised.

As all the studies used fsQCA as the central method, the methodological limitations are closely related. Firstly, all fsQCA applications require calibrating the raw data, which introduces risks of oversimplifying the nuances in the data. The limited diversity in the data sets also restricts the number of conditions that can be applied in the model (Schneider & Wagemann, 2010). However, the use of mixed methods alleviated these known limitations of the technique (Beach & Pedersen, 2013; Misangyi et al., 2017) by, for instance, providing additional qualitative explanations and contextualising the fsQCA findings or by rigorously validating the developed scale in Manuscript 3.

Considering the limited generalizability, future research could expand similar studies into other industries and geographies. Although fsQCA does not suffer significantly from small sample sizes, the studies could be repeated with larger sample sizes and different complementary methods. Similarly, Study 1 of Manuscript 1 used only the supplier perspective; extending the analysis to a complete triad may offer more holistic insights. To go

further, as indicated by the results of Manuscript 2, extending towards tetrads or comparable structures may help to account for factors that were not considered in the dissertation. Finally, the scale developed in Manuscript 3 could be further utilised in coopetition research to measure the interaction between competitive and cooperative coopetition characteristics for instance in triadic settings.

8. Conclusion

The dissertation aimed to investigate horizontal supplier-supplier coopetition in BSS triads, contributing to the growing body of coopetition literature within the context of supply networks. In particular, the dissertation focused on the behavioural aspects of horizontal supplier-supplier coopetition in triads. Addressing three identified gaps: 1) The focus on a dyadic level analysis, neglecting interactions beyond the focal dyad, 2) The focus on the buyer's perspective, neglecting the perceptions of suppliers that influence their decision for coopetition, and 3) the increasing fragmentation of the operationalisation of coopetition.

To this end, three studies using a mixed-methods approach were conducted, with a focus on configurational methods. The finding contributed to an extended understanding of supplier perceptions and the relevance of interpersonal justice for the formation of coopetitive relationships in triads. Configurations of buyer-supplier-supplier relationships showed varying performance implications, trying to contribute to the resolution of the inconclusive findings of prior research. A validated measurement scale was developed to account for the contradictory aspects of coopetition.

Together, these results advance our understanding of interactions in triads and the relevance of behavioural perspectives in supply chain networks from a supplier perspective. At the same time, the findings offer insights to practitioners aiming to improve the performance of coopetitive relationships. On a societal level, a better understanding of the interaction between suppliers in networks will also further support the development of supply networks that are not only more efficient but also more stable, in the face of increased global uncertainty.

References

Alghababsheh, M., Gallear, D., & Saikouk, T. (2023). Justice in supply chain relationships: A comprehensive review and future research directions. *European Management Review*, *20*(3), 367–397. https://doi.org/10.1111/emre.12541

Ateş, M. A., & Luzzini, D. (2024). Untying the Gordian knot: A systematic review and integrative framework of supply network complexity. *Journal of Business Logistics*, *45*(1), e12365. https://doi.org/10.1111/jbl.12365

Bakshi, N., & Kleindorfer, P. (2009). Co-opetition and Investment for Supply-Chain Resilience. *Production and Operations Management*, *18*(6), 583–603. https://doi.org/10.1111/j.1937-5956.2009.01031.x

Bastl, M., Johnson, M., & Choi, T. Y. (2013). Who's Seeking Whom? Coalition Behavior of a Weaker Player in Buyer–Supplier Relationships. *Journal of Supply Chain Management*, *49*(1), 8–28. https://doi.org/10.1111/j.1745-493x.2012.03274.x

Beach, D., & Pedersen, R. B. (2013). *Process-tracing methods: Foundations and guidelines*. University of Michigan Press.

Bengtsson, M., & Kock, S. (2000). "Coopetition" in Business Networks—To Cooperate and Compete Simultaneously. *Industrial Marketing Management*, *29*(5), 411–426. https://doi.org/10.1016/S0019-8501(99)00067-X

Bengtsson, M., & Raza-Ullah, T. (2016). A systematic review of research on coopetition: Toward a multilevel understanding. *Industrial Marketing Management*, *57*, 23–39. https://doi.org/10.1016/j.indmarman.2016.05.003

Bengtsson, M., Raza-Ullah, T., & Vanyushyn, V. (2016). The coopetition paradox and tension: The moderating role of coopetition capability. *Industrial Marketing Management*, *53*, 19–30. https://doi.org/10.1016/j.indmarman.2015.11.008

Blau, P. M. (1964). *Exchange and Power in Social Life* (1st edn). Routledge. https://doi.org/10.4324/9780203792643

Bouazzaoui, M., Wu, H.-J., Roehrich, J. K., Squire, B., & Roath, A. S. (2020). Justice in inter-organizational relationships: A literature review and future research agenda. *Industrial Marketing Management*, *87*, 128–137. https://doi.org/10.1016/j.indmarman.2020.02.003

Bouncken, R. B., & Fredrich, V. (2012). Coopetition: Performance implications and management antecedents. *International Journal of Innovation Management*, *16*(05), 1250028. https://doi.org/10.1142/S1363919612500284

Bouncken, R. B., & Fredrich, V. (2016). Learning in coopetition: Alliance orientation, network size, and firm types. *Journal of Business Research*, *69*(5), 1753–1758. https://doi.org/10.1016/j.jbusres.2015.10.050

Bouncken, R. B., Fredrich, V., Ritala, P., & Kraus, S. (2018). Coopetition in New Product Development Alliances: Advantages and Tensions for Incremental and Radical Innovation. *British Journal of Management*, *29*(3), 391–410. https://doi.org/10.1111/1467-8551.12213

Bouncken, R. B., Gast, J., Kraus, S., & Bogers, M. (2015). Coopetition: A systematic review, synthesis, and future research directions. *Review of Managerial Science*, *9*(3), 577–601. https://doi.org/10.1007/s11846-015-0168-6

Bouncken, R. B., & Kraus, S. (2013). Innovation in knowledge-intensive industries: The double-edged sword of coopetition. *Journal of Business Research*, *66*(10), 2060–2070. https://doi.org/10.1016/j.jbusres.2013.02.032

Brandenburger, A. M., & Nalebuff, B. J. (2021). *The rules of co-opetition. Rivals are working together more than ever before. Here's how to think through the risks and rewards.* Havard Business Review. https://hbr.org/2021/01/the-rules-of-co-opetition

Brandes, O., Brege, S., Brehmer, P. O., & Lilliecreutz, J. (2007). Chambre separee in product development: Vertically mediated coopetition in the automotive supply chain. *International Journal of Automotive Technology and Management*, *7*(2/3), 168. https://doi.org/10.1504/IJATM.2007.014973

Brito, R. P., & Miguel, P. L. S. (2017). Power, Governance, and Value in Collaboration: Differences between Buyer and Supplier Perspectives. *Journal of Supply Chain Management*, *53*(2), 61–87. https://doi.org/10.1111/jscm.12134

Broekhuis, M., & Scholten, K. (2018). Purchasing in service triads: The influence of contracting on contract management. *International Journal of Operations & Production Management*, *38*(5), 1188–1204. https://doi.org/10.1108/IJOPM-12-2015-0754

Bunkley, N. (2012, January 30). *Japanese Auto Suppliers Are Fined, and Executives Agree to Prison, in a Price-Fixing Case*. The New York Times. https://www.nytimes.com/2012/01/31/business/japanese-auto-suppliers-fined-in-us-price-fixing-case.html

Cannon, J. P., & Perreault, W. D. (1999). Buyer-Seller Relationships in Business Markets. *Journal of Marketing Research*, *36*(4), 439. https://doi.org/10.2307/3151999

Carr, A. S., Kaynak, H., Hartley, J. L., & Ross, A. (2008). Supplier dependence: Impact on supplier's participation and performance. *International Journal of Operations & Production Management*, *28*(9), 899–916. https://doi.org/10.1108/01443570810895302

Cartwright, D., & Harary, F. (1956). Structural balance: A generalization of Heider's theory. *Psychological Review*, *63*(5), 277–293. https://doi.org/10.1037/h0046049

Chai, L., Li, J., Clauss, T., & Tangpong, C. (2019). The influences of interdependence, opportunism and technology uncertainty on interfirm coopetition. *Journal of Business & Industrial Marketing*, *34*(5), 948–964. https://doi.org/10.1108/JBIM-07-2018-0208

Chen, J., Zhao, X., & Lewis, M. (2023). Supplier motivation to share knowledge: An experimental investigation of a social exchange perspective. *International Journal of Operations & Production Management*, *43*(5), 760–780. https://doi.org/10.1108/IJOPM-03-2022-0186

Chiambaretto, P., Bengtsson, M., Fernandez, A.-S., & Näsholm, M. H. (2020). Small and large firms' trade-off between benefits and risks when choosing a coopetitor for innovation. *Long Range Planning*, *53*(1), 101876. https://doi.org/10.1016/j.lrp.2019.03.002

Chiambaretto, P., & Dumez, H. (2016). Toward a Typology of Coopetition: A Multilevel Approach. *International Studies of Management & Organization*, *46*(2–3), 110–129. https://doi.org/10.1080/00208825.2015.1093797

Choi, T. Y., & Dooley, K. (2008). Supply Networks: Theories and Models. *Journal of Supply Chain Management*, *44*(1), 84–84. https://doi.org/10.1111/j.1745-493X.2008.00047.x

Choi, T. Y., Dooley, K. J., & Rungtusanatham, M. (2001). Supply networks and complex adaptive systems: Control versus emergence. *Journal of Operations Management*, *19*(3), 351–366. https://doi.org/10.1016/S0272-6963(00)00068-1

Choi, T. Y., & Holmen, E. (2023). Ready for another leap? Making a case for tetrads. *Journal of Purchasing and Supply Management*, *29*(2). https://doi.org/10.1016/j.pursup.2023.100825

Choi, T. Y., & Wu, Z. (2009a). Go ahead, leap: Triads and their practical and theoretical import. *Journal of Purchasing and Supply Management*, *15*(4), 269–270. https://doi.org/10.1016/j.pursup.2009.09.002

Choi, T. Y., & Wu, Z. (2009b). Taking the leap from dyads to triads: Buyer–supplier relationships in supply networks. *Journal of Purchasing and Supply Management*, *15*(4), 263–266. https://doi.org/10.1016/j.pursup.2009.08.003

Choi, T. Y., & Wu, Z. (2009c). Triads in supply networks: Theorizing Buyer-Supplier-Supplier Relationships. *Journal of Supply Chain Management*, *45*(1), 8–25. https://doi.org/10.1111/j.1745-493X.2009.03151.x

Choi, T. Y., Zhaohui Wu, Ellram, L., & Koka, B. R. (2002). Supplier-supplier relationships and their implications for buyer-supplier relationships. *IEEE Transactions on Engineering Management*, *49*(2), 119–130. https://doi.org/10.1109/TEM.2002.1010880

Colquitt, J. A., & Rodell, J. B. (2011). Justice, Trust, and Trustworthiness: A Longitudinal Analysis Integrating Three Theoretical Perspectives. *Academy of Management Journal*, *54*(6), 1183–1206. https://doi.org/10.5465/amj.2007.0572

Crick, J. M., & Crick, D. (2021a). Rising up to the challenge of our rivals: Unpacking the drivers and outcomes of coopetition activities. *Industrial Marketing Management*, *96*, 71–85. https://doi.org/10.1016/j.indmarman.2021.04.011

Crick, J. M., & Crick, D. (2021b). The dark-side of coopetition: Influences on the paradoxical forces of cooperativeness and competitiveness across product-market strategies. *Journal of Business Research*, *122*, 226–240. https://doi.org/10.1016/j.jbusres.2020.08.065

Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An Interdisciplinary Review. *Journal of Management*, *31*(6), 874–900. https://doi.org/10.1177/0149206305279602

Cropanzano, R., Prehar, C. A., & Chen, P. Y. (2002). Using Social Exchange Theory to Distinguish Procedural from Interactional Justice. *Group & Organization Management*, *27*(3), 324–351. https://doi.org/10.1177/1059601102027003002

Czakon, W., & Czernek, K. (2016). The role of trust-building mechanisms in entering into network coopetition: The case of tourism networks in Poland. *Industrial Marketing Management*, *57*, 64–74. https://doi.org/10.1016/j.indmarman.2016.05.010

Czakon, W., Klimas, P., & Mariani, M. (2020). Behavioral antecedents of coopetition: A synthesis and measurement scale. *Long Range Planning*, *53*(1), 101875. https://doi.org/10.1016/j.lrp.2019.03.001

Dai, J., Jin, Y. "Henry", Cantor, D. E., Elking, I., & Guntuka, L. (2024). An experimental investigation of environmental knowledge sharing in a supply chain coopetition situation. *International Journal of Operations & Production Management*. https://doi.org/10.1108/IJOPM-10-2023-0840

Davis, J. A. (1963). Structural Balance, Mechanical Solidarity, and Interpersonal Relations. *American Journal of Sociology*, *68*(4), 444–462. https://doi.org/10.1086/223401

Davis, J. A. (1967). Clustering and Structural Balance in Graphs. *Human Relations*, *20*(2), 181–187. https://doi.org/10.1177/001872676702000206

Dubois, A. (2009). Comment on "Taking the leap from dyads to triads: Buyer–supplier relationships in supply networks" by Choi and Wu. *Journal of Purchasing and Supply Management*, *15*(4), 267–268. https://doi.org/10.1016/j.pursup.2009.08.002

Durach, C. F., Wiengarten, F., & Choi, T. Y. (2020). Supplier–supplier coopetition and supply chain disruption: First-tier supplier resilience in the tetradic context. *International Journal of Operations & Production Management*, *40*(7/8), 1041–1065. https://doi.org/10.1108/IJOPM-03-2019-0224

Dyer, J. H., & Nobeoka, K. (2000). Creating and managing a high-performance knowledge-sharing network: The Toyota case. *Strategic Management Journal*, *21*(3), 345–367. https://doi.org/10.1002/(SICI)1097-0266(200003)21:3%253C345::AID-SMJ96%253E3.0.CO;2-N

El Sherif, R., Pluye, P., Hong, Q. N., & Rihoux, B. (2024). Using qualitative comparative analysis as a mixed methods synthesis in systematic mixed studies reviews: Guidance and a worked example. *Research Synthesis Methods*, *15*(3), 450–465. https://doi.org/10.1002/jrsm.1698

Emerson, R. M. (1962). Power-Dependence Relations. *American Sociological Review*, *27*(1), 31. https://doi.org/10.2307/2089716

Emerson, R. M. (1976). Social Exchange Theory. *Annual Review of Sociology*, *2*(1), 335–362. https://doi.org/10.1146/annurev.so.02.080176.002003

Estrada, I., & Dong, J. Q. (2020). Learning from experience? Technological investments and the impact of coopetition experience on firm profitability. *Long Range Planning*, *53*(1), 101866. https://doi.org/10.1016/j.lrp.2019.01.003

Fiss, P. C. (2007). A set-theoretic approach to organizational configurations. *The Academy of Management Review*, *32*(4), 1180–1198. https://doi.org/10.5465/amr.2007.26586092

Franke, H., Chae, S., & Foerstl, K. (2024). Toward a configurational understanding of global supply chain complexity. *Journal of Business Logistics*, *45*(2), e12371. https://doi.org/10.1111/jbl.12371

Furnari, S., Crilly, D., Misangyi, V. F., Greckhamer, T., Fiss, P. C., & Aguilera, R. V. (2021). Capturing Causal Complexity: Heuristics for Configurational Theorizing. *Academy of Management Review*, *46*(4), 778–799. https://doi.org/10.5465/amr.2019.0298

Ganesan, S. (1994). Determinants of Long-Term Orientation in Buyer-Seller Relationships. *Journal of Marketing*, *58*(2), 1–19. https://doi.org/10.1177/002224299405800201

Gast, J., Filser, M., Gundolf, K., & Kraus, S. (2015). Coopetition research: Towards a better understanding of past trends and future directions. *International Journal of Entrepreneurship and Small Business*, *24*(4), 492. https://doi.org/10.1504/IJESB.2015.068637

Gernsheimer, O., Kanbach, D. K., & Gast, J. (2021). Coopetition research—A systematic literature review on recent accomplishments and trajectories. *Industrial Marketing Management*, *96*, 113–134. https://doi.org/10.1016/j.indmarman.2021.05.001

Gnyawali, D. R., Madhavan, R., He, J., & Bengtsson, M. (2016). The competition–cooperation paradox in inter-firm relationships: A conceptual framework. *Industrial Marketing Management*, *53*, 7–18. https://doi.org/10.1016/j.indmarman.2015.11.014

Gnyawali, D. R., & Ryan-Charleton, T. (2018). Nuances in the Interplay of Competition and Cooperation: Towards a Theory of Coopetition. *Journal of Management*, *44*(7), 2511–2534. https://doi.org/10.1177/0149206318788945

Golicic, S. L. (2007). A comparison of shipper and carrier relationship strength. *International Journal of Physical Distribution & Logistics Management*, *37*(9), 719–739. https://doi.org/10.1108/09600030710840831

Golicic, S. L., & Mentzer, J. T. (2006). An empirical examination of relationship magnitude. *Journal of Business Logistics*, *27*(1), 81–108. https://doi.org/10.1002/j.2158-1592.2006.tb00242.x

Griffith, D. A., Harvey, M. G., & Lusch, R. F. (2006). Social exchange in supply chain relationships: The resulting benefits of procedural and distributive justice. *Journal of Operations Management*, *24*(2), 85–98. https://doi.org/10.1016/j.jom.2005.03.003

Griffith, D. A., Hoppner, J. J., Lee, H. S., & Schoenherr, T. (2017). The Influence of the Structure of Interdependence on the Response to Inequity in Buyer–Supplier

Relationships. *Journal of Marketing Research*, *54*(1), 124–137. https://doi.org/10.1509/jmr.13.0319

Guo, B., Li, X., Liu, T., & Wu, D. (2023). Supplier–supplier coopetition and buyer innovation: A perspective of learning and competitive tension within the focal buyer's supplier network. *International Journal of Operations & Production Management*, *43*(9), 1409–1433. https://doi.org/10.1108/IJOPM-06-2022-0363

Gupta, M., & Gupta, S. (2019). Influence of National Cultures on Operations Management and Supply Chain Management Practices—A Research Agenda. *Production and Operations Management*, *28*(11), 2681–2698. https://doi.org/10.1111/poms.13100

Handley, S. M., deJong, J., & Benton, W. C. (2019). How Service Provider Dependence Perceptions Moderate the Power–Opportunism Relationship with Professional Services. *Production and Operations Management*, *28*(7), 1692–1715. https://doi.org/10.1111/poms.13013

Hannah, D. P., & Eisenhardt, K. M. (2018). How firms navigate cooperation and competition in nascent ecosystems. *Strategic Management Journal*, *39*(12), 3163–3192. https://doi.org/10.1002/smj.2750

Heide, J. B., & Miner, A. S. (1992). The shadow of the future: Effectsof anticipated interaction and frequency of contract on buy-seller cooperation. *Academy of Management Journal*, *35*(2), 265–291. https://doi.org/10.2307/256374

Heider, F. (1944). Social perception and phenomenal causality. *Psychological Review*, *51*(6), 358–374. https://doi.org/10.1037/h0055425

Heider, F. (1946). Attitudes and Cognitive Organization. *The Journal of Psychology*, *21*(1), 107–112. https://doi.org/10.1080/00223980.1946.9917275

Homans, G. C. (1958). Social Behavior as Exchange. *American Journal of Sociology*, *63*(6,), 597–606.

Hoppner, J., A. Griffith, D., & Yeo, C. (2014). The intertwined relationships of power, justice and dependence. *European Journal of Marketing*, *48*(9/10), 1690–1708. https://doi.org/10.1108/EJM-03-2013-0147

Huo, B., Flynn, B. B., & Zhao, X. (2017). Supply Chain Power Configurations and Their Relationship with Performance. *Journal of Supply Chain Management*, *53*(2), 88–111. https://doi.org/10.1111/jscm.12139

Huo, B., Liu, R., & Tian, M. (2022). The bright side of dependence asymmetry: Mitigating power use and facilitating relational ties. *International Journal of Production Economics*, *251*, 108542. https://doi.org/10.1016/j.ijpe.2022.108542

Huo, B., Wang, Z., & Tian, Y. (2016). The impact of justice on collaborative and opportunistic behaviors in supply chain relationships. *International Journal of Production Economics*, *177*, 12–23. https://doi.org/10.1016/j.ijpe.2016.04.006

Karatzas, A., Johnson, M., & Bastl, M. (2016). Relationship Determinants of Performance in Service Triads: A Configurational Approach. *Journal of Supply Chain Management*, *52*(3), 28–47. https://doi.org/10.1111/jscm.12109

Kaufmann, L., & Carter, C. R. (2006). International supply relationships and non-financial performance—A comparison of U.S. and German practices. *Journal of Operations Management*, *24*(5), 653–675. https://doi.org/10.1016/j.jom.2005.07.001

Ketchen, D. J., Kaufmann, L., & Carter, C. R. (2022). Configurational approaches to theory development in supply chain management: Leveraging underexplored opportunities. *Journal of Supply Chain Management*, *58*(3), 71–88. https://doi.org/10.1111/jscm.12275

Ketchen, D. J., Snow, C. C., & Hoover, V. L. (2004). Research on Competitive Dynamics: Recent Accomplishments and Future Challenges. *Journal of Management*, *30*(6), 779–804. https://doi.org/10.1016/j.jm.2004.06.002

Kim, D.-Y., & Fortado, B. (2021). Outcomes of supply chain dependence asymmetry: A systematic review of the statistical evidence. *International Journal of Production Research*, *59*(19), 5844–5866. https://doi.org/10.1080/00207543.2020.1791999

Klimas, P., Gadomska-Lila, K., & Sachpazidu, K. (2025). Operationalization of coopetition performance: Challenge accepted. *Review of Managerial Science*, *19*(7), 2039–2079. https://doi.org/10.1007/s11846-024-00746-0

Klimas, P., Sachpazidu, K., & Stańczyk, S. (2023). The attributes of coopetitive relationships: What do we know and not know about them? *European Management Journal*, *41*(6), 883–898. https://doi.org/10.1016/j.emj.2023.02.005

Kostis, A., & Näsholm, M. H. (2020). Towards a research agenda on how, when and why trust and distrust matter to coopetition. *Journal of Trust Research*, *10*(1), 66–90. https://doi.org/10.1080/21515581.2019.1692664

Kraus, S., Klimas, P., Gast, J., & Stephan, T. (2019). Sleeping with competitors: Forms, antecedents and outcomes of coopetition of small and medium-sized craft beer breweries. *International Journal of Entrepreneurial Behavior & Research*, *25*(1), 50–66. https://doi.org/10.1108/IJEBR-09-2017-0356

Lacoste, S. (2012). "Vertical coopetition": The key account perspective. *Industrial Marketing Management*, *41*(4), 649–658. https://doi.org/10.1016/j.indmarman.2011.09.013

Lascaux, A. (2020). Coopetition and trust: What we know, where to go next. *Industrial Marketing Management*, *84*, 2–18. https://doi.org/10.1016/j.indmarman.2019.05.015

Lazzarini, S. G., Claro, D. P., & Mesquita, L. F. (2008). Buyer–Supplier and Supplier–Supplier Alliances: Do They Reinforce or Undermine One Another? *Journal of Management Studies*, *45*(3), 561–584. https://doi.org/10.1111/j.1467-6486.2007.00748.x

Le Roy, F., & Czakon, W. (2016). Managing coopetition: The missing link between strategy and performance. *Industrial Marketing Management*, *53*, 3–6. https://doi.org/10.1016/j.indmarman.2015.11.005

Lee, S.-H., Mun, H. J., & Park, K. M. (2015). When is dependence on other organizations burdensome? The effect of asymmetric dependence on internet firm failure: The Effect of Asymmetric Dependence on Internet Firm Failure. *Strategic Management Journal*, *36*(13), 2058–2074. https://doi.org/10.1002/smj.2330

Lewis, M. W. (2000). Exploring Paradox: Toward a More Comprehensive Guide. *Academy of Management Review*, *25*(4), 760–776.

Lewis, M. W., & Smith, W. K. (2014). Paradox as a Metatheoretical Perspective: Sharpening the Focus and Widening the Scope. *The Journal of Applied Behavioral Science*, *50*(2), 127–149. https://doi.org/10.1177/0021886314522322

Liu, R., Yang, J., & Zhang, F. (2021). Managing technology transfer between coopetitive firms: The roles of coopetition, asset specificity and justice. *Journal of Business & Industrial Marketing*, *36*(5), 765–781. https://doi.org/10.1108/JBIM-10-2019-0462

Liu, Y., Huang, Y., Luo, Y., & Zhao, Y. (2012). How does justice matter in achieving buyer–supplier relationship performance? *Journal of Operations Management*, *30*(5), 355–367. https://doi.org/10.1016/j.jom.2012.03.003

Lundgren-Henriksson, E.-L., & Kock, S. (2016). A sensemaking perspective on coopetition. *Industrial Marketing Management*, *57*, 97–108. https://doi.org/10.1016/j.indmarman.2016.05.007

Luo, Y. (2007). The Independent and Interactive Roles of Procedural, Distributive, and Interactional Justice in Strategic Alliances. *Academy of Management Journal*, *50*(3), 644–664. https://doi.org/10.5465/amj.2007.25526452

Luo, Y., Liu, Y., Yang, Q., Maksimov, V., & Hou, J. (2015). Improving performance and reducing cost in buyer–supplier relationships: The role of justice in curtailing opportunism. *Journal of Business Research*, *68*(3), 607–615. https://doi.org/10.1016/j.jbusres.2014.08.011

Madhavan, R., & Gnyawali, D. R. (2004). Two's company, three's a crowd? Triads in cooperative-competitive networks. *Academy of Management Journal*, *47*(6), 918–927. https://doi.org/10.2307/20159631

Madhavan, R., Gnyawali, D. R., & He, J. (2004). Two's company, three's a crowd? Triads in cooperative-competitive networks. *Academy of Management Journal*. https://doi.org/10.5465/20159631

Marques, L., Yan, T., & Matthews, L. (2020). Knowledge Diffusion in a Global Supply Network: A Network of Practice View. *Journal of Supply Chain Management*, *56*(1), 33–53. https://doi.org/10.1111/jscm.12214

Massari, G. F., & Giannoccaro, I. (2021). Investigating the effect of horizontal coopetition on supply chain resilience in complex and turbulent environments. *International Journal of Production Economics*, *237*, 108150. https://doi.org/10.1016/j.ijpe.2021.108150

Masterson, S. S., Lewis, K., Goldman, B. M., & Taylor, M. S. (2000). Integrating justice and social exchange: The differing effects of fair procedures and treatment on work relationships. *Academy of Management Journal*, *43*(4), 738–748. https://doi.org/10.2307/1556364

Mena, C., Humphries, A., & Choi, T. Y. (2013). Toward a Theory of Multi-Tier Supply Chain Management. *Journal of Supply Chain Management*, *49*(2), 58–77. https://doi.org/10.1111/jscm.12003

Mesquita, L. F., Anand, J., & Brush, T. H. (2008). Comparing the resource-based and relational views: Knowledge transfer and spillover in vertical alliances. *Strategic Management Journal*, *29*(9), 913–941. https://doi.org/10.1002/smj.699

Meuer, J., & Rupietta, C. (2017). A review of integrated QCA and statistical analyses. *Quality & Quantity*, *51*(5), 2063–2083. https://doi.org/10.1007/s11135-016-0397-z

Misangyi, V. F., Greckhamer, T., Furnari, S., Fiss, P. C., Crilly, D., & Aguilera, R. (2017). Embracing Causal Complexity: The Emergence of a Neo-Configurational Perspective. *Journal of Management*, *43*(1), 255–282. https://doi.org/10.1177/0149206316679252

Moradlou, H., Reefke, H., Skipworth, H., & Roscoe, S. (2021). Geopolitical disruptions and the manufacturing location decision in multinational company supply chains: A Delphi study on Brexit. *International Journal of Operations & Production Management*, *41*(2), 102–130. https://doi.org/10.1108/IJOPM-07-2020-0465

Moradlou, H., Skipworth, H., Bals, L., Aktas, E., & Roscoe, S. (2024). Geopolitical disruptions and supply chain structural ambidexterity. *International Journal of Operations & Production Management*. https://doi.org/10.1108/IJOPM-11-2023-0915

Nair, A., Blome, C., Choi, T. Y., & Lee, G. (2018). Re-visiting collaborative behavior in supply networks – structural embeddedness and the influence of contextual changes and sanctions. *Journal of Purchasing and Supply Management*, *24*(2), 135–150. https://doi.org/10.1016/j.pursup.2017.11.006

Nair, A., Narasimhan, R., & Bendoly, E. (2011). Coopetitive Buyer–Supplier Relationship: An Investigation of Bargaining Power, Relational Context, and Investment Strategies. *Decision Sciences*, *42*(1), 93–127. https://doi.org/10.1111/j.1540-5915.2010.00303.x

Nalebuff, B., & Brandenburger, A. (1996). *Co-opetition: 1: A revolutionary mindset that combines competition and cooperation in the marketplace. 2: The game theory strategy that's changing the game of business*. HarperCollinsBusiness.

Narasimhan, R., Nair, A., Griffith, D. A., Arlbjørn, J. S., & Bendoly, E. (2009). Lock-in situations in supply chains: A social exchange theoretic study of sourcing arrangements in buyer–supplier relationships. *Journal of Operations Management*, *27*(5), 374–389. https://doi.org/10.1016/j.jom.2008.10.004

Narasimhan, R., Narayanan, S., & Srinivasan, R. (2013). An Investigation of Justice in supply chain relationships and their performance impact. *Journal of Operations Management*, *31*(5), 236–247. https://doi.org/10.1016/j.jom.2013.05.001

Nishiguchi, T., & Beaudet, A. (1998). The Toyota Group and the Aisin Fire. *MIT Sloan Management Review*. https://sloanreview.mit.edu/article/the-toyota-group-and-the-aisin-fire/

Onwuegbuzie, A., & Weinbaum, R. (2017). A Framework for Using Qualitative Comparative Analysis for the Review of the Literature. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2017.2175

Park, B.-J. (Robert), Srivastava, M. K., & Gnyawali, D. R. (2014). Walking the tight rope of coopetition: Impact of competition and cooperation intensities and balance on firm innovation performance. *Industrial Marketing Management*, *43*(2), 210–221. https://doi.org/10.1016/j.indmarman.2013.11.003

Pathak, S. D., Wu, Z., & Johnston, D. (2014). Toward a structural view of co-opetition in supply networks. *Journal of Operations Management*, *32*(5), 254–267. https://doi.org/10.1016/j.jom.2014.04.001

Pfeffer, J., & Salancik, G. R. (2003). *The external control of organizations: A resource dependence perspective*. Stanford Business Books.

Potter, A., & Paulraj, A. (2020). Building supplier innovation triads: The effects of leadership relationships and alliance partner diversity. *International Journal of Operations & Production Management*, *40*(2), 144–172. https://doi.org/10.1108/IJOPM-07-2018-0418

Potter, A., & Wilhelm, M. (2019). Antecedents and Consequences of Supply Network Enabled Innovation: Evidence from Toyota. *Academy of Management Annual Meeting Proceedings*, *2019*. https://doi.org/10.5465/AMBPP.2019.232

Potter, A., & Wilhelm, M. (2020). Exploring supplier–supplier innovations within the Toyota supply network: A supply network perspective. *Journal of Operations Management*, *66*(7–8), 797–819. https://doi.org/10.1002/joom.1124

Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.

Rajala, A., & Tidström, A. (2017). A multilevel perspective on organizational buying behavior in coopetition–an exploratory case study. *Journal of Purchasing and Supply Management*, *23*(3), 202–210. https://doi.org/10.1016/j.pursup.2017.03.002

Raza-Ullah, T. (2020). Experiencing the paradox of coopetition: A moderated mediation framework explaining the paradoxical tension–performance relationship. *Long Range Planning*, *53*(1), 101863. https://doi.org/10.1016/j.lrp.2018.12.003

Raza-Ullah, T., Bengtsson, M., & Kock, S. (2014). The coopetition paradox and tension in coopetition at multiple levels. *Industrial Marketing Management*, *43*(2), 189–198. https://doi.org/10.1016/j.indmarman.2013.11.001

Ricciardi, F., Zardini, A., Czakon, W., Rossignoli, C., & Kraus, S. (2022). Revisiting the cooperation–competition paradox: A configurational approach to short- and long-term coopetition performance in business networks. *European Management Journal*, *40*(3), 320–331. https://doi.org/10.1016/j.emj.2021.07.002

Ried, L., Eckerd, S., Kaufmann, L., & Carter, C. R. (2023). From target to actor: Contagion of honesty and deception across buyer–supplier negotiations. *Journal of Operations Management*, *69*(2), 261–283. https://doi.org/10.1002/joom.1212

Ritala, P. (2012). Coopetition Strategy – When is it Successful? Empirical Evidence on Innovation and Market Performance. *British Journal of Management*, *23*(3), 307–324. https://doi.org/10.1111/j.1467-8551.2011.00741.x

Rodrigues, F., Souza, V., & Leitao, J. (2011). Strategic coopetition of global brands: A game theory approach to 'Nike + iPod Sport Kit' co-branding. *International Journal of Entrepreneurial Venturing*, *3*(4), 435. https://doi.org/10.1504/IJEV.2011.043387

Russo, I., Confente, I., Gligor, D., & Cobelli, N. (2019). A roadmap for applying qualitative comparative analysis in supply chain research: The reverse supply chain case. *International Journal of Physical Distribution & Logistics Management*, *49*(1), 99–120. https://doi.org/10.1108/IJPDLM-02-2018-0056

Schneider, C. Q., & Wagemann, C. (2010). Standards of Good Practice in Qualitative Comparative Analysis (QCA) and Fuzzy-Sets. *Comparative Sociology*, *9*(3), 397–418. https://doi.org/10.1163/156913210X12493538729793

Schorsch, T., Wallenburg, C. M., & Wieland, A. (2017). The human factor in SCM: Introducing a meta-theory of behavioral supply chain management. *International Journal of Physical Distribution & Logistics Management*, *47*(4), 238–262. https://doi.org/10.1108/IJPDLM-10-2015-0268

Seepana, C., Paulraj, A., & Huq, F. A. (2020). The architecture of coopetition: Strategic intent, ambidextrous managers, and knowledge sharing. *Industrial Marketing Management*, *91*, 100–113. https://doi.org/10.1016/j.indmarman.2020.08.012

Shi, N., Zhou, S., Wang, F., Xu, S., & Xiong, S. (2014). Horizontal cooperation and information sharing between suppliers in the manufacturer–supplier triad.

International Journal of Production Research, *52*(15), 4526–4547. https://doi.org/10.1080/00207543.2013.869630

Sodhi, M. S., & Tang, C. S. (2021). Supply Chain Management for Extreme Conditions: Research Opportunities. *Journal of Supply Chain Management*, *57*(1), 7–16. https://doi.org/10.1111/jscm.12255

Soppe, B., Lechner, C., & Dowling, M. (2014). Vertical coopetition in entrepreneurial firms: Theory and practice. *Journal of Small Business and Enterprise Development*, *21*(4), 548–564. https://doi.org/10.1108/JSBED-03-2014-0052

Swierczek, A. (2019). The role of manufacturer in supply chain transformation from intransitive into transitive triads: Implications for the network rent. *Supply Chain Management: An International Journal*, *24*(4), 445–468. https://doi.org/10.1108/SCM-10-2018-0341

Swierczek, A., & Szozda, N. (2024). The impact of dyadic relationships in supply chain triads. *International Journal of Operations & Production Management*, *44*(1), 155–178. https://doi.org/10.1108/IJOPM-10-2022-0677

Taubeneder, R., Roehrich, J. K., Tyler, B. B., Squire, B., & Gnyawali, D. R. (2024). Managing coopetition dynamics: A longitudinal study of a multiparty alliance formation in a large utilities project. *Journal of Operations Management*, joom.1320. https://doi.org/10.1002/joom.1320

Timmer, S., & Kaufmann, L. (2019). Do Managers' Dark Personality Traits Help Firms in Coping with Adverse Supply Chain Events? *Journal of Supply Chain Management*, *55*(4), 67–97. https://doi.org/10.1111/jscm.12212

Tortoriello, M., Perrone, V., & McEvily, B. (2011). Cooperation among competitors as status-seeking behavior: Network ties and status differentiation. *European Management Journal*, *29*(5), 335–346. https://doi.org/10.1016/j.emj.2011.02.001

Touboulic, A., Chicksand, D., & Walker, H. (2014). Managing Imbalanced Supply Chain Relationships for Sustainability: A Power Perspective. *Decision Sciences*, *45*(4), 577–619. https://doi.org/10.1111/deci.12087

Villena, V. H., & Craighead, C. W. (2017). On the Same Page? How Asymmetric Buyer–Supplier Relationships Affect Opportunism and Performance. *Production and Operations Management*, *26*(3), 491–508. https://doi.org/10.1111/poms.12648

Wilhelm, M. (2011). Managing coopetition through horizontal supply chain relations: Linking dyadic and network levels of analysis. *Journal of Operations Management*, *29*(7–8), 663–676. https://doi.org/10.1016/j.jom.2011.03.003

Wilhelm, M., Blome, C., Bhakoo, V., & Paulraj, A. (2016). Sustainability in multi-tier supply chains: Understanding the double agency role of the first-tier supplier. *Journal of Operations Management*, *41*(1), 42–60. https://doi.org/10.1016/j.jom.2015.11.001

Wilhelm, M., & Sydow, J. (2018). Managing Coopetition in Supplier Networks – A Paradox Perspective. *Journal of Supply Chain Management*, *54*(3), 22–41. https://doi.org/10.1111/jscm.12167

Wu, Z., & Choi, T. Y. (2005). Supplier–supplier relationships in the buyer–supplier triad: Building theories from eight case studies. *Journal of Operations Management*, *24*(1), 27–52. https://doi.org/10.1016/j.jom.2005.02.001

Wu, Z., Choi, T. Y., & Rungtusanatham, M. J. (2010). Supplier–supplier relationships in buyer–supplier–supplier triads: Implications for supplier performance. *Journal of Operations Management*, *28*(2), 115–123. https://doi.org/10.1016/j.jom.2009.09.002

Xie, Q., Gao, Y., Xia, N., Zhang, S., & Tao, G. (2023). Coopetition and organizational performance outcomes: A meta-analysis of the main and moderator effects. *Journal of Business Research*, *154*, 113363. https://doi.org/10.1016/j.jbusres.2022.113363

Yigitbasioglu, O. M. (2010). Information sharing with key suppliers: A transaction cost theory perspective. *International Journal of Physical Distribution & Logistics Management*, *40*(7), 550–578. https://doi.org/10.1108/09600031011072000

Zhang, J., Zou, Q., & Wang, Y. (2023). Justice in triad: Revisiting supplier involvement in new product development. *Business Ethics, the Environment & Responsibility*, *32*(1), 312–327. https://doi.org/10.1111/beer.12490

Zou, Q., & Wang, Y. (2022). Understanding opportunism in buyer–supplier–supplier triadic relationships: The role of power asymmetry. *Management Decision*, *60*(11), 2952–2971. https://doi.org/10.1108/MD-05-2021-0654