Understanding Supplier Resource Allocation: The impact of Dependency and Relationship length, Moderated and Mediated by Market and Partner uncertainty.

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ABSTRACT,
Supplier resource allocation in a buyer-supplier relationship entails strategically distributing resources to meet buyer needs. Supplier's effective resource allocation is an important part of strategic operations and sustainability. This selective process depends on factors such as the level of dependency, customer attractiveness, power dynamics and the length of the relationship. This research examines how supplier resource allocation is influenced by different levels of dependency, and different lengths of the relationship. It also tests the moderating and mediating effects of market and partner uncertainty by using the Policy Capturing method and through conducting interviews. In the literature, supplier dependency and relationship length are generally positively related to supplier's resource allocation, however, Resource Dependency Theory also suggests that suppliers need to diversify their critical resources.

The results show positive effects for both dependence and relationship length on supplier resource allocation. However, we also found that market and partner uncertainty temper the effect of dependency and relationship length on supplier's resource allocation. These findings are important theoretical contributions to the literature by measuring the moderating and mediating effects of market and partner uncertainty. This research highlights the nuanced interplay between established relationships and uncertainties, providing deeper insights into supplier resource allocation.

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Keywords
Resource allocation, dependency, relationship length, market uncertainty, partner uncertainty, strategic partnership.

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1. INTRODUCTION

The allocation of resources to specific buyers is an essential aspect of the complex environment of buyer-supplier partnership, representing a strategic process in which suppliers intentionally distribute resources, whether natural resources or innovative resources to meet the unique needs of their buying company (Pulles et al., 2022). However, suppliers' resource allocation to buyers is a selective process in which not all buying companies have equal opportunity to participate in such collaborations (Pulles et al., 2023). Suppliers' resource allocation has gained significant importance in academic literature and practical applications. Key considerations influencing these decisions include dependency between suppliers and buyers, the duration of their relationships, and uncertainties coming from market and partners (Howard et al., 2016; Pulles et al., 2022; Villena et al., 2019).

One of the key factors influencing suppliers' resource allocation is dependency. Dependency is characterised as the absence of similar or better alternatives in the market (Emerson, 1962). Buyer-supplier dependency describes a buyer's dependence on a supplier's resources for operations and a supplier's dependence on buyers for their buying capacity (Ghadge et al., 2017), high dependency necessitates significant investments and coordination, and low dependency offers greater flexibility in selecting providers while suffering little switching costs for operational continuity (Villena et al., 2019). A key buyer-supplier management strategy is to avoid being overly dependent on a few customers. If a supplier is locked into a contract with a single buyer, the supplier may have limited bargaining power and be open to exploitation. This scenario can negatively impact the supplier’s resource allocation, as they may be forced to prioritise the needs of the single buyer over other potential customers, resulting in inefficiencies and limited ability to adapt to market changes.

Supplier dependence, on the other hand, might be advantageous to the buyer, as the buyer can use its larger influence to seek performance improvements (Pulles et al., 2022). The degree of dependence between the parties, described by the value of resources and the market availability of alternatives, reflects the power dynamics (Brito & Miguel, 2017).

Another factor that influences a supplier’s resource allocation is the relationship length. Relationship length between buyers and suppliers refers to the past interactions between buyers and suppliers. As the relationship matures, there is an increase in relationship-specific communication, coordination, and commitment (Li et al., 2022). Scholars believe that supplier’s investments in the relationship increase switching costs and promote a buyer’s positive need to remain in the relationship (Padgett et al., 2020). This development of the relationship between buyers and suppliers is frequently characterised by extensive and exclusive information exchange, which is more typical in long-term partnerships compared to short-term relationships.

Nevertheless, while long-term relationships have many positive outcomes, firms need to consider the drawbacks. Getting comfortable with how things stand might hinder supplier’s innovation and adaptation to changing market conditions, and suppliers might ignore warning signs from their transactional partners (Hofer et al., 2023).

While suppliers allocate their resources based on the level of dependency and the type of relationship with their buyers, market conditions are not the same for all companies. Market uncertainties are unforeseen economic developments, that could increase the chance of adaptation issues among supply chain partners (Stranieri et al., 2021). This kind of uncertainty originates from the difficulty of anticipating and comprehending market circumstances, trends, and volatility (Xiao, Petkova, Molleman, & van der Vaart, 2019). Additionally, there is a substantial relationship between a company's trust in its supply chain partner and the existence of uncertainties on both sides (Kwon & Suh, 2004). This partner uncertainty arises when one company is unsure about the objectives and lacks information about its supply chain partner

(Vorst & Beulens, 2002), hence it can have a significant impact on the relationship between buyers and suppliers and their interdependence.

Although extensive research exists on power asymmetry and balance in buyer-supplier relationships, gaps exist in understanding how buyer-supplier dependency and relationship duration influence supplier resource allocation, particularly under the influence of market and partner uncertainties. Research by Xiao et al. (2019) indicates that buyer and supplier interdependence reduces uncertainty. Additionally, Jajja et al. (2017) discuss how RDT highlights that firms aim to establish long-term relationships with key suppliers to create dependence and control. This implies that the duration of relationships between buyers and suppliers can impact resource allocation decisions. Furthermore, Pulles et al. (2022) demonstrate that supplier-specific investments can reduce supplier uncertainty resulting from dependency, leading to the allocation of key resources to the key buyers making such investments.

Based on these identified gaps in supplier resource allocation, our research goal is three-folded

- First, we will test the impact of supplier dependency on resource allocation.
- Second, we will test whether long-term relationships between buyers and suppliers affect supplier's resource allocation.
- And finally, we will also investigate the moderating and mediating effects of partner and market uncertainty on supplier dependency and the relationship length.

This research consists of a literature review followed by empirical research by interviewing and collecting data from supplier companies. First, we used the Policy Capturing (PC) method for collecting data, we asked 32 suppliers to fill out forms containing different scenarios regarding different levels of dependency (low, high), different lengths of relationships (short, long), and different levels of partner and market uncertainty (low, High). After collecting data, semi-structured interviews were conducted with the respondents to find in-depth information regarding the collected data.

After receiving 256 filled-out scenarios from suppliers and conducting interviews, the results show that there is a significant and positive effect of supplier dependence, and relationship length on resource allocation, these findings confirm the findings of the literature. While dependency and relationship length both have direct and significant positive effects on supplier resource allocation, this positive effect seems to decrease when there is market or partner uncertainty.

This research contributes three-folded to literature and practice, First, we contribute to the understanding of the effect of relationship length on resource allocation.

Second, we analyse the potential impact of supplier dependence on supplier's resource allocation, and third, we contribute to the existing gap in the literature by measuring the moderating and mediating effects of market and partner uncertainty on supplier's dependence and relationship length.

2. LITERATURE REVIEW

2.1 Supplier resource allocation

A Fundamental aspect of buyer-supplier partnership is the allocation of supplier resources to a particular buyer. This procedure entails suppliers deliberately distributing resources to fulfil the specific needs of a buying firm and effective resource allocation is an important part of a supplier's strategic operations and business sustainability (Brito & Miguel, 2017; Pulles et al., 2022). Additionally, the supplier's differential treatment of buyers is an important determinant of the competitive advantage that buyers can derive from their supplier's relationships (Castellucci & Ertug, 2010).

Resources, whether physical resources or innovative resources play a critical role in this partnership. Collaboration between a buyer and a supplier entails shared planning and investment in relationship-specific assets, recurrent transactions, and a sophisticated governance framework to facilitate trade (Brito & Miguel, 2017). Research has explored various factors influencing how suppliers allocate their resources. The literature highlights the significance of factors such as supplier-specific investments, supplier dependence, power, trust dimensions, and customer attractiveness influencing supplier's resource allocation (Ingenbleek & Krampe, 2023; Pulles et al., 2022; Villena et al., 2020). For instance, Pulles et al. (2022) focus on the interplay between supplier-specific investments and supplier dependence that influence supplier resource allocation, and the dynamics of the buyer-supplier relationship are influenced by the degree of dependence between two parties. Higher dependence typically implies greater uncertainty, encouraging suppliers to be more proactive (Pulles et al., 2022). The value of the resource and the market availability of alternatives will then decide how dependent one company is on the other and define one organization's power over the other (Brito & Miguel, 2017), and buyers with significant market power can often negotiate more favourable terms, thereby influencing supplier's resource allocation (Casciaro & Piskorski, 2005).

While uncertainty created by supplier dependency affects positively supplier resource allocation, the literature also suggests that organisations need to diversify their resources, this diversification strategy provides flexibility (Pulles et al., 2022). Additionally, the attractiveness of a buyer can significantly impact how a supplier allocates its resources (Tsai et al., 2023). Buyers can become attractive when their suppliers are satisfied, and supplier satisfaction is influenced by factors such as communication quality, cooperation, and financial stability, which in turn affect how resources are allocated (Artz, 1999; Brito & Miguel, 2017; Elking et al., 2017).

Relationship-specific investments are important factors emphasized in the literature increasing supplier's commitment, trust and sharing information which are positively related to supplier resource allocation (Poppo et al., 2016). Buyers can also achieve a preferred customer status by increasing their commitment to their suppliers and increasing their attractiveness (Hüttinger et al., 2012). A preferred customer is a valued buyer who receives preferential treatment from its suppliers for a variety of reasons such as loyalty, purchase volume, strategic alignment, or other mutually beneficial reasons (Schiele et al., 2012).

While commitment in long-term relationships offers various positive outcomes between buyers and suppliers, literature also cautions against negative effects, such as opportunism, missing out on new market opportunities and innovation (T. K. Das & Teng, 2000; Joshi & Stump, 1999; Li et al., 2022; Xiao, Petkova, Molleman, & van der Vaart, 2019).

To explore the effects of dependency and the relationship length on supplier resource allocation, few theoretical frameworks would explain this relationship.

2.2 Theories

2.2.1 Resource Dependence Theory

The Resource Dependence Theory (RDT) is an important framework that emphasises organization's dependence on external resources for survival and success (Elking et al., 2017). RDT suggests that organisations are interconnected with their external environment through resource dependencies and organisations can influence their external dependencies by establishing relationships with other firms to access scarce resources. The theory emphasises the importance of assessing the environment and controlling external resources to improve organizational performance and survival (Jiang et al., 2022). RDT has found prominent application in a variety of fields, including international business, where it has proven critical in understanding global trades.

For this study, RDT is essential for understanding how suppliers allocate their resources. The theory suggests that organisations do not have all the necessary resources for their survival, and they need to form allies with other organisations for their resources (Howard et al., 2017), The availability of resources or alternative resources determines the degree of dependency between buyers and suppliers. Studies support the idea of supplier-specific investments and close collaboration between buyers and suppliers to gain scarce resources (Pulles et al., 2022).

Few other theoretical frameworks would explain supplier resource allocation decisions, however, these theories are not used in this study because of their limitations for this study.

Resource-Based View (RBV) emphasises the importance of an organization's internal resources in gaining and maintaining competitive advantage. This viewpoint highlights leveraging an organization's unique resources to outperform competitors (Rengkung, 2015). For this study, there is explanatory content in this theory, it might, however, cover only a narrow range of possible decisions related to a firm's internal resources and capabilities.

Transaction Cost Economics (TCE) focuses on the cost of transactions and how firms structure their relationships to minimize these costs. TCE explains how transaction costs influence the choice of transaction methods, such as spot markets, contracts, and vertical integration. The theory is based on uncertainty and unpredictability in the economic environment (Zhou et al., 2016). Moreover, TCE investigates make-or-buy decisions and the costs associated with governance structure (O. E. Williamson, 1979). This theory could be fruitful for the vertical integration of firms when facing high dependency and uncertainty.

Social Exchange Theory (SET) centres around the idea that relationships are based on a give-and-take dynamic, where individuals evaluate the balance between what they invest in a relationship and what they receive in return (Ma & Qu, 2011). For this study, SET offers some explanatory content, however, there is limited consideration of market circumstances and focuses more on reciprocity than practicalities.

Using RDT for our research seems appropriate because this theory underscores the interdependence between buyers and suppliers and how power dynamics and resource availability shape resource allocation decisions.

2.3 Relationship length

When buying companies need scarce resources from suppliers, they join relationships with the suppliers (Elking et al., 2017), thereby engaging in suppliers' resource allocation. This collaboration between buyers and suppliers enables on-time delivery and mutual progress (Koufteros & Peters, 2019). However, depending on the availability of the resources, buyers need to invest in the relationship to maintain mutual collaboration.

According to RDT, where environment and collaboration can offer crucial resources, for scarce and valuable supplier's resources, the buyer firm needs more investments in the relationship (Villena et al., 2019). The length of a buyer-supplier relationship can significantly impact both sides, influencing many areas of their business interactions, operations, and outcomes. Research has shown when relationships evolve, there is an increase in relationship-specific communication, coordination, and commitment (Li et al., 2022). This development of the relationship between buyers and suppliers is frequently characterised by extensive and exclusive information exchange, which is more typical in long-term partnerships compared to short-term relationships.

Moreover, the length of a buyer-supplier relationship can have an impact on the level of trust, innovation, and overall performance of the supplier (Tarigan et al., 2020). Additionally, relationship-specific investments are an important concept in supplier development programs, these investments occur when buyers and suppliers have long-term relationships. Relationship-specific investments create relational rent which is defined as a supernormal profit gained in an

exchange partnership that cannot be made by either firm alone but through the unique contribution of the partners (Dyer & Singh, 1998).

While long-term relationships between buyers and suppliers offer positive outcomes in the transactions, there are potential drawbacks to consider. Over time, buyers and suppliers may become too comfortable with how things stand, which may hinder innovation and adaptation to changing market conditions, and parties may overlook warning signs of declining performance or unethical practices, exposing the buyer to risks such as quality issues, supply chain disruptions or reputational harms (Hofer et al., 2023).

Furthermore, long-term relationships between buyers and suppliers can develop a sense of dependency, limiting their flexibility to seek new opportunities or alternative partnerships, thus reducing the possibility for diversification and innovation (Pulles et al., 2022).

2.4 Dependence and supplier's resource allocation

Dependency between buyers and suppliers occurs in the supply chain when a buying firm needs scarce resources from suppliers and suppliers need buying firms for their buying capacity and both parties need to collaborate to achieve a specific goal or outcome (Howard et al., 2016). This interdependence creates a strategic relationship where both partners work together to share risks, access valuable and scarce resources and reduce uncertainty. The uncertainty caused by this dependency calls for suppliers to seek reassurance that the buyer will not engage in opportunistic behaviour or abandon the partnership (T. Das & Teng, 2001).To reduce this uncertainty, the supplier allocates resources and becomes committed to this buyer to maintain the relationship (Pulles et al., 2022). Committed suppliers contribute to product quality, innovation, and cost-effectiveness, helping a company's competitiveness and overall operational strength in the marketplace (Koufteros & Peters, 2019).

RDT emphasises the environmental background, power dynamics, and the company's techniques for managing dependency. The theory suggests that companies with valuable resources have power and reduce their dependence on external parties increasing other's dependence on them. In a buyer-supplier relationship, powerful buyers can leverage their power for their performance (Elking et al., 2017). RDT has evolved as a dominant theoretical framework for why buying firms collaborate with suppliers (Hillman et al., 2009), and this collaboration requires the buyer to deliberately invest in the relationship to create asset-specific resources which are tangible or intangible assets created for a particular purpose (Joskow, 1988).

2.5 Market and partner uncertainty

Market uncertainty is not caused by the actions of supply chain partners during vertical exchanges, but rather by unforeseen economic developments, that could increase the chance of adaptation issues among supply chain partners (Stranieri et al., 2021). This type of uncertainty originates from the difficulty of anticipating and comprehending market circumstances, trends, and volatility. This, combined with fierce rivalry, causes manufacturing to adapt quickly. (Xiao, Petkova, Molleman, & van der Vaart, 2019). Partner uncertainty in a buyer-supplier relationship, on the other hand, arises when the decision-maker is unsure about objectives, faces limitations in processing information and lacks information about their supply chain partner (Vorst & Beulens, 2002).

Handling both partner and market uncertainty in supply chain partnerships is a critical component of supply chain management. According to research, there is a substantial relationship between a company's trust in its supply chain partner and the specific asset investments of both sides (Kwon & Suh, 2004). Additionally, the dependence of buyers and suppliers on each other's resources has

been identified as a key factor influencing how market uncertainty affects the relationship between them (Xiao, Petkova, et al., 2019a).

According to RDT close collaboration of buyers with suppliers and incentives of buying firms can reduce market and partner uncertainty (Zhang et al., 2020). Moreover, knowledge-sharing and relationship-specific investments will enhance partnerships and when facing technology uncertainty even when the supplier does not have the resources, knowledge-sharing and relationship-specific investments can motivate and facilitate to development of these resources (Xiao, Petkova, et al., 2019a). Furthermore, studies show the positive effect of integrating suppliers into a firm's new product development program (NPD), where buyers learn from the technology innovativeness of their suppliers and reduce uncertainty (Oke et al., 2013).

While RDT stimulates relationship-specific investments between buyers and suppliers, According to Pulles et al. (2023), supplier-specific investments can reduce the supplier's uncertainty about losing the buyer, this indicates that the buyer is already committed to the relationship, reducing the supplier's need to allocate the resources to the investing buyer (Pulles et al., 2022).

3. HYPOTHESES

3.1 Relationship length and supplier's resource allocation

Collaboration between buyers and suppliers develops over time. The length of a buyer-supplier relationship can have a considerable impact on both parties, influencing many aspects of their interactions, operations, and outcomes. Long-term relationships are especially beneficial for supplier resource allocation because they enable extensive and exclusive information exchange, which is more common in long-term partnerships than in short-term relationships (Li et al., 2022). This level of communication allows suppliers to better understand buyer's specific needs and expectations, resulting in more precise and efficient resource allocation. Furthermore, the length of a buyer-supplier relationship can affect various aspects such as the level of trust, innovation, and overall performance of the supplier (Tarigan et al., 2020). A higher level of trust, which develops gradually, reduces the perceived risk of opportunistic behaviour, and encourages supplier to commit more resources with confidence, knowing that their investments are secure.

Relationship-specific investments are also important in supplier development programs. When buyers make these investments, they increase the supplier's commitment to the relationship, which results in increased resource allocation from the supplier (Poppo et al., 2016). These investments may include specialised equipment, training, or dedicated personnel, all of which improve the supplier's ability to meet the buyer's requirements. According to RDT, buyers and suppliers benefit from relationship-specific investments, which are more common in longer-term relationships (Xiao, Petkova, Molleman, & van der Vaart, 2019), over time, as these investments grow, they reinforce the supplier's commitment to the buyer, resulting in a more consistent and reliable resource allocation.

Following this logic, relationship length between buyers and suppliers impacts suppliers' resource allocation, and we expect the following:

Hypothesis 1: As the level of the relationship between buyers and suppliers increases, suppliers are more likely to allocate their resources to a buyer with a long-term relationship.

3.2 The moderating effect of market uncertainty on the relationship length

While companies choose different types of relationships with their suppliers to secure resources, market conditions are not the same for all companies and this creates uncertainty in inter-firm relationships (Milliken, 1987). Market uncertainty refers to the external and collective uncertainties shared by a set of enterprises operating in a certain market (C. M. Beckman et al., 2004b), and market uncertainty originates from the difficulty of anticipating and comprehending market circumstances, trends, and volatility in demand (C. M. Beckman et al., 2004a). Moreover,

technological improvements and market competition force companies to adapt quickly. Thereby causing market uncertainty (Xiao, Petkova, Molleman, & van der Vaart, 2019).

Interorganizational relationships play an important role in reducing market uncertainty, according to RDT, buyers and suppliers with long-term partnerships can manage better market uncertainty by forming allies, which in turn increases supplier's resource allocation (Elking et al., 2017; Howard et al., 2016). Stimulating buyer's and supplier's collaboration, companies use different methods to support collaboration and reduce market uncertainties (C. Beckman et al., 2004). Knowledge-sharing and relationship-specific investments can enhance partnerships and reduce technology uncertainties (Xiao, Petkova, Molleman, & van der Vaart, 2019). Integrating suppliers into new product development (NPD), where buyers and suppliers learn from each other, can reduce market uncertainties. However, collaboration between buyers and suppliers evolves as time passes, and the length of their relationship has a significant impact on supplier's resource allocation and collaboration (Li et al., 2022).

Based on the above arguments, long-term relationships between buyers and suppliers foster trust and commitment as the relationship matures, leading to improved collaboration and reduced risk. When a buyer and a supplier have a long history of transactions, this relationship facilitate better knowledge sharing and communication, allowing suppliers to anticipate and meet buyers needs more accurately. Additionally, integrating suppliers into NPD reduces technology uncertainty and aligns resources with strategic goals.

Given the above arguments, when there is market uncertainty, suppliers allocate their resources to buyers with a long history of transactions compared to buyers with relatively short-term relationships. We aim to test the following hypothesis:

Hypothesis 2: As the level of market uncertainty increases, suppliers are more likely to allocate their resources to a buyer with a long-term relationship.

3.3 The moderating effect of partner uncertainty on the relationship length

As mentioned earlier, inter-organisational relationships play an important role in reducing uncertainties. Suppliers prefer long-term relationships with the buyers to allocate their resources. Suppliers choose long-term relationships because past interactions affect the level of trust, innovation, communication and overall performance of the supplier (Tarigan et al., 2020). Another moderator that affects the relationship is partner uncertainty.

Unlike market uncertainty, partner uncertainty is caused by supply chain partners, when the decision-maker is unsure about objectives, faces limitations in processing information and lacks information about the supply chain partner (Vorst & Beulens, 2002). Moreover, partner uncertainty is related to the behaviour of the exchange partner and behaviour uncertainty refers to the challenge of forecasting a partner's behaviour or changes in the external environment (Joshi & Stump, 1999). When buyers and suppliers enter into a transactional relationship, it requires time to invest in the relationship, and according to RDT, long-term relationships mitigate partner uncertainty through strategies like information sharing, technological investments, and relationship-specific investments (Flynn et al., 2016). These strategies can be implemented with partners with long-term relationship and these strategies increase transparency and predictability between buyers and suppliers, allowing suppliers to allocate their resources more confidently and efficiently. Therefore, the length of the relationship is important in reducing partner uncertainty and ensuring that suppliers allocate their resources effectively.

Considering the above-given arguments, we expect the following:

Hypothesis 3: As the level of partner uncertainty increases, suppliers are more likely to allocate their resources to a buyer with a long-term relationship.

3.4 Dependence and supplier's resource allocation

The core component of RDT is that firms do not have all the necessary resources acquired for their survival, and they need collaboration with other firms to acquire scarce resources (Kim et al., 2015). These resources can be physical resources or innovative resources and forming alliances and collaborative relationships between buyers and suppliers creates mutually beneficial relationships that help manage dependencies. Such partnership and collaborative relationships facilitate resource sharing, joint problem-solving, and a more predictable flow of resources, contributing to mutual dependency (Brito & Miguel, 2017). The degree of inter-firm dependency determines the power of one company on the other (Elking et al., 2017).

In the existing supply chain literature, supplier's dependence on buyers is seen to be positively related to resource allocation to the buying firms (Padgett et al., 2020). A high level of dependence leads to closer collaboration and integration efforts to ensure stability in resource allocation. Additionally, the dependence of a supplier on the buying company affects the relationship between trust and supplier resource allocation (Zhao et al., 2018). While dependency increases collaboration, RDT also suggests that organisations need to diversify their sources of critical resources. Engaging with multiple partner companies can reduce dependency on one single entity. This diversification strategy provides flexibility (Pulles et al., 2022).

While RDT cautions against being too dependent on one single buyer, existing literature supports a positive relationship between supplier's dependence and supplier's resource allocation. Therefore, we hypothesize the following:

Hypothesis 4: As the level of dependency between buyers and suppliers increases, suppliers are more likely to allocate resources to the buyers they depend on the most.

3.5 The mediating effect of market uncertainty on dependency

While supplier dependency is generally positively related to supplier resource allocation (Pulles et al., 2022), market conditions are not the same for all companies. Market uncertainty refers to unforeseen economic developments and difficulty in anticipating market circumstances, trends and volatility (Stranieri et al., 2021; Xiao, Petkova, et al., 2019b), and this uncertainty can have an indirect effect on the supplier's level of dependency, thus on supplier resource allocation.

Literature suggests that when market uncertainty increases the need for close collaboration between buyers and suppliers and sharing information with supply chain partners becomes essential to mitigate market uncertainty (Petersen et al., 2004). Additionally, When facing technology uncertainty, buyers tend to increase their dependence on suppliers to navigate the challenges presented by uncertain technology and product landscapes (Xiao, Petkova, Molleman, & van der Vaart, 2019), and buyers are more likely to lean on suppliers who demonstrate strong performance to ensure continuity and quality in the supply chain (Khan et al., 2022).

Based on the above arguments, we expect that when there is market uncertainty, suppliers tend to work closely with suppliers to help reduce this uncertainty. This close collaboration increases the level of dependency, and we test the following:

Hypothesis 5: As the level of market uncertainty increases, suppliers are more likely to become dependent on buyers, and this dependency is positively related to supplier resource allocation.

3.6 The mediating effect of partner uncertainty on dependency

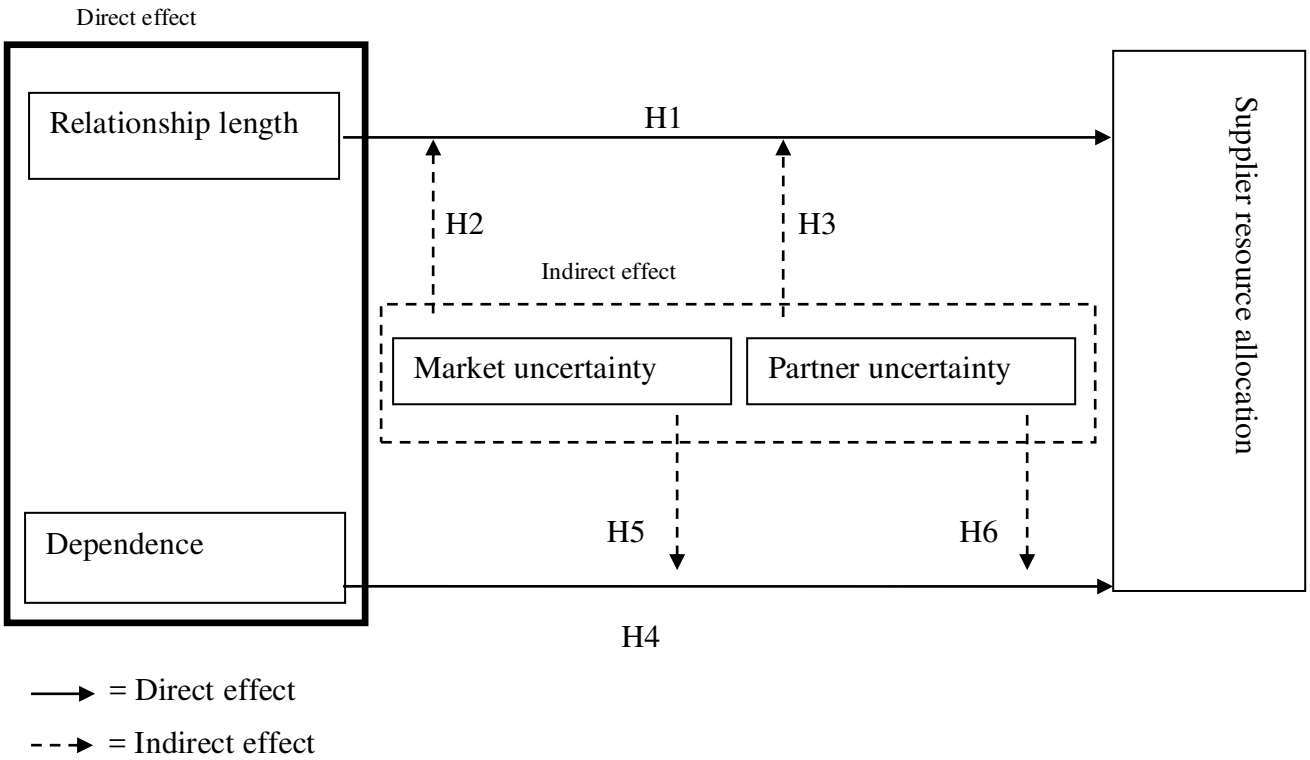
In supply chain management, partner uncertainty and resource allocation are critical factors in determining operational success and efficiency. Partner uncertainty arises when one company is unsure about the objectives and behaviour of its supply chain partner (Vorst & Beulens, 2002). Buyer's and supplier's collaboration creates dependency (Elking et al., 2017), before committing to a relationship and becoming dependent, companies need to be sure about the reliability and suitability of their transactional partner. Trust, partner certainty, and proactive environmental

practices directly influence a company's engagement in cooperative supply chain relationships (Sharfman et al., 2007). Although companies generally have selection criteria before engaging in a contract, partner uncertainty can also arise with supply chain partners with a long history of transactions, for example, internal management changes can create partner uncertainty within a supply chain partnership and companies do not want to depend on an unreliable partner. To mitigate partner uncertainty, effective communication, information sharing, and mutual investments in the relationship can help reduce partner uncertainty and enhance the partnership (Jia, 2013).
Based on the given information, we expect that partner uncertainty weakens supplier dependency and this results in decrease in supplier resource allocation.

Hypothesis 6: As the level of partner uncertainty increases, suppliers are more likely to become less dependent on buyers, and less dependency is negatively related to supplier resource allocation.

Figure 1 below presents the conceptual model of the hypotheses.

Figure 1. Conceptual model of the hypotheses



4. METHODOLOGY

4.1 Research design and procedure

To answer the research questions of this thesis, the research is conducted using a mixed method. The methods conducted entail a combination of literature review, quantitative analysis, and qualitative analysis. For the quantitative method, we chose Policy Capturing (PC). PC is a strategy used to study decision-making processes that statistically describe the relationship between a person's judgment and the information used to generate the judgment (Rogelberg et al., 1999). This method has been widely used in many disciplines, including organisational

research, job evaluation and personal decision-making processes (Aiman-Smith et al., 2002a). PC involves identifying the set of variables or cues that influence the decision of interest and then applying statistical tools to assess and simulate these decision policies (C. L. Williamson et al., 2002).
In this study, the decision-makers are the suppliers of goods dealing with different levels of dependency, different lengths of relationships, and dealing with market and partner uncertainties. Finding suppliers with these characteristics is impossible, given the time frame for this paper, the PC method provides the possibility that informants evaluate hypothetical scenarios (Aiman-Smith et al., 2002b). Scenarios in this study involve suppliers dealing with different levels of dependencies, uncertainties and relationship lengths, the goal is to estimate causal effects regarding supplier's resource allocation to the buyers. Using the PC method gives control and reliable results, it also allows us to look closely at main interaction effects by carefully manipulating the variables.

This data was collected by four group members and each one was responsible for collecting data from 8 to 10 company representatives including account managers, purchasing managers, sales managers, commercial directors, and business developers. The respondents were both male and female, aged between 26 and 69 years old, who had from 2 to 49 years of experience in their professions (see Table 1).

The data I gathered came from 8 representatives of a high-tech company. The name of the company is omitted for privacy reasons. The high-tech company headquartered in the Netherlands, was founded in 1993. It specializes in the design and manufacturing of complex systems and products for a variety of industries, including medical devices, industrial automation, defence, and aerospace. The company prioritizes innovation and research, investing heavily in new technologies to address societal and technological challenges. The company operates globally, with branches in the Netherlands, Germany, Singapore, and Japan, employing approximately 1100 employees.

The company collaborates with universities, research institutions, and industry partners to enhance its R&D capabilities and this gave me the opportunity to contact and collect data from the company. The number of participants available for this research was 8. The participants for this research were business developers. The roles of business developers include expanding the company's market presence, market analysis, client and partner engagement and project and product development. This multifaceted role makes it suitable for judging scenarios for our research.

While the PC method offers useful insights, there are also concerns regarding hypothetical scenarios. It has been argued that for a decision-maker, presenting hypothetical scenarios is not the same as occurring in a natural setting (Mellewigt et al., 2017). To make the research more realistic and reliable and to get deeper insights into the decision-making process regarding supplier resource allocation, semi-structured interviews were conducted with the same respondents.

Semi-structured interviews in contrast to quantitative methods investigate the meaning and expression of human existence, with a focus on social circumstances. The ability to express participants' personal meaning, activities, and social contexts is critical to the quality of this research method, ethical requirements must be considered, as well as data collecting and interpretation rules (Fossey et al., 2002). Additionally, semi-structured interviews are a systematic approach through the analysis of statistical or numerical data, it aims to gather data to identify patterns, and relationships, and validate measurements (Sheard, 2018).The semi-structured interview questionnaire is partially developed with the collaboration of the supervisor, and further modified specifically to the characteristics of the interviewee firms. In total 18

interviews were conducted with the representatives of the firms between June and July. All interviews were either online or face-to-face and lasted between 45 to 60 minutes. The interview questions were open-ended, allowing the interviewer to gain more information regarding the research topic and interpret the findings of the quantitative questionnaire together with the interviews. All questions were formulated either in Dutch or English to make sure all participants fully understood. The responses were given in open-text format, without word limitations, and if the interviewees were providing useful data, they were encouraged to provide more in-depth details. Unlike the PC method mentioned earlier, in which the space for responses is limited, semi-structured interviews present a greater chance to gain a deeper understanding.

Table 1. Profile of the organisations and participants

Organisations							
Industry	Size (employees)	Response rate		Location		Multinational	
High tech	1100	100%		Netherlands		Yes	
High tech	2800	100%		Netherlands		Yes	
Agri food	4000	100%		Netherlands		No	
Beer	85000	100%		Netherlands		Yes	
Participants							
Work experience	%	Function	%	Gender	%	Nationality	#
0-5 years	7%	Account manager	32%	Male	88%	Dutch	76
5-10 years	20%	Sales manager	32%	Female	12%	German	10
10-20 years	17%	Business developer	29%			Belgian	7
≥ 20 years	47%	Manager purchasing	3%			Italian	3
		Manager director	1%			Spanish	3

*8 missing cases are excluded

4.2 Questionnaire

The questionnaire for the PC method contained three parts. The first part, the description provides the historical background of the current situation, the goals of this questionnaire, and the instructions for filling the form. We told the respondents that they were a customer account manager of a mid-sized manufacturer of electric motors. The company provided electric motors used in handheld machine tools such as electric screwdrivers and drills. Their customers were manufacturers of a wide range of machine tools aimed at the consumer market. The respondents were responsible for decisions relating to these customers, and the goal of the respondents was to ensure their company's economic viability and long-term success. Recently, several customers approached the respondents to discuss a new technology, which their company had recently introduced. The respondent companies did not have sufficient capacity to satisfy all the customers. In addition, several customers had asked their company to join a project to better integrate respondent's technology into their product portfolio. It was also provided that

evaluating this new technology's potential gains would be twenty per cent of overall additional revenue to the respondents 'companies.

In the second part of the questionnaire, there were descriptions of dependence, market uncertainty, partner (buyer) uncertainty and relationship length. High dependence accounted for more than twenty per cent of their companies' turnover and low dependence was less than five per cent. High market and partner uncertainties were characterised by a high level of uncertainty and predictability and a low level of uncertainty was characterised by being relatively stable. Relationship lengths were described as long long-term relationships where companies had more than fifteen years of exchange relationships and less than five years of exchange relationships were seen as short-term relationships.

The third part of the questionnaire consisted of the decision part of the respondents. They were asked to make decisions on how to allocate their company's resources to different customers characteristics. The customers differed in terms of dependence, market uncertainty, partner uncertainty and relationship length, which were mentioned in the previous part. The respondents were asked to grade the decision on a scale of seven, where one represented very unlikely and seven was very likely to allocate their resources.

For the survey, Qualtrics software was used. Qualtrics allows the making and distribution of online surveys. The questions in the survey were in 4 blocks, each containing different levels of dependency, relationship length, market, and partner uncertainty.

For semi-structured interviews, we conducted 18 interviews and coded these interviews by using Software Atlas.ti. The semi-structured interview consisted of four parts. In the first part of the interview, the participants could answer general questions regarding their position in the company, responsibilities in their current position and the length of their professional experience.

The second part related to their customer portfolio, dependence, and the length of their relationships. The interviewees were asked to answer questions related to their relationships with their customers, the importance of the customers and their resource allocations.

In the third part, they were asked to answer questions about whether market and partner uncertainty affected their decisions regarding their customer portfolio in allocating their resources. The last part of the questionnaire was related to uncertainties affecting their dependency and relationship with their partners, interviewees were asked to describe their decisions when faced with uncertainties and when deciding whether to allocate their resources to these buyers.

4.3 Measurement

The first step in PC measurement is to identify the key attributes that influence decision-making. The attributes in this research were the levels of dependence, market uncertainty, partner uncertainty, and relationship length. By providing hypothetical scenarios to the respondents covering different attributes, correspondents could rate these scenarios. All the latent variables in the study were measured using a 7-point Likert-type ranging from 1*(strongly disagree*) to 7 (strongly *agree*) to capture participants 'judgments or decisions in response to the scenarios.

The wording of the attributes is important for a successful experimental manipulation. It requires consistency with measures in academic literature and creating scenarios that are reflective of participants' knowledge. Table 2 shows the measurement items and the definitions used for the measurement.

The variables dependence, market uncertainty and partner uncertainty had two attributes (0= low, 1= high). Relationship length had two attributes (0= short, 1= long).

Table 2. Measurement items

Variables	Definitions	Sources
Dependence	The extent to which a buyer depends on a supplier for resources, and the supplier depends on a buyer to sell its resources.	M.D. Howard et al. (2016), Griffith et al. (2017), Villena. (2023)
Relationship length	The length of a contract between buyers and suppliers during market transitions with extensive and exclusive information exchange.	Li et al. (2022), Chen et al. (2020)
Market Uncertainty	The lack of predictability or understanding of many components of the market environment might influence supply and demand dynamics for goods and services.	Stranieri et al. (2021), Liu & Zhang (2015)
Partner Uncertainty	Being unsure about objectives, facing limitations in processing information and lacking information about supply chain partners.	Vorst & Beulens (2002)

Table 2. Measurement items and their definitions

From the semi-structured interviews, we developed a separate data model. 1st Order concepts included codes coming from the semi-structured interviews. The first group was based on similar codes, these codes were grouped based on the similarity of the answers given during the interview. From the 1st order concept, the data were grouped into second-order themes on a theoretical level. This phase resulted in the dimension "increase in resource allocation" or "decrease in resource allocation" by aggregating these mentioned themes.

4.4 Control variables and validity

An important issue with PC studies is that they may have limited external validity, and hypothetical scenarios may not produce responses that accurately reflect real-world situations (Mellewigt et al., 2017).

In the PC method, it is important to ensure that treatment manipulations are valid and representative. The external validity of the PC method can be improved by asking competent participants and creating compelling situations (Aiman-Smith et al., 2002b). We contacted 32 company representatives, who had many years of experience in their fields and decision-making regarding resource allocation was part of their job responsibilities. To enhance the quality and reliability of the survey, distributions of the survey questions were randomized, this helps mitigate order bias and ensures that no particular question or choice benefits from being in a certain position, leading to more accurate data.

Construct validity refers to the constructs being measured are accurately defined and consistently operationalised, and Content validity focuses on the accuracy of the measurement in capturing the intended concept (O'Leary-Kelly & Vokurka, 1998). To ensure construct validity in our study, we provided the respondents with a clear case description, an explanation of the dependent variable (resource allocation) and an explanation of independent variables (dependence, relationship

length, partner uncertainty, market uncertainty), respondents were asked to rate the questions ranging from 1(*strongly disagree*) to 7 (*strongly agree*). Independent variables (relationship length, dependence, market and partner uncertainty) were given as dummy variables (0=Low) and (1= High).

Additionally, we included several control variables. We controlled buyers' distinctive competence, for this, we used a dummy variable where 0 represented that the core competencies of the buyer and supplier were not similar and 1 represented that they had similar core competencies. We also controlled realism, we asked the supplier to answer whether the situation described in the scenarios was realistic and if they had difficulty answering the questions. We controlled risk aversion, with 6 questions related to the tendency of people to prefer outcomes with low certainty to those outcomes with high certainty. Respondents were able to rate realism and risk aversion questions on a 7-point Likert-type ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

We received 256 filled-out scenarios from suppliers, although the sample size is relatively small, it does provide insights into how suppliers allocate their resources under different conditions. Sample selection can cause validity problems when respondents are not randomly selected and are influenced by the choice of the researcher. To minimize this effect, the data was collected from 4 different industries, respondents were in different functions, and with different years of experience (See Table 1). When distributing the surveys, we ensured anonymity, which has advantages over confidentiality in terms of increasing participation and reducing social desirability biases.

4.5 Validity and reliability

Model validity is an important aspect in many fields because it ensures that models accurately represent the real-world phenomena they seek to simulate. To ensure the validity of our model, several tests need to be performed.

The Cronbach's alpha for both realism questions was 0.741. The Cronbach's alpha for risk aversion was 0.494 and the Cronbach's alpha for supplier resources is 0.859. The minimum acceptable value is 0.7 (Beri & Sharma, 2021). Despite low Cronbach's alpha for the risk aversion variable, risk aversion is kept in the model because the composition of risk aversion questions was such that respondents could give the same rating for multiple choices and calculating variances for Cronbach's alpha would not capture the real internal consistency.

The variables are tested for Collinearity, all variables show values below 5 (See Table 4,5,6), and values less than 10 are generally considered acceptable (Caratiquit & Caratiquit, 2023).

To test the correlation between the variables, a correlation matrix is created (See Table 3). The matrix shows a weak positive correlation ($r=0.170$, $p=0.007$) between supplier resources and relationship length, and a positive significant correlation between dependence and supplier resource allocation ($r=0.508$, $p<0.001$). These findings contribute to the convergent validity of the construct. Additionally, there is no correlation between relationship length and dependence which would typically indicate multicollinearity.

The variables buyer distinctive competence, realism, and risk aversion are included as control variables to account for their potential influence on supplier resource allocation. The correlation between buyer's distinctive competence and supplier resource allocation is negative and not significant ($r=-0.022$, $p=0.726$).

Realism and Risk aversion both show positive and significant correlation with supplier resource allocation ($r=0.158$, $p=0.012$; $r=0.167$, $p=0.018$, respectively).

The realism questions reflect the realistic scenarios described in the questionnaire, which support the reliability of the model.

Table 3. Correlation matrix

Variables	Mean	SD	Cronbach's-Alpha	1	2	3	4	5	6
Supplier resources	4.282	1.613	0.859	--					
Relationship length	----	----	----	0.170	--				
				0.007	--				
Dependence	----	----	----	0.508	0.000	--			
				<0.001	1.000	--			
Buyer distinctive	----	----	----	-0.022	-0.016	0.000	--		
Competence				0.726	0.802	1.000	--		
Realism	4.734	1.134	0.741	0.158	0.000	-0.011	0.000	--	
				0.012	1.000	0.864	1.000	--	
Risk aversion	3.940	0.744	0.494	0.167	0.000	0.000	0.000	0.094	--
				0.018	1.000	1.000	1.000	0.184	--

N=252. Pearson's correlation coefficients and corresponding p-value. Correlations ≥ 0.158 are significant at p< 0.05.

5. RESULT

Table 5 presents a regression analysis to determine the impact of direct independent variables (Relationship length, Dependence) on supplier resource allocation. Relationship length has a positive and significant effect on supplier resource allocation (0.548, p=0.002). Therefore, we accept hypothesis 1. Dependence has a significant and positive effect on supplier resource allocation (1.636, p<0.001), we also accept hypothesis 4.

Table 6 presents a regression analysis to determine the moderating and mediating effects of market and partner uncertainty on the relationship length and dependency.

Market uncertainty has a negative and not significant moderating effect on the relationship length (-0.024, p=0.950), therefore we reject hypothesis 2. Partner uncertainty has a negative and not significant effect on the relationship length (-0.324, p=0.426), we also reject hypothesis 3.

Market uncertainty has a positive and not significant mediating effect on dependence and resource allocation (0.132, p=0.754), we reject hypothesis 5. Partner uncertainty has a negative and not significant mediating effect on dependence (-0.040, p=0.917), therefore we accept hypothesis 6.

Table 4 presents the regression analysis of the control variables. Buyer's distinctive competence has a negative and not significant effect on resource allocation (-0.120, p=0.594). Realism has a positive but and not significant effect on the independent variable (0.185, p=0.058), and risk aversion has a positive and significant effect on supplier resource allocation (0.335, p=0.028). The significance of risk aversion indicates a highly risk-averse supplier prefers to allocate resources to a more stable and dependable buyers to avoid uncertainty.

Table 4. Regression analysis control variables

Variables	Resource Allocation	Significance	VIF
Buyer Distinctive Competence	-0.120 (0.224;0.594)	No	1.000
Realism	0.185 (0.097;0.058)	No	1.009
Risk aversion	0.335 (0.152;0.028)	Yes	1.009
R^2	0.047		
Adjusted R^2	0.032		
F-statistics	3.220		

a. N= 200 b. standard errors and *p* values are in parentheses, respectively. Significance level 95%

Table 5. Regression analysis of direct effects

H	Variables	Resource Allocation	Significance	VIF
1	Relationship Length	0.548 (0.172;0.002)	Yes	1.000
4	Dependence	1.636 (0.172;<0.001)	Yes	1.000
R^2		0.287		
Adjusted R^2		0.281		
F-statistics		50.163		

a. N= 200 b. standard errors and *p* values are in parentheses, respectively. Significance level 95%

Table 6. Regression analysis of indirect effects

H	Variables	Resource Allocation	Significance	VIF
1	Relationship length	0.646 (0.340; 0.059)	No	3.135
4	Dependence	1.653 (0.349; <0.001)	Yes	3.308
2	Relationship length* Market uncertainty	-0.024 (0.385; 0.950)	No	3.024
3	Relationship length* Partner uncertainty	-0.324 (0.406; 0.426)	No	3.527
5	Dependence* Market uncertainty	0.132 (0.421; 0.754)	No	4.188
6	Dependence* Partner uncertainty	-0.040 (0.385; 0.917)	No	3.024
	Buyer distinctive Competence	-0.120 (0.192; 0.533)	No	1.000
	Realism	0.165 (0.087; 0.060)	No	1.109
	Risk aversion	0.356 (0.137; 0.010)	Yes	1.118
	R^2	0.332		
	Adjusted R^2	0.293		
	F-statistics	8.490		

b. N= 200 b. standard errors and *p* values are in parentheses, respectively. Significance level 95%

Table 7. Descriptives

Variables	Min	Max	M	Sd
Resource allocation	1	7	4.330	1.614
Realism	2.5	6	4.740	1.162
Risk aversion	2	5	3.940	0.744

5.1 Interviews

5.1.1 Relationship length and supplier resource allocation

The company interviewed emphasised the importance of relationship length in promoting stability and performance. Long-term relationships are the foundation of the company's operations, providing a stable management environment and consistent project opportunities that are critical for growth. the company is more likely to invest in resolving conflicts with long-term customers, realizing that these customers are difficult to replace and that maintaining these relationships is critical to their success. Long-term relationships have more lines of communication than shorter ones, which emphasises the importance of these enduring partnerships. The following statement underlines this:

"*In long-term relationships, there is often stability in management. Major management changes can be challenging, especially with American companies. For young companies, there is often more dynamism and changes at the top*."

"Such clients are extremely important because they form a stable foundation for the company."

These buyer relationships have a significant impact on financial performance because the company works hard to maintain long-term relationships with key clients, protecting itself from disruptions and ensuring consistent revenue.

5.1.2 The impact of market uncertainty on the relationship length

Market uncertainty has a complex impact on the duration of customer relationships. On the one hand, uncertainty reduces project availability, making it difficult to maintain long-term customer relationships. This reduction in project availability can strain existing relationships, especially if market conditions hinder the client's ability to commit to or continue with projects. While market uncertainty may disrupt these relationships, interviewees noted that it also provides opportunities for early market entry, which can be beneficial for establishing new long-term relationships if the company positions itself strategically. The following statements underline this:

"Market uncertainty can work to our advantage. If we know that a client can gain market share through early market entry, we try to help them by prioritizing their projects."

"Market shifts can reduce project availability, leading us to prioritize larger projects over smaller ones."

The company's approach to managing market uncertainty entails being more cautious with startups, as these smaller entities are frequently less capable of withstanding market fluctuations than larger, more established businesses. As a result, market uncertainty can both challenge and strengthen a company's long-term relationships, depending on how well it and its partners navigate it.

5.1.3 The impact of partner uncertainty on the relationship length

The company actively avoids forming or maintaining relationships with partners who show instability. Such uncertainties may damage the trust and reliability that are essential in long-term relationships. The following quotes were given by the interviewees:

"We avoid working with unstable companies. Stability checks are part of our selection process."

"Relationship dynamics change. Consistent effort is needed to maintain stability, but sometimes it's not enough."

In cases of partner uncertainty, the company may initially attempt to support the partner, but long-term instability can lead to the partnership being reconsidered. This cautious approach indicates that long-term relationships are more likely to be sustained with partners who demonstrate consistent stability and reliability.

5.1.4 Dependence and Supplier Resource Allocation

Concerning supplier dependence and resource allocation, the respondent company invest in innovation and strategically expands its customer portfolio, moreover, the company is active in five different fields and different countries, making its customer portfolio broad and minimizes the risk of being too dependent on a small number and types of customers.

In situations where dependency and resource constraints exist, the company prioritises timeline-wise their resource allocation to the buyers they most depend on. And buyers on whom they depend on, receive priority in production or prototyping. The following statements support these findings.

"The level of dependency determines the degree of priority and effort."

"For a client we are highly dependent on, we take extra steps."

"In niche markets, where clients are fewer, relationships are critical because if one client falls away, it directly impacts work for our people. This dependency is very important."

5.1.5 The impact of market uncertainty on dependence

In uncertain markets, the availability of projects can fluctuate, increasing or decreasing the company's dependence on specific clients. When market uncertainty reduces project availability, the company may become more dependent on its existing, dependable customers, who provide a consistent source of revenue during volatile periods. Diversification and investing in technology are strategies used to reduce market uncertainty. The following statements were given by the interviewees:

"If a customer is in an uncertain market, it can increase our dependence if we do not proactively consider other options."

"We always aim to reduce our dependency on uncertain markets through diversification."

"Stable clients are often in multiple markets, which provides stability. However, in the case of significant uncertainties, such as bankruptcies, it can affect our dependency."

The company is more hesitant to sign contracts with startups during uncertain times because they are typically less stable and more vulnerable to market fluctuations. As a result, the company allocate its resources to larger, more established companies that can better handle market volatility.

5.1.6 The impact of partner uncertainty on dependence

When a partner is unstable, the company's dependence on that partner becomes risky because the likelihood of disruptions increases, and the company avoids allocating its resources to unstable customers. This uncertainty is mostly found in relatively small companies and startups. The following statement underlines this:

"Partner uncertainty is often present with startups and scale-ups. They have relatively little money and many internal changes. We try to cover this contractually and remain cautious not to act as a bank."

However, if a partner who has previously been stable shows signs of uncertainty, the company may initially try to support the partner, maintaining the relationship and dependence for the time being. The following statement supports this:

"If a customer is going through tough times, if you have a good relationship with that customer, you'll try to help that customer until proven otherwise."

However, if the instability persists, the company will most likely reconsider its level of dependence and possibly reduce it by seeking alternative clients or partners.

6. DISCUSSION

The allocation of resources by suppliers to specific buyers is a complex and strategic process influenced by different factors such as customer attractiveness, supplier satisfaction, power dynamics and dependence (Pulles et al., 2022). This research examines the direct effects of the relationship length, supplier dependency and the moderating and mediating effects of market and partner uncertainties. The empirical results from the study reveal several critical insights.

Literature generally promotes long-term relationships between buyers and suppliers, as the relationship matures, the level of communication and commitment increase (Li et al., 2022), however, this might also hinder innovation and new markets discovery (Hofer et al., 2023). The result of this study shows a significant positive effect of relationship length on supplier resource allocation. Suppliers prioritize their resource allocation to the buyers with long-term relationships. Correspondents agree that as the relationship matures, the level of communication, trust and commitment increases. This maturity offers a common understanding of each other's needs and wishes. Moreover, companies find more stability in long-term relationships and consider it as a foundation layer of their operations and provide a baseline revenue for the suppliers.

While relationship length has a positive and significant effect on supplier resource allocation, when there is market or partner uncertainty, the positive effect decreases. Market and partner uncertainty damper the positive effect of the relationship length on supplier resource allocation. According to RDT, in situations of high market and partner uncertainty, strategies such as information sharing, technological investments, and relationship-specific investments can help reduce these uncertainties (Flynn et al., 2016; Jia, 2013; Petersen et al., 2004). Although the representatives of the company interviewed for this research have not encountered market and partner uncertainty, they agree that market or partner uncertainty is more likely to be overcome by customers who have a long history of transactions compared to those with short-term contracts. Long-term partners have previously navigated challenges together, making them better equipped to address new issues, especially when it comes to innovative challenges.

The Literature supports the positive effect of supplier dependency on resource allocation, high dependency necessitates significant investment and coordination from suppliers, which indicates that suppliers prioritise resources for buyers on whom they heavily depend on (Emerson, 1962; Villena et al., 2019). This is aligned with the findings of this research; the study shows that dependency has a significant positive impact on resource allocation.

While dependency is positively related to supplier resource allocation, RDT also suggests that organisations need to diversify their resources and reduce dependency on one single buyer (Pulles et al., 2022), the result of this study show that diversification happens across markets and products and suppliers gain sustainability by innovating.

In the literature, dependent suppliers are committed to their buyers and this commitment increases close collaboration and resource allocation (Padgett et al., 2020; Pulles et al., 2022), it can be expected that this close collaboration would resolve issues such as partner and market uncertainties. But results of this study show, that while dependency has a significant positive effect on supplier resource allocation, the interaction of market and partner uncertainty decreases this positive effect. Suppliers tend to be less dependent and allocate less resources when there is either of these uncertainties.

6.1 Theoretical contributions

The contribution of this study can be outlined as follows:

First, the study confirms the positive relationship between supplier dependence and supplier resource allocation, this finding is aligned with the relationship identified by Pulles et al. (2022).

While supplier dependency fosters commitment, collaboration, and trust (Wilson, 2000), the findings also align with the cautionary advice from the literature that excessive dependence on a single buyer can lead to risks such as reduced flexibility, loss of bargaining power, and increased switching costs (Villena et al., 2019). To mitigate these risks the literature promotes close collaboration between buyers and suppliers and relationship-specific investments (Padgett et al., 2020; Pulles et al., 2022; Villena et al., 2019; Wiratmadja & Tahir, 2021). Close collaboration implies that organisations work together to share information, share responsibilities and risks (Dyer & Singh, 1998). This confirms our findings, organisations in this study put great emphasis on collaboration and relationships-specific investments.

Second, the study validates the positive effect of relationship length on supplier resource allocation. A long history of transactions builds trust, mutual understanding of technologies, and awareness of each other's behaviours, which enhances resource allocation (Elking et al., 2017; Koufteros & Peters, 2019). The findings of this study align with previous research that emphasises the importance of relationship length in fostering effective supplier-buyer interactions.

Third, the study explores the complexities of market and partner uncertainty. Handling both uncertainties receives significant importance in the literature. According to the literature, there is a substantial relationship between a company's trust in its supply chain partner where relationship-specific investments would reduce this uncertainty (Artz, 1999; C. Beckman et al., 2004; Koufteros & Peters, 2019; Kwon & Suh, 2004; Pulles et al., 2022). Moreover, according to RDT, close collaboration of buyers with suppliers and incentives of buying firms can reduce these uncertainties (Zhang et al., 2020).

While close collaboration and relationship-specific investments are generally seen as ways to reduce uncertainty (Artz, 1999; Beckman et al., 2004; Koufteros & Peters, 2019), the findings of this study imply that the effects of market and partner uncertainty may be more complex than initially thought. Suppliers act differently when facing market and partner uncertainties under different levels of dependency and with different types of the relationship they have with their buyers.

The findings suggest that these uncertainties can have effects on both dependency and relationship length. Supplier resource allocation decreases when there is market uncertainty or partner uncertainty even when both parties have a long history of transactions. The same applies to the effect of market and partner uncertainty on dependency. These findings challenge the assumption that relationship length and dependence might always positively impact resource allocation (Li et al., 2022; Poppo et al., 2016; Tarigan et al., 2020).

The study addresses an existing gap in the literature by examining the moderating and mediating effects of market and partner uncertainty on supplier dependency and relationship length, highlighting the need for further research on the interplay between relationship length, dependency, market conditions, and partner behaviours.

6.2 Limitations and Future Research

The topic of buyer-supplier relationships has gained significant importance in the literature. Supplier's resource allocation to buyers is a selective process and not all buyers have equal opportunities to access these resources, this procedure entails suppliers deliberately distributing resources to fulfil the specific needs of their partners (Brito & Miguel, 2017; Pulles et al., 2022), and this is an important part of supplier's strategic operations and business sustainability. Additionally, supplier's differential treatment of buyers is an important factor that determine the competitive advantage that buyers can gain from their suppliers relationships (Castellucci & Ertug, 2010). Moreover, companies tend to focus more on their core competence production and

choose outsourcing strategy for products that are not their primary strength (Kroes & Ghosh, 2009).

Despite the mixed method approach used in this study, a few limitations need to be mentioned. Policy Capturing (PC) is based on hypothetical scenarios, which may not accurately represent the complexities and nuances of real-world decision-making. Participants' responses to these scenarios may differ from their actions in real life. Additionally, the study's sample size, particularly the quantitative component, was limited to 32 company representatives and all companies were in the Netherlands. While this provided useful information, the sample size may not be representative of all industries or geographic regions.

The dependent variables used in this research are dependency, relationship length, and market and partner uncertainty, while these are significant variables, other relevant variables such as cultural differences, technological advancements, and economic conditions were not considered in the analysis. This could reduce the study's comprehensiveness. Additionally, we tested the direct effects of the relationship length and dependency on supplier resource allocation and moderating and mediating effects of partner and market uncertainty on dependency and relationship length, however, companies may face both uncertainties (market and partner) at the same time.

To build on the findings and address the limitations of this study, several recommendations for future research are made.

Future research needs to include a larger and more diverse sample of participants from various industries and different countries. This would improve the findings' generalizability and provide a more comprehensive presentation of supplier-buyer relationships. Moreover, longitudinal research allows for the observation of changes in supplier resource allocation over time. This approach may provide more detailed insights into how dependency, relationship length, market uncertainty, and partner uncertainty may change over time and may impact the decision-making process, buyers and suppliers with long or short-term relationships may act differently when facing market or partner uncertainty. The same applies to dependency, when a supply chain partner faces market uncertainty or partner uncertainty, the effect of these uncertainties might not be directly effective to the organization but result in a gradual shift in the procedures.

Future research may also consider incorporating other relevant variables that might influence supplier resource allocation, factors such as cultural differences, technological advancements, economic conditions, and regulatory changes could provide a deeper understanding of decision-making processes. Furthermore, combining different research methodologies, such as surveys and in-depth case studies of suppliers dealing with real-world challenges could help validate the findings and provide a more profound understanding of the factors influencing suppliers' resource allocation.

7. CONCLUSION

Supplier resource allocation is a selective process, where not all buyers have equal opportunity to participate. Suppliers allocate their resources to buyers based on their strategic value and potential for competitive advantage and a supplier's different treatment of buyers is a key factor in the competitive advantage buyers gain from their supplier relationship. According to RDT, firms do not have all the necessary resources acquired for their survival, and they need collaboration with other firms to acquire scarce resources. Buyer-supplier collaboration depends on several factors such as the level of dependency, relationship length, market and partner uncertainties. The findings of this study reveal that dependency and relationship length have both direct and positive effects on supplier resource allocation. But in situations characterised by high market and partner uncertainty, suppliers tend to reduce their resource allocation despite high

dependency and long-term relationships with buyers. We believe that the findings of this study will help future research and enhance the understanding of supplier differential treatment of buyers.

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