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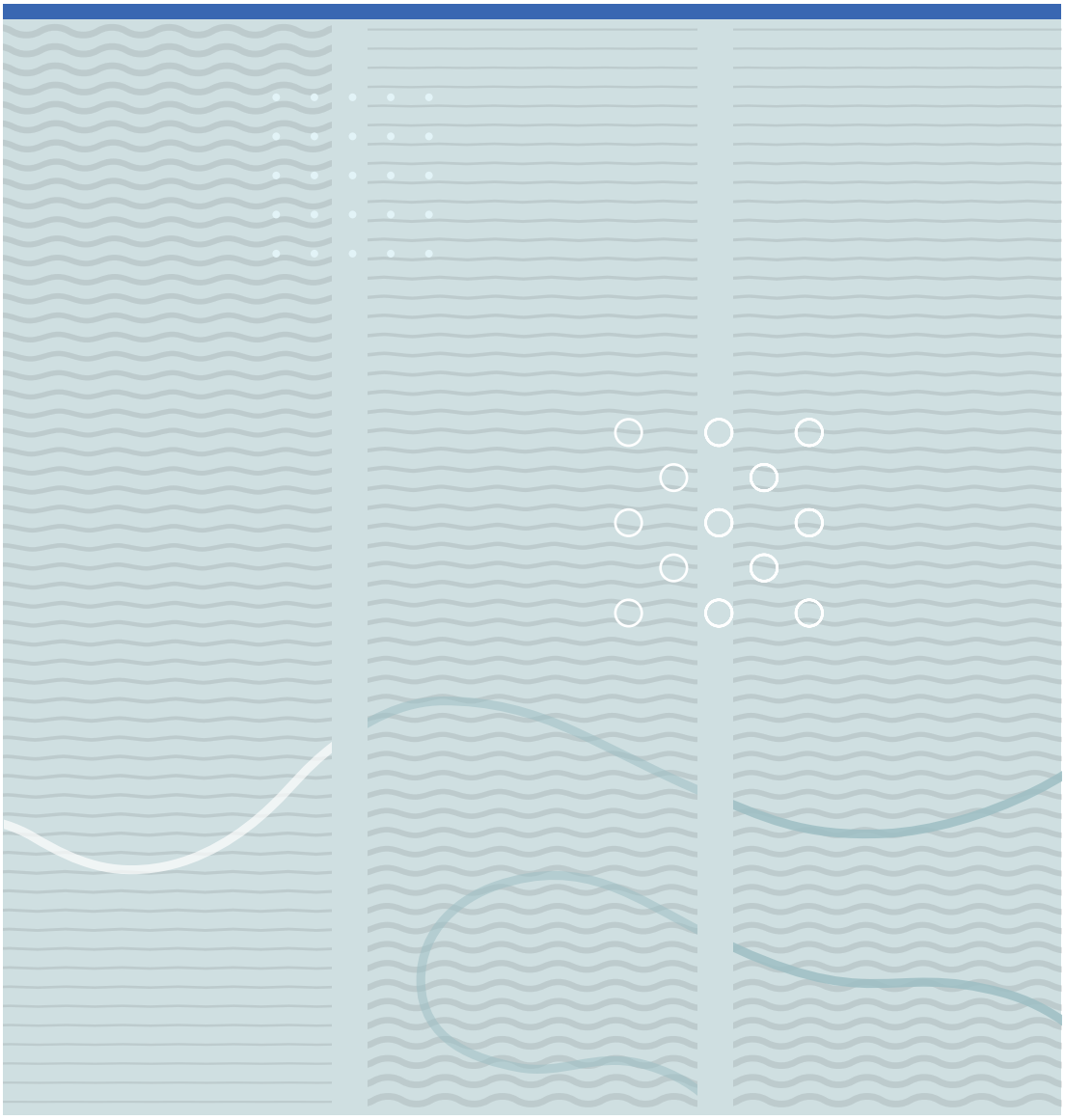
Mesay Sata Shanka

Developing Marketing Capabilities Using Networks: Structure, Content, and Performance Implications



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Abstract

Building on marketing capabilities literature and social network theories, this thesis empirically investigates the contribution of network connections to the development of firm marketing capabilities. This thesis conceptualizes network relationships based on the cohesion and diversity of network resources in the firm-firm network and firm-government network. Using a survey and archival data obtained from 186 firms operating in the Ethiopian Commodity Exchange, this study reveals how external network partners contribute to developing firms' marketing capabilities. I found that diversity in firm–firm and firm–government networks produced comparable results, but cohesion in these two networks produce different results. The findings indicated that diversity in both firm-firm and firm-government networks contributed to marketing capabilities. While cohesion in firm-firm networks contributes to marketing capabilities, the same is not true for firm-government network cohesion and marketing capabilities relationship. Besides, the effect of network connections on marketing capabilities is contingent upon environmental dynamism and knowledge tacitness. Cohesive networks contribute to the development of marketing capabilities under a high level of knowledge tacitness. Diverse networks provide knowledge relevant to building marketing capabilities in dynamic environments. The findings also revealed that marketing capabilities mediate the effect of the firm–firm network on sales growth and new market development. This research provides new insights for marketing researchers and managers on how to make the most out of their network connections to develop marketing capabilities and how investments in developing marketing capabilities contribute to firm performance.

Key Words: Marketing Capabilities, Firm-Firm Network, Firm-Government Network, Firm Performance

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1 Introduction

1.1 Introduction

Marketing capabilities, defined as “the bundles of marketing skills and accumulated knowledge, exercised through organizational processes that enable a firm to carry out its marketing activities” (Moorman & Day, 2016, p. 11), have long been recognized as a source of competitive advantage. Extant marketing studies have highlighted the contribution of marketing capabilities to new product development, profitability, market share, sales revenue, and customer satisfaction (Orr et al., 2011; Saeed et al., 2016; Song et al., 2005; Wu, 2013). Marketing capabilities enable a firm to understand customer needs, respond effectively to market changes, create specific marketing-mix strategies, and build successful brands (Heirati & O’Cass, 2016; Morgan, Vorhies, et al., 2009; Weerawardena, 2003).

Research on marketing capabilities provides valuable insights into their benefits. Two meta-analysis studies, in particular, have highlighted the superiority of marketing capabilities over other organizational capabilities. Krasnikov and Jayachandran (2008) analyzed 114 studies, revealing that marketing capabilities have a larger impact on firm performance than research-and-development and operations capabilities. Eisend et al. (2016) also conducted a meta-analysis, showing that marketing capabilities are more important to firm performance than technological capabilities. The results of these studies explain why marketing capabilities have remained at the forefront of firms' capability-building efforts.

Industry data also show that marketing capabilities contribute to the bottom line of the organization. For example, according to MarCaps (2021), a one-percent improvement in marketing capabilities for an average Fortune 500 company could lead to a three-percent increase in return on assets. Dan O'Malley, CEO of Numerated, once said, “marketing capability is a key value-add that makes us stand out from our competitors.” Further, recent developments in data science, such as artificial intelligence (AI), have made marketing capabilities one of the most important capabilities firms need to possess. Zhang et al. (2019) stated that “without strong marketing capability, firms would not know which process to deploy and how to make sense of the results from AI-based output.”

Marketers often consider developing marketing capabilities as one of their most important priorities. According to a CMO survey (2018), which collects opinions from top marketing leaders, developing marketing capabilities is one of the main concerns and focal areas for most chief marketing officers (CMOs). Accordingly, the survey indicated that the largest proportion of investment in marketing knowledge goes to developing marketing capabilities. The survey also showed that investment in developing marketing capabilities increased from 3.1% of marketing budgets in 2014 to 6.5% in 2018 to 8.4% in 2020.

Although firms need marketing capabilities to stand out in competitive environments, they often lack the marketing capabilities required to achieve a competitive advantage. Some firms are finding it difficult to develop strong marketing capabilities. For example, according to the IBM (2018) Global C-Suite Study, most CMOs say that their firms lack the necessary marketing capabilities to excel in this changing business landscape. Having a weak marketing capability raises concern over the competitiveness of firms and puts them at risk of losing their competitive edge (Asadullah et al., 2020). Despite their strong technological capabilities, some high-tech firms often struggle to grow since they lack the marketing competencies and skills required to make the most out of their marketing resources (Wang et al., 2012).

There are various business opportunities that firms have been unable to take advantage of due to a lack of adequate marketing capabilities (Wang, 2012). For example, Jang et al. (2021) stated that ridesharing firms like BlaBlaCar have struggled to provide competitive products because they lack the marketing capabilities necessary to market their products to customers. According to Adefulu et al. (2021), firms find it challenging to earn consistent profits due to insufficient marketing capabilities. In addition, the lack of marketing capabilities has been indicated as one of the biggest impediments to developing new markets and customers (Mora Cortez & Johnston, 2018; Wang et al., 2012).

Increasing interest and investment in marketing capabilities, coupled with their relative advantage over other organizational capabilities, have enhanced the importance of marketing capabilities research. Despite growing interest in marketing capabilities, there are few discussions in the literature on fostering the development of these capabilities (Morgan et al., 2018). Having reviewed several marketing articles, Moorman and Day (2016) suggested that future studies should look into how to develop more valuable marketing capabilities. Similarly,

Morgan (2019, p. 381) commented that “we have much less insight into how to build marketing capabilities.” Barney (2014) also urged marketing scholars to examine the origins of marketing capabilities.

Relatively few studies have examined the antecedents of marketing capabilities (Hazzam & Wilkins, 2021; Tan & Sousa, 2015). Those studies that have emphasized intraorganizational variables. Whereas the CMO Survey (2018) mentioned above indicated that, 40% of the time, firms look for external sources to build their marketing capabilities, extant research has given much less attention to the contribution of network connections to the development of marketing capabilities. This indicates a gap in the literature regarding the role played by external networks in the development of marketing capabilities. In light of this, this dissertation explores how external network connections contribute to marketing capabilities and, in turn, develop new markets and enhance sales growth.

Studies based on social network theory have suggested that external network connections provide access to resources, information, knowledge and technology from outside the organization (Wang et al., 2017). These connections add to the accumulated knowledge resources in the organization to improve organizational capabilities (Yang et al., 2019). Network connections foster marketing capabilities by providing knowledge resources and market information that would not be available inside the organization (Kemper et al., 2011). In addition, connections with external network partners allow firms to internalize the capabilities and resources held by external partners and generate valuable skills and knowledge that strengthen firms' marketing capabilities (de Vaan, 2014; Liu & Ko, 2012).

The key problem with previous research on interorganizational networks is that they treat all network observations similarly, regardless of their nature (Jones et al., 2013). However, firms interact with multiple partners across industries and sectors with various characteristics (Hagedoorn et al., 2018; Veldhuizen et al., 2013). Since these network relationships are different in nature, it is imperative to address this issue and investigate the contribution of network relationships to marketing capabilities. This approach is useful to differentiate between the effects that actors, such as firm and government collaborators, have on marketing capabilities. Addressing the nature of actors and the structure of the network relationship is critical to providing a relatively accurate understanding of the effect of network connections.

There are two competing perspectives on how network structures provide benefits to the organization. The first line of research stresses the importance of network structures by arguing that actors embedded in densely connected cohesive networks are most likely to be successful because this cohesion enables the creation of trust, cooperation, and shared identity between actors (Coleman, 1988, 1990; Gargiulo & Benassi, 2000). The alternative perspective stresses the importance of diverse collaborative networks that provide access to wide sources of non-redundant information (Burt, 1992; Martinez & Aldrich, 2011; Rauch et al., 2016). Empirical studies have supported both claims of network cohesion and a diversified network; however, they have not yet reached a clear consensus on which network configuration is more conducive to developing marketing capabilities.

The nature of network relationships is another area of network research that has been relatively overlooked (Jack, 2010). The resources exchanged between network actors vary with the nature of network partners (Hoang & Antoncic, 2003). Firms usually establish collaborative relationships with partners within their industry, outside of their industry, or with partners in the government (Andrade et al., 2018; Haugland et al., 2011). Researchers have shown that different relationships can have different effects (Gonzalez et al., 2014; Nikiforou et al., 2020), and multiple actors are needed to develop firms' marketing capabilities (Evers et al., 2012). However, thus far, research has tended to treat all network relationships in the same manner and disregard the variety in firm networks (Kilduff & Brass, 2010). This highlights the need to study the differential effects of two different types of networks: firm–firm and firm–government networks (Andrade et al., 2018).

Firm–firm networks entail connections with other actors, such as customers, suppliers, competitors, and other market collaborators (Peng and Luo 2000; Sheng, Zhou, and Li 2011). On the other hand, firm–government networks refer to connections with government offices, such as industrial bureaus, regulatory organizations, government-sponsored institutions, and investment and commercial administration bureaus (Li et al., 2009). Firm–firm relationships provide firms access to important market resources, information, and knowledge (Sheng et al., 2011b). Connections with offices at various government levels and with regulatory and supporting organizations provide access to policy-, regulatory-, and industry-level information and valuable resources and promote the capacity to create new marketing routines (Heirati & O'Cass, 2016).

The nature of interorganizational relationships with firm actors differs from those with government actors in terms of their objectives, resources, power, and reciprocity (Wang et al., 2020). Previous studies have reported contrasting results for these two networks and have often shown quite different and yet complementary information and legitimacy values (Chung et al., 2016; Dong et al., 2013; Ness et al., 2014; Wu, 2011). For example, Chen and Wu (2011) and Zhou, Wu, et al. (2019) showed the distinct contribution of the firm and government relationships to innovation and adaptive capabilities. In a similar vein, Wang et al. (2020) indicated that firm actors provide access to resources, such as market knowledge, while government institutions provide market access and market legitimacy.

Research into whether—and if so, how—the benefits of network relationships vary across different types of networks remains relatively scarce. Addressing this question is essential to understanding the effects of network relationships on focal firm marketing capabilities. Considering the distinct nature of each type of network, it is vital to elucidate the differential effects of firm–firm and firm–government networks on marketing capabilities. Instead of applying a purely structuralist view of network relationships (Adler & Seok-Woo, 2002), one through which the effects of interorganizational networks are explained without accounting for the nature of the network actors involved, I examine interorganizational network effects on marketing capabilities by including the network structure and nature of network relationships. Thus, I investigate how the cohesion and diversity of the firm–firm network and firm–government network contributes to marketing capabilities.

Research indicates, however, that the value gained from network relationships is context-dependent (Brand et al., 2018; Rauch et al., 2016). Diversified networks may be effective in certain conditions, while cohesive networks would work best in other conditions. For example, Rauch et al. (2016) found that diversified networks work well for firms competing in innovative industries, while cohesive networks work best for smaller firms. Kraft and Bausch (2018) also indicated that cohesive networks are most useful in collectivist cultures, whereas diversified networks provide the greatest benefit in environments with strong political and regulatory institutions. I extend this discussion by introducing a contingency perspective and arguing that the contribution of network cohesion and network diversity to marketing capabilities is context-dependent.

According to the contingency perspective, environmental and organizational contingencies influence firms' strategies and shape the development of their capabilities (Ceci & Prencipe, 2008). The contingency perspective asserts that when the contingency variable is added, a different relationship emerges between the independent and the dependent variables (Drazin & Van de Ven, 1985; Venkatraman, 1989). A contingency framework has been utilized to examine situations in which cohesive and diversified networks relate to organizational outcomes (Martinez & Aldrich, 2011; Rauch et al., 2016). In this context, the contingency perspective provides a better understanding of the relationship between a firm's external network and its marketing capabilities (Wang, 2012). In light of this, I expand the discussion of cohesive and diversified networks by investigating the circumstances under which network cohesion and diversity contribute to developing marketing capabilities. Thus, I argue that the effects of network cohesion and network diversity on marketing capabilities are contingent upon the nature of knowledge and environmental conditions.

Knowledge tacitness is the extent to which knowledge is difficult to articulate and communicate (Luca & Atuahene-Gima, 2007; von Briel et al., 2019). Firms often exchange knowledge with network actors that has various levels of tacitness (Jin et al., 2019). Some highly tacit market knowledge examples include market insights, relationship-building approaches, creative advertising selection, and marketing tactics (Jin et al., 2019; Morgan, 2012). Studies have shown that the tacitness of knowledge has important implications concerning the extent of knowledge sharing between network partners (Jin et al., 2019; Zhao & Lavin, 2012). Having a cohesive network builds trust and facilitates cooperation, which is necessary to transfer tacit knowledge (Haugland et al., 2021; Li et al., 2010). Accordingly, cohesive networks provide the firm with the right context to access tacit knowledge, which is critical to developing marketing capabilities. In contrast, the tacitness of the knowledge obtained from partners makes the effective flow of knowledge among network partners with diverse backgrounds difficult (Yoon et al., 2015).

Another contingency variable that affects the influence of networks is environmental dynamism, which refers to the extent of volatility or unpredictability of change within an industry (Dess & Beard, 1984). A dynamic environment is characterized by a rapid change in customer needs, product demand, technology, and competition (Miller & Friesen, 1983; Zahra, 1993). The literature indicates that the dynamism of the environment within which a firm

operates influences the benefits and costs associated with network relationships (Eisingerich et al., 2010; Tatarynowicz et al., 2016). I argue that the relative importance of network cohesion and diversity depends on the dynamism of the environment in which a firm operates; thus, as environments become more dynamic, the relative importance of network diversity in the development of marketing capabilities increases, while the relative importance of network cohesion declines.

I also investigate the effect of marketing capabilities on firm performance outcomes. Here, I focus on sales growth and new market development. Developing new markets provides firms with a new window of opportunity to expand their market and enhance their competitiveness (Min & Kim, 2021). Marketing capabilities enable firms to accurately scan and explore the market, develop new ways to serve customers, and reach the market through new marketing channels (Akgün & Polat, 2021; Day, 2011). Hence, marketing capabilities contribute to new market development by discovering underserved segments and enabling firms to reach new markets (Morgan, Slotegraaf, et al., 2009b). In addition, marketing capabilities contribute to sales growth by expanding the market. Marketing capabilities enable the firm to grow revenue by attracting new customers and retaining existing customers (Feng et al., 2017; Morgan, Slotegraaf, et al., 2009b).

This dissertation addresses both backward-looking and forward-looking aspects of firm performance measures. New market development is considered a forward-looking measure of firm performance because new markets can deliver future benefits to the firm. Meanwhile, sales growth indicates a firm's backward-looking performance by showing the relative change in past sales. In addition to the performance effects, marketing capabilities can play a mediating role in translating knowledge obtained from external sources into a performance advantage.

The mechanism through which network connections translate into firm performance outcomes is not always evident from previous research studies. Few studies have attempted to illustrate the mechanism through which network connections contribute to firm performance. For example, Gao et al. (2015) studied how information sharing mediates the relationship between network diversity and innovation. In continuing the discussion on the mechanism underlying the network–performance relationship, I examine how marketing capabilities translate external knowledge resources into firm performance. Marketing capabilities are a key

mechanism in explaining how the connection with external network partners affects firm performance outcomes. I show how marketing capabilities mediate the effect of network variables on new market development and sales growth.

Overall, this dissertation is unique because it explores the differential effects of firm–firm and firm–government networks on marketing capabilities. Specifically, it focuses on the contribution of the firm–firm (i.e., network cohesion and diversity) and firm–government (i.e., network cohesion and diversity) networks to firm marketing capabilities. This dissertation also argues that the contribution of networks to marketing capabilities would vary depending on the environmental conditions and the nature of knowledge. It also investigates the mediating effect of marketing capabilities in the relationship between firm–firm and firm–government networks and firm performance.

The findings of this dissertation have theoretical and practical significance. The study adds to the marketing literature by providing evidence of the contribution of external network partners to the development of marketing capabilities. It also highlights the value of marketing capabilities in translating external knowledge resources into a performance advantage. In addition, the study also provides a guide to marketing practitioners in building and managing their external network contacts. Moreover, it motivates firms to focus on cultivating their network partners to develop their capabilities, which most marketing departments often ignore.

1.2 Research Gap and Questions

This dissertation intends to fill research gaps and address specific research questions. As I discussed in the previous part, there appears to be a knowledge gap regarding how and when interorganizational networks contribute to the development of marketing capabilities. Because firms have limited capabilities and resources, they usually step outside of their boundaries to access additional capabilities and resources (Adler & Seok-Woo, 2002). In this sense, it is worth going beyond intraorganizational variables to study the contribution of external network partners to the development of marketing capabilities. Although studies have been conducted

on the relationship between interorganizational networks and marketing outcomes (Jeong et al., 2019; Parra-Requena et al., 2011), there are still substantial research gaps.

First, substantial research efforts have been dedicated to understanding the performance benefits of marketing capabilities, but little emphasis has been placed on how marketing capabilities can be developed (Morgan, 2019). Studies conducted thus far have largely examined intraorganizational antecedents of marketing capabilities. Few attempts, however, have been made to investigate marketing capabilities from the outside-in perspective (Mu et al., 2018a; Yang et al., 2019). Those studies that have overlooked the structure and nature of the network relationships involved in the network. In addition, they have focused on the firm–firm relationship while ignoring the distinct advantages obtained from the firm–government relationship.

For instance, a study conducted by Yang et al. (2019) examined how the strength of the supplier–buyer relationship contributes to the buyer firm's marketing capabilities by encouraging knowledge sharing between buyers and suppliers. In addition, Parra-Requena et al. (2011) examined the contribution of structural social capital to marketing capabilities. These studies, however, overlooked the nature of network relationships and the composition of network actors involved in these relationships. In addition, these studies neglected the fact that there are different actors in a network relationship. Government institutions generally provide benefits that are different from those provided by business partners (Dai et al., 2018). As such, this study fills the gap in the literature regarding external network partners and marketing capabilities by incorporating the network structure and nature of network relationships into the equation.

Second, I contribute to an increasing body of knowledge on social network theory that has taken a contingency perspective (Rauch et al., 2016). Empirical research has not yet adequately addressed the conditions under which these networks contribute to marketing capabilities. On the one hand, a cohesive network encourages fine-grained information exchange (Gargiulo & Benassi, 2000). On the other hand, a diversified network provides greater access to various resources (Filieri et al., 2014; Vlaisavljevic et al., 2016). Even though cohesive and diversified networks may be important for marketing capabilities, their relative importance varies depending on some contingency factors (Rauch et al., 2016). In light of this, a

contingency framework is useful for examining the circumstances under which cohesive and diversified networks contribute to marketing capabilities. This study fills the gaps in the literature by introducing two contingencies—namely, the nature of knowledge and environmental conditions. I expect both network cohesion and network diversity to contribute to marketing capabilities. I contend, however, that the importance of cohesion and diversity will vary depending on knowledge tacitness and environmental dynamism. As such, I provide an answer to the question of when network relationships matter to the development of marketing capabilities.

The third research gap identified and addressed in this dissertation is how knowledge gained from network partners is translated into performance advantages. The question of whether—and if so, how—networks contribute to firm performance is central to the study of interorganizational relationships. Understanding how and why external networks produce marketing outcomes is important because such an understanding demonstrates the true benefits of network relationships. I explore how interorganizational networks influence the efforts made by firms to develop new markets and stimulate sales growth. I introduce marketing capabilities as a mediator to unravel the mechanism by which knowledge obtained from external networks contributes to the development of new markets and to increased sales. I suggest that network connections contribute to accumulated marketing knowledge, which might increase sales and help firms enter into new markets.

This dissertation aims to fill these research gaps and contribute to the literature by exploring firm–firm and firm–government networks and their potential contributions to firms' marketing capabilities. Here, I address three research questions that are fundamental to my dissertation. I intend to answer these questions by drawing on social network theory, the marketing capabilities literature, and a contingency perspective to explore how interorganizational networks contribute to marketing capabilities and, in turn, to new market development and sales growth.

- RQ1: Are firm–firm and firm–government networks important for developing a firm's marketing capabilities? What is the role of the cohesiveness and diversity of these networks in developing marketing capabilities?

The first question to be addressed is whether—and if so, to what extent—firm–firm and firm–government networks contribute to marketing capabilities. Here, I attempt to determine whether the connections between firms and the government can provide unique contributions to marketing capabilities. To address this research question, the dissertation investigates the influence of firm–firm network cohesion, firm–firm network diversity, firm–government network cohesion, and firm–government network diversity on marketing capabilities. The other focus of this dissertation is the performance implications of marketing capabilities, bringing us to the second research question:

- RQ2: What is the contribution of marketing capabilities to new market development and sales growth?

RQ2 was formulated for the purpose of investigating the impact of performance on marketing capabilities—or, more specifically, the role of marketing capabilities in developing new markets and stimulating sales growth. In addition, this question addresses how marketing capabilities translate knowledge gained from network partners into new market development and sales growth. Even though both cohesive and diversified networks can contribute to marketing capabilities, it is unclear under what conditions each contributes to marketing capabilities. This lack of clarity leads us to the third research question investigated in this dissertation:

- RQ3: Do knowledge tacitness and environmental dynamism influence the relationships between interorganizational networks and marketing capabilities?

The third research question was posed to permit the unearthing of factors that can explain the conditions under which network cohesion and diversity contribute to the development of marketing capabilities. This research question draws from the contingency perspective to broaden our understanding of the conditions under which cohesion and diversity in a firm's network contribute to marketing capabilities. This question was formulated to help determine whether networks matter—and if so, to what extent networks contribute to the development of marketing capabilities (Hoang & Antoncic, 2003). To address this question, I examined how knowledge tacitness and environmental dynamism moderate the influence of cohesive and diverse networks.

1.3 Positioning and Contribution of the Dissertation

This dissertation makes several noteworthy contributions to the marketing capabilities literature and to social network theory. The first two contributions address the first research gap, which pertains to the content of network relationships, by distinguishing the connections between firm–firm and firm–government networks, an area which has received relatively little empirical attention. Next, the two introduced contingent variables are discussed to address the competing claims of network cohesion and network diversity and thereby also address the second research gap. Lastly, the third research gap is addressed by examining the contribution of marketing capabilities to enhancing firm performance.

First, this study integrated marketing capabilities and social network theory and examined how network relationships contribute to marketing capabilities. These capabilities are central constructs in resource-based theory (RBT) (Barney, 1991; Kozlenkova et al., 2014). RBT argues that firms' capabilities and resources are indicators of a performance differential among firms in the industry (Barney, 1991; Kozlenkova et al., 2014). On the other hand, social network theory contends that external partners provide access to resources, knowledge, and information that would not be available internally (Webster & Morrison, 2004).

RBT focuses on the resources and capabilities inside the firm as the key to competitive advantage (Barney, 1991; Barney, 2001). However, in a business environment that is becoming increasingly networked, a firm's own resources and capabilities alone are not sufficient (Whipple et al., 2015). In contrast to RBT, the relational view of Dyer and Singh (1998) claims that firms' critical resources or capabilities may extend beyond the firms' boundaries and may be embedded in interfirm resources and routines, and that relationships between firms are key to achieving competitive advantage among firms. As such, firms need to use their network partners to gain access to resources that contribute to their competitive advantage (Gao et al., 2015).

Prior studies have suggested that connections with other partners and institutions create a resource bundle that leverages and complements the existing internal resources and capabilities (Lavie, 2006; Rauch et al., 2016; Whipple et al., 2015). Firms must combine their own resources and their partner firms' resources to compete successfully in the marketplace (Barnes & Liao, 2012; Lavie, 2006). By integrating marketing capabilities and social network

theory, I developed and tested a set of hypotheses postulating how external network resources can generate a competitive advantage for the focal firm through the development of marketing capabilities. Further, I explain how the types of network partners with which a focal firm builds relationships determines the value of the network connection that enhances the capabilities of the focal firm (Jiang et al., 2020).

Some efforts have been made to integrate social network theory in the marketing capabilities literature in order to recognize network capital as a resource in various interorganizational relationships, such as alliance partnerships (Kang & Zaheer, 2018; Lavie, 2006), buyer–supplier relationships (Whipple et al., 2015; Yang et al., 2019), and firm–firm relationship (Parra-Requena et al., 2011). In line with the studies mentioned above, this dissertation examines how external resources and knowledge contribute to internal marketing knowledge to strengthen the firm's capability to respond quickly to changes and improve its competitive advantage.

Second, this study advances the literature on outside-in marketing by addressing how external network partners contribute to the development of marketing capabilities. The outside-in approach to marketing capabilities involves stepping outside of the firm's boundaries to include networks of partners (Day, 2011; Yang et al., 2019). With this approach, firms can make sense of external changes and leverage outside resources to close the gap between internal marketing capabilities and market complexities (Day, 2011; Saeed et al., 2015; Yang et al., 2019). Researchers have recommended that to address these issues, studies should be conducted that incorporate the outside-in perspective into marketing capabilities (Day, 2014; Mu et al., 2018b).

There has been little empirical research on the application of the outside-in approach to marketing capabilities to examine the relationship between interorganizational networks and marketing capabilities. Prior research has focused mainly on the overall effect of interorganizational relationships on marketing capabilities (Jeong et al., 2019; Parra-Requena et al., 2011; Yang et al., 2019). Thus, the question remains of whether—and if so, how—the benefits of network relationships differ across different types of networks. Thus, this study dissected firms' network partners based on the nature of their relationships and network structures (Carnovale et al., 2019; Wise, 2014). Toward this end, the study conceptualized the

complex nature of a firm's external network into a firm–firm network and a firm–government network.

The third contribution of this dissertation concerns the competing claims of cohesive networks and diversified networks. The network cohesion perspective asserts that a cohesive network is beneficial to a firm because it provides trust and cooperation between network partners (Ahuja, 2000a). On the contrary, the diversified network perspective posits that diverse networks provide access to non-redundant and novel information (McEvily & Zaheer, 1999; Zaheer & Bell, 2005). Both perspectives have been found to be empirically relevant (Kraft & Bausch, 2018; Rauch et al., 2016). However, Martinez and Aldrich (2011) and Nikiforou et al. (2020) indicated that the relevance of cohesive and diversified networks depends on contingency variables.

This study sought to reconcile the competing perspectives of cohesion and diversity by suggesting a contingency perspective on social network theory (Burt, 1997; Carnabuci & Diószegi, 2015). Efforts were made to examine the effectiveness of cohesive and diversified networks in developing marketing capabilities. I thereby contribute to the contingency perspective in network research by introducing two variables: environmental dynamism and knowledge tacitness. For example, cohesive firm–firm and firm–government networks are conducive to converting tacit market knowledge into firms' marketing capabilities. However, when the environment becomes dynamic and turbulent, the knowledge generated from cohesive networks becomes outdated. Thus, this study extends social network theory and addresses the conditions under which each network connection contributes to developing firms' marketing capabilities.

Fourth, little is known about the mechanisms through which network connections contribute to firm performance. Earlier network studies in marketing focused on the direct effect of network attributes on firm performance but overlooked the importance of mediating variables in the relationship (Bolander et al., 2015; Gonzalez et al., 2014). This study introduced marketing capabilities as a mechanism through which resources and knowledge obtained from external sources are leveraged and translated into performance outcomes. A firm may obtain access to resources from the network partner, yet it needs the capabilities to leverage these resources to convert them into performance outcomes. The mechanism provided by marketing

capabilities contributes to a new understanding of how and under which conditions firms connected to diverse and cohesive networks develop new markets and enhance sales revenue.

Drawing on the resources–actions–performance framework suggested by Ketchen et al. (2007), I propose a framework in which marketing capabilities are an important intervening mechanism through which external resources influence firm performance (D'Oria et al., 2021). This study followed that by Ndofor et al. (2011) by adding marketing capabilities as strategic actions. In line with this, the present study expanded the resources–actions–performance model by testing the role of marketing capabilities in turning knowledge and resources obtained from external sources into a performance advantage. In doing so, I respond to calls by Rauch et al. (2016) and Kraft and Bausch (2018) for more research on the mechanisms through which cohesive and diversified networks influence firm performance. In addition, I responded to the call for more research on the measurement and antecedents of marketing capabilities (Moorman & Day, 2016).

Moreover, this dissertation has important managerial implications. The findings can guide firms in determining how to leverage their external contacts to exploit market knowledge and resources relevant to the development of their marketing capabilities. The dissertation also provides valuable insights by revealing how firms should invest in their different networks. Due to cost and resource constraints (Adler & Seok-Woo, 2002), firms are advised to invest in building their networks depending on the environmental conditions and the characteristics of knowledge extracted from external partners.

The dissertation also has managerial implications for CEOs and CMOs interested in building marketing capabilities within organizations. The findings revealed that marketing capabilities enable firms to develop new markets and can serve them in innovative ways. In addition, the findings provide managerial insights into how marketing capabilities can drive a firm's sales growth. Moreover, the findings demonstrated how important marketing capabilities can be to enhancing performance by translating external knowledge and resources. Managers can foster the development of marketing capabilities and use them to improve their firm's competitive advantage by exploiting the knowledge obtained from their external network partners.

1.4 Overview of the Dissertation

This dissertation is organized as follows. The second chapter provides the theoretical background. In order to introduce the concept of marketing capabilities, I begin by discussing RBT and the dynamic capabilities perspective. Next, I present a systematic review of the literature on marketing capabilities in the business-to-business (B2B) context. Next, I employ social network theory to explain the effect of market resources embedded in network relationships on a firm's market capabilities. Following that, I conceptualize networks in terms of structural properties, diversity in network actors, and the nature of actors involved in the network. Finally, I introduce the contingency perspective to explain the contingent effect of cohesive and diversified networks on marketing capabilities.

The third chapter presents the conceptual model for the dissertation and the arguments for each hypothesis. First, I argue that network connections contribute to a firm's marketing capabilities. I then discuss the relationship between marketing capabilities and new market development and sales growth as well as the mediating effect of marketing capabilities in the relationship between network connections and new market development and sales growth. Finally, I introduce knowledge tacitness and environmental dynamism to explain the contingent effect of network connections on marketing capabilities.

The fourth chapter discusses the research design of the study on which this dissertation is based and the operationalization of the research variables. In this chapter, I discuss the choice of a cross-sectional design, the choice of an empirical setting, the data collection instruments, the sampling methods, and the key informant approach used in collecting the data. I then discuss the operationalization of the dependent, independent, moderator, and control variables. The fifth chapter covers the data analysis and findings, including a discussion of outliers, missing data, and normality. Afterward, I evaluate the measurement model along with its reliability and validity. Furthermore, I present the results of the hypotheses test. Finally, chapter six discusses the findings, followed by a discussion of the theoretical and managerial implications of the dissertation, its limitations, and further research directions.

2. Theoretical Foundation

This chapter introduces the key theoretical domains and outlines the theoretical underpinnings—i.e., the theoretical foundation—of the study on which this dissertation is based. The theoretical foundation of this work was based on the marketing capabilities literature, social network theory, and the contingency perspective. The chosen theories were considered the most relevant to the present work as they align with the various theoretical concepts covered in the work as well as with the research questions presented in the first chapter. These theories were applied to enhance understanding of the relationship between interorganizational networks, marketing capabilities, and firm outcomes.

This chapter presents and discusses the core theoretical concepts and empirical studies that comprised the basis of this research. In addition, insights gained from the systematic literature review of marketing capabilities in a B2B context were included since the dissertation focuses on firms that operate in this context. While theoretically situating the dissertation, I bore in mind that the purpose was not to review social network theory but rather to describe and build an understanding of marketing capabilities. Given that, it is beyond the scope of this dissertation to provide a general and comprehensive review of social network research.

The chapter is divided into four parts. The first part deals with the theoretical foundations of marketing capabilities. I discuss RBT and the dynamic capabilities perspective as a foundation of the marketing capabilities literature. I then discuss the concepts and definitions of marketing capabilities that have been used in the literature. The second section examines marketing capabilities in the B2B context. In line with this, I present a systematic review that charts the antecedents, dimensions, and outcomes of marketing capabilities. Moreover, this section describes future research directions that could advance marketing capabilities research.

The next part employs social network theory to analyze the contribution of interorganizational networks, covering the various issues associated with network structures and content. Lastly, I introduce the contingency perspective to explain the conditions under which networks contribute to marketing capabilities. In this section, I argue that the contribution of network connections is not universally consistent and that environmental conditions and the nature of knowledge are crucial factors in explaining the contingent effect of network connections.

2.1 Marketing Capabilities: Theory and Definition

The marketing capabilities literature dates back to the 1960s but truly began taking shape in the scientific literature in the 1980s (e.g., Andrews et al. (1969); Richardson (1972). Throughout the 1990s, the concept of marketing capabilities continued to develop through numerous publications (e.g., Amit and Schoemaker (1993); Teece et al. (1997). The discussion of organizational capabilities gained depth and breadth after the emergence of the resource-based perspective in the late 1980s and early 1990s. Richardson (1972) elucidated a capability as the knowledge, skills, and experience needed to carry out organizational activities. Capability was further defined as a "firm's capacity to deploy resources" (Amit & Schoemaker, 1993, p. 35) and improve the productivity of these resources (Makadok, 2001). Teece, Pisano, and ShuenTeece et al. (1997) extended the concept of capabilities to address changing market dynamics and introduced dynamic capabilities as the firm's ability to integrate, build, and reconfigure competencies.

Capabilities are often described as a combination of routines (Parmigiani & Howard-Grenville, 2011). Routines can be described as a way of doing things or as patterns of activities (Teece et al., 1997). Winter (2003, p. 991) described routines as a "highly patterned, repetitious, or quasi-repetitious behavior founded in part in tacit knowledge." Organizational routines have been a central theme in capabilities research. Collis (1994) defined capabilities as complex routines that determine the efficiency with which firms transform inputs into outputs. Winter (2003) further suggested that capabilities can be seen as high-level routines or bundles of routines. In other words, capabilities are bundles of skills and accumulated knowledge exercised through organizational routines (Day, 1994; Teece et al., 1997). Examples of routines are wide-ranging, including routines for customer communication, making and marketing products, and performing services (Lavie et al., 2012).

The notion of capabilities has received growing attention in the marketing literature since the early research conducted by Day (1994) and has continued to gain momentum and attract substantial attention in marketing research. In recent decades, marketing capabilities have been a central topic in the marketing, strategic, and business literature. Marketing scholars have borrowed the concept of RBT and the dynamic capabilities perspective to describe marketing capabilities. Although marketing capabilities have been defined from the RBT

perspective since the early development period, recent discussions have started to adopt the dynamic capabilities perspective. In this chapter, first, I discuss marketing capabilities from the perspective of RBT, after which I move on to a discussion of marketing capabilities from the perspective of dynamic capabilities.

2.1.1 Resource-Based Theory (RBT)

Resource-based theory (RBT) was first developed by Penrose (1959) and further refined by Wernerfelt (1984) and Barney (1991) to explain the importance of resources and capabilities in achieving competitive advantage. Since that time, RBT has become one of the most dominant theoretical perspectives in the marketing and strategy literature. RBT was developed to enhance understanding of situations in which firms can gain and sustain a competitive advantage (Amit & Schoemaker, 1993; Barney, 1991; Wernerfelt, 1984). RBT has been used to describe and analyze how the possession of unique resources and capabilities explains competitive advantage (Barney, 1991; Barney, 2001; Becerra, 2008).

Resources and capabilities are the central tenets of RBT. Resources refer to "tangible and intangible assets [that] firms use to conceive of and implement their strategies"(Barney & Arikan, 2001, p. 137) . Capabilities are subsets of a firm's resources representing "an organizationally embedded non-transferable firm-specific resource whose purpose is to improve the productivity of the other resources possessed by the firm" (Makadok, 2001, p. 389). Capabilities are distinct from assets in that they are deeply embedded in organizational processes and cannot be traded as they cannot be assigned a monetary value (Day, 1994). Capabilities are the glue that brings these resources together and enables a firm to deploy them efficiently (Barney, 1991; Ogundare & Oloruntoba, 2011).

The resource-based logic relies on two underlying assumptions of heterogeneity and immobility of resources across firms. The assumption that resources are heterogeneous means that resources and capabilities are distributed unevenly across firms, and some firms have resources that generate more value than others (Kozlenkova et al., 2014; Peteraf & Barney, 2003). For instance, Apple and Samsung compete in the tablet and smartphone market, but they have heterogeneous internal resources, contributing to their performance differences. The second assumption of immobility implies that some resources, particularly capabilities, are

either costly to copy or difficult to transfer (Barney & Hesterly, 2010; Capron & Hulland, 1999). RBT assumes that firms generate sustained competitive advantage if they possess resources and capabilities that are too costly or difficult to imitate (Kozlenkova et al., 2014).

According to RBT, resources must also have very specific characteristics to create a competitive advantage. There are four conditions for assessing whether a resource has the potential to generate sustainable competitive advantage—resources must be valuable, rare, inimitable, and non-substitutable (Barney, 1991). Resources are valuable if they enable a firm to develop and implement strategies that reduce costs or increase revenue beyond what would have been the case without these resources (Barney & Arikan, 2001; Kozlenkova et al., 2014). A resource is rare if it is not widely available and is thus owned by a small number of competing firms (Barney & Hesterly, 2010).

The third condition states that a resource is imperfectly imitable if it is substantially costly to obtain or develop for competing firms (Barney & Hesterly, 2010). The fourth and final condition pertains to non-substitutability. A resource is non-substitutable when it is difficult for competitors to acquire or to develop a comparable substitutable resource (Barney, 1991). In sum, RBT argues that to generate sustainable competitive advantage, these resources and capabilities must be valuable, rare, inimitable, and non-substitutable, and that an organization must be in place that is capable of absorbing and applying them (Barney, 1991, 1995; Barney & Clark, 2007; Kozlenkova et al., 2014).

Marketing scholars have embraced RBT, which has been used across various marketing domains, including marketing strategy, marketing innovation, and international marketing (Corte et al., 2017; Kozlenkova et al., 2014). RBT has provided theoretical and empirical understandings of the relative effects of multiple market-based resources on performance outcomes across various marketing contexts (Angulo-Ruiz et al., 2018; Kozlenkova et al., 2014; Morgan, Slotegraaf, et al., 2009a). Barney (2014) argued that marketing offers a fertile ground for applying RBT. Using RBT in marketing contexts provides a compelling framework to integrate multiple and dissimilar resources to explain their synergistic and differential effects on performance and its contingencies (Kozlenkova et al., 2014).

Marketing capabilities represent the ultimate source of competitive advantage and are well aligned with the RBT framework. Empirical research on marketing capabilities usually

adopts RBT to study marketing capabilities and the link between marketing capabilities and firm performance (e.g., Morgan, Vorhies, et al. (2009); Vorhies and Morgan (2005); Yu et al. (2014). RBT argues that superior marketing capabilities generate competitive advantage and explain performance differentials between firms (Vorhies & Morgan, 2005; Weerawardena, 2003; Yu et al., 2014). In addition, RBT enables marketing researchers to theorize about how marketing capabilities enhance future firm performance (Angulo-Ruiz et al., 2018).

RBT has received criticism from various scholars for being, for example, tautological. More specifically, Priem and Butler (2001b) argued that the idea that competitive advantage produces sustained superior performance makes the theory tautological. RBT has also received criticism for being static and for failing to adequately explain how to achieve a competitive advantage in a dynamic environment (Priem & Butler, 2001a). Teece et al. (1997) extended RBT into a dynamic environment and introduced dynamic capabilities.

2.1.2 Dynamic Capability Perspective

The dynamic capability view is often considered an extension of RBT, one that explains how firms can alter their resources and capabilities to achieve congruence with the changing environment (Helfat & Peteraf, 2003). Teece et al. (1997) introduced dynamic capabilities to explain how firms achieve competitive advantage by adapting to changing market dynamics. The dynamic capability view seeks to answer the underlying question of how organizations attain and sustain competitive advantage in changing environments (Helfat et al., 2007; Teece et al., 1997). Whereas RBT emphasizes the firm's existing resource base, the dynamic capabilities perspective primarily addresses purposeful modifications of this resource base (Eisenhardt & Martin, 2000; Helfat et al., 2007; Kachouie et al., 2018).

Dynamic capabilities have been defined as “the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments” (Teece et al., 1997, p. 516). Helfat et al. (2007, p. 83) defined dynamic capabilities as “the capacity of an organization to purposefully create, extend or modify its resource base.” Dynamic capabilities enable new resource creation via reconfiguration, leverage, learning and integration, and the alteration of an existing resource base by creating, integrating, recombining, and releasing resources (Bowman & Ambrosini, 2003; Eisenhardt & Martin, 2000;

Winter, 2003). Such capabilities are difficult to acquire and imitate; as a result, this development entails significant sunk costs (Helfat & Martin, 2015; Winter, 2003).

RBT advocates a view of marketing capabilities that focuses on those capabilities that support marketing processes, such as marketing mix elements, market research, and market management (Vorhies, 1998; Vorhies & Morgan, 2005). In essence, this approach fails to recognize a firm's capacity to modify its marketing processes to cope with the rapidly changing market environment (Day, 2011). Varying demands for products, rapid technological developments, and shorter product life cycles have prompted marketing studies to analyze marketing capabilities from a dynamic capability perspective (Guo et al., 2018).

Marketing researchers have embraced the dynamic capabilities perspective to understand how firms gain a sustainable competitive advantage in changing circumstances by developing new resources and capabilities. Some early studies attempted to integrate dynamic capabilities into marketing capabilities (e.g., Day (1994); Morgan, Slotegraaf, et al. (2009a); Song et al. (2005). Later, Bruni and Verona (2009) highlighted the need to incorporate dynamic capabilities into marketing capabilities and introduced dynamic marketing capabilities. Dynamic marketing capabilities are different from ordinary marketing capabilities since they focus on renewing existing resources and generating new market knowledge to adjust marketing resources toward market volatility (Mitręga, 2019; Takata, 2016). The essence of dynamic marketing capabilities is the idea that a firm can adjust its internal resource configurations to align marketing processes with changes in market conditions (Guo et al., 2018; Morgan, 2012).

The introduction of the dynamic capability perspective into the marketing capabilities discussion helps to explain how firms deploy, transform, and organize in new patterns to reflect changing environments (Teece et al., 1997). Day (2011) enriched the dynamic capabilities perspective by introducing “adaptive marketing capabilities,” which describe the firm-enhanced capabilities needed to anticipate market trends and events and to adapt to changes before they become apparent. Adaptive market capabilities assume a proactive approach, one which starts by sensing and acting on market signals, continuously learning from market experiments, and integrating external resources to adapt to market changes (Guo et al., 2018; Hunt & Madhavaram, 2019; Reimann et al., 2021).

Moreover, Day (2011) extended the discussion of marketing capabilities by pinpointing the gaps in RBT and the dynamic capabilities perspective and introducing adaptive marketing capabilities. Day (2011) argued for broadening the scope of marketing capabilities beyond the narrow confines of the marketing mix to one that captures the increasing complexity of the market and the speed at which change is occurring. Day (2011) further noted that marketing capabilities should enable firms to adapt their marketing strategies to fast-changing markets. Adaptive marketing capabilities have become imperative for proactively anticipating market changes and devising a responsive approach to such changes (Day, 2011; Guo et al., 2018). Thus, incorporating the dynamic and adaptive capability perspectives into the discussion provides a nuanced explanation of marketing capabilities.

2.1.3 Definitions of Marketing Capabilities

Marketing capabilities have been considered part of organizational capabilities, representing a firm's competence to organize and deploy its marketing resources in a unique and inimitable way (Day, 1994; Dutta et al., 1999). The first definition of marketing capabilities can be traced back to the early research by Day (1994). Since then, the concept of marketing capabilities has received growing attention and continued to gain momentum and substantial attention in marketing research. Since the concept has evolved, there have been numerous and various definitions of marketing capabilities. Table 2.1 provides a list of the main definitions of marketing capabilities.

One of the earliest definitions of marketing capabilities comes from Day (1994): “complex bundles of skills and accumulated knowledge, exercised through organizational processes, that enable firms to coordinate activities and make use of their assets.” Similarly, Kaleka and Morgan (2019) described marketing capabilities as a complex set of skills, knowledge, and activities by which firms transform available resources into market-related value outputs. These definitions illustrate marketing capabilities as a collection of skills and knowledge that enables firms to understand the market and conceive and execute marketing strategies successfully. Moorman and Day (2016, p. 11) also described marketing capabilities as “the bundles of marketing skills and accumulated knowledge, exercised through organizational processes that enable a firm to carry out its marketing activities.” These definitions describe marketing capabilities as the

processes that employ bundles of knowledge and skills, enabling firms to deploy, organize, and use marketing resources.

Other researchers have taken the ability perspective and conceptualized marketing capabilities as a firm's ability to efficiently convert available marketing resources into marketing outcomes relative to the competition (Bahadir et al., 2008; Chang, 1996; Dutta et al., 1999; Griffith et al., 2006). They argued that marketing capabilities enable a firm to deploy resources to perform marketing activities in ways that achieve the desired marketing outcomes (Morgan et al., 2012). Griffith et al. (2010) explained marketing capabilities as the ability to integrate resources to respond to changing market demands. Doing so allows firms to understand customers' current needs and future expectations, as well as competitors' knowledge (Ma & Liao, 2006). Moreover, marketing capabilities empower firms to promote and sell various products and services that satisfy customers' needs and achieve the firms' profit objectives (Chang, 1996).

Table 2.1. Main Definitions of Marketing Capabilities

Study	Definition
Day (1994, p. 38)	Complex bundles of skills and accumulated knowledge exercised through organizational processes that enable firms to coordinate activities and make use of their assets.
Chang (1996, p. 237)	Firms' ability to promote and sell various products and services that satisfy the needs of target consumers and the firms' profitability objectives.
Bruni and Verona (2009, p. 103)	Capabilities aimed specifically at developing, releasing, and integrating market knowledge and marketing resources in order to match and create market and technological change.

Griffith et al. (2010, p. 219)	Firms' ability to integrate their collective knowledge, skills, and resources to effectively respond to changing market needs and meet competitive pressure.
Angulo-Ruiz et al. (2014, p. 382)	The process of combining marketing resources by developing and leveraging relational and intellectual assets to satisfy customers and attain brand equity.
Weerawardena et al. (2015, p. 227)	Firms' capacity to build, integrate, and reconfigure strategic marketing tools and acumen for effectively identifying and accessing markets and delivering value to these markets.
Moorman and Day (2016, p. 11)	The bundles of marketing skills and accumulated knowledge exercised through organizational processes that enable a firm to carry out its marketing activities.
Kaleka and Morgan (2019, p. 110)	The complex, coordinated patterns of skills, knowledge, and activities by which firms transform available resources into market-related value outputs.

Other researchers have defined marketing capabilities from the dynamic capabilities point of view. Bruni and Verona (2009) defined the marketing capabilities construct as a firm's capability to develop, release, and integrate market knowledge to address changes in technologies and markets. Similarly, Weerawardena et al. (2015) discussed marketing capabilities as a firm's capacity to build, integrate, and reconfigure strategic marketing tools and skills that enable the firm to identify, access, and deliver value to its market. Marketing capabilities capture the efficiency and speed with which firms respond to market changes through cross-functional management processes for product development, supply chains, and customer relationships (Fang & Zou, 2009).

From the definitions discussed above, it is clear that marketing capabilities have been represented in different ways and still lack a clear and consistent definition. In line with Day (1994) and Moorman and Day (2016), I view marketing capabilities as a complex bundle of knowledge and skills embedded in employee and organizational processes that a firm uses to define, develop, communicate, and deliver value to its target customers (Morgan et al., 2018). Marketing capabilities allow firms to carry out marketing activities by combining, transforming, and deploying resources (Bahadir et al., 2008; Morgan et al., 2018). Rare and inimitable accumulated market knowledge offers competitive advantages to firms (Kashmiri et al., 2017; Kozlenkova et al., 2014).

Marketing capabilities aim to address the accumulation and utilization of marketing knowledge to respond to changing market requirements (Hoque, 2017). These capabilities constitute the firms' involvement in market-based learning to obtain insights and the reconfiguration of resources that enhance their capabilities to fit into the rapidly changing environment (Morgan, 2012). Marketing capabilities involve a pattern of coordinating and upgrading capabilities that permit firms to meet their customers' expressed and unarticulated needs within a dynamic market condition (Maklan & Knox, 2009).

2.2 Marketing Capabilities in the B2B Context: A Systematic Review

2.2.1 Introduction

Marketing capabilities have been the focus of marketing scholars over the past two decades. Since the seminal article by Day (1994), research interest in marketing capabilities has exponentially increased in marketing and strategic management. Marketing capabilities have evolved from static approaches based on RBT to a broader approach based on dynamic and adaptive capabilities (Day, 1994, 2011; Hunt & Madhavaram, 2019). Initially, researchers focused their attention on the concept of marketing capabilities, but later began conducting empirical studies on the antecedents of marketing capabilities and their performance outcomes. At present, marketing capabilities research is being enriched by empirical studies in various contexts.

The literature on marketing capabilities covers a wide variety of different research contexts. For instance, marketing capabilities have been investigated extensively in the business-to-consumer (B2C) marketing context. In contrast, research on marketing capabilities is becoming more evident in the B2B context (Mariadoss et al., 2011). Marketing capabilities have been shown to improve firm performance by enhancing the competitive advantages of B2B firms (e.g., Guo et al. (2018); Koo et al. (2016). During the last decade, marketing capabilities in the B2B context have attracted attention from academics and practitioners. This is evidenced by the growing number of research and publications on the antecedents and outcomes of marketing capabilities in the B2B context.

The context of this dissertation is the selling of commodities by B2B firms to buyers and exporters. Considering this context, it would be prudent to focus this systematic literature review on marketing capabilities studies conducted in B2B settings. The aim here is to provide an overview of how far marketing capabilities research in the B2B context has progressed over the past two decades. Many researchers have investigated the dimensions, antecedents, and outcomes of marketing capabilities in various contexts. However, research has yet to establish a comprehensive framework for analyzing marketing capabilities or for connecting the insights and information found in the literature. In this regard, this chapter integrates knowledge on marketing capabilities in the B2B context without compromising the richness and depth of the context.

Against this backdrop, I conducted a systematic review of the literature to address the theoretical and empirical challenges surrounding the marketing capabilities construct and to identify gaps in the marketing capabilities research. This chapter also comprehensively analyzes the antecedents, dimensions, and outcomes of marketing capabilities conducted in the B2B context. By conducting this systematic literature review, I was able to develop research agendas that could direct future research efforts in this important research domain. Thirty-five relevant scientific publications were identified and subsequently analyzed. In this way, the dissertation sought to contribute by filling the knowledge gaps concerning marketing capabilities in the B2B context.

The remainder of the review is organized as follows. First, I discuss the methodology used to retrieve articles related to marketing capabilities. Here I explain the steps taken in

conducting this systematic review. The second section discusses the descriptive and thematic findings of the systematic review. In the final section, I highlight research gaps and suggest directions for future research.

2.2.2 Methodology

I used a systematic literature review approach to summarize and synthesize the current research on marketing capabilities in the B2B context. The goal of the systematic review was to identify the antecedents, dimensions, and outcomes of marketing capabilities in the B2B context. Since this dissertation is focused on B2B firms, the review excluded marketing capabilities studies conducted in the B2C context. The review was conducted following the systematic literature review framework established by Denyer and Tranfield (2009) and Tranfield et al. (2003). This framework allows researchers to identify, appraise, and synthesize relevant studies in a transparent and replicable manner. I undertook the systematic literature review in the following distinct stages. First, I developed the review protocol. Second, I identified the inclusion and exclusion criteria for relevant publications. Third, I performed an in-depth search for studies, followed by a critical appraisal, data extraction, and synthesis of past findings.

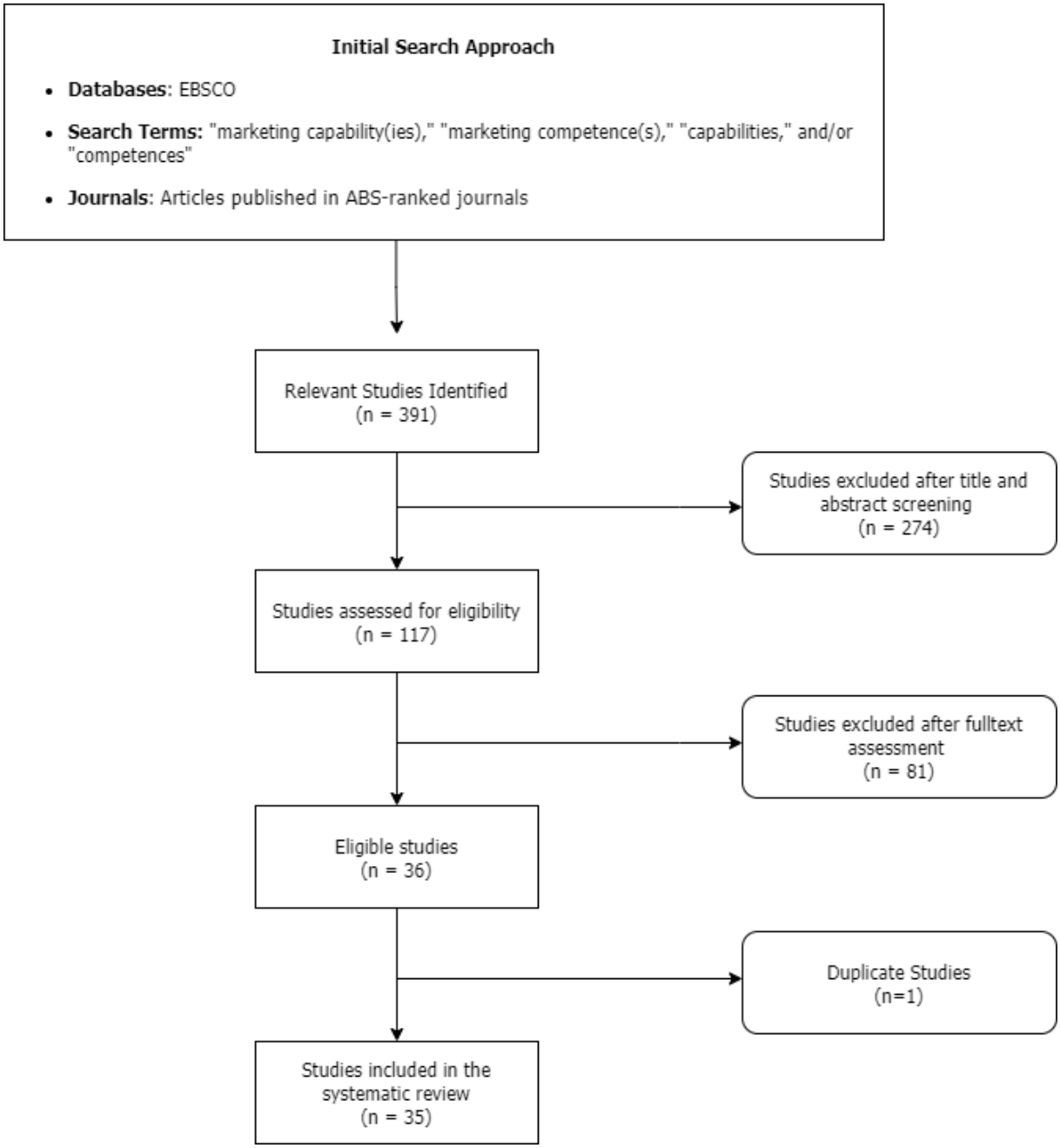
The search process involved identifying keywords and search terms, selecting databases and the search criteria, and establishing the criteria for article relevance (Tranfield, Denyer, and Smart 2003). I conducted the search for the relevant papers on the EBSCO database (Franco-Santos & Otley, 2018; Morgan et al., 2018). EBSCO is a comprehensive database widely used in most marketing literature reviews (e.g., Morgan et al. (2018). I then filtered the search results based on the journals listed in the Academic Journal Guide (AJG) (2021) by the Chartered Association of Business Schools (i.e., the ABS Academic Journal Guide). The AJG ranking has been widely used as a benchmark for journal quality and research rigor (Cartwright et al., 2021). Studies such as that by Franco-Santos and Otley (2018) and Andreini et al. (2021) have utilized the AJG to select studies to include in systematic reviews.

In line with Morgan et al. (2018), a systematic search for the following terms in article titles, abstracts, and/or keywords was performed: “marketing capability(ies),” “marketing competence(s),” “capabilities,” and/or “competences.” The search was limited to research

papers published after 1994 because few studies on marketing capabilities were conducted prior to this year (Morgan et al., 2018). In addition, this time frame was considered appropriate due to the proliferation of studies on marketing capabilities performed after the seminal article published by Day (1994).

The initial search produced 391 articles. Several inclusion and exclusion criteria were used to identify appropriate studies and to exclude those that did not pertain to the research topic. Namely, three criteria were used to screen research articles for the systematic review: (1) the article should focus on marketing capabilities; (2) the article should be empirical, conceptual, or a review; and (3) the article should examine firms engaged in the B2B context. After screening the abstracts, irrelevant studies were excluded from the review based on the exclusion criteria. Studies that were not published in the English language were also excluded. Figure 2.1 shows the initial search process, the stages of the selection process, and the reason why some articles were excluded. After screening the full articles, 35 articles covering marketing capabilities in the B2B context were ultimately included in the review.

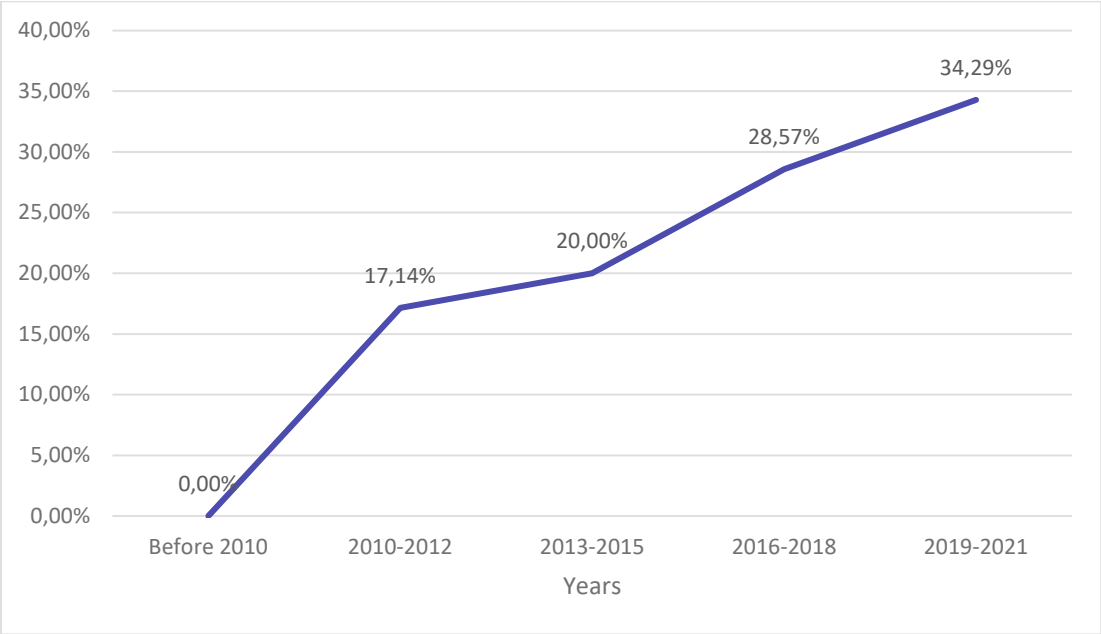
Figure 2.1. Summary of the literature search and the selection and exclusion process.



2.2.3 Findings

The analysis of the selected articles applied a dual descriptive and thematic approach. The descriptive part of the analysis detailed simple categories emerging from the articles, such as year, key journals, types of articles, and methods used. The thematic analysis examined the core themes emerging from the literature and organized them into a framework comprising dimensions, antecedents, and outcomes of marketing capabilities. I begin with a description of the characteristics of the 35 articles included in the analysis. Then, I analyze the empirical findings of these articles regarding the dimensions, antecedents, and outcomes of marketing capabilities.

Figure 2.2. Number of articles published over time.



2.2.3.1 Descriptive Findings

As shown in Figure 2.2, the number of publications on marketing capabilities has increased in recent years. The earliest publication on marketing capabilities in the B2B context was in 2010. The most productive period is from 2016 to 2021, with 27 articles (around 63%). There has been a notable increase in publications since 2015, which suggests that marketing capabilities in the B2B context have gained increasing attention from marketing researchers. The studies

on which the articles were based were conducted across more than 20 countries, of which 12 studies were conducted in China.

This study included articles published in 15 different marketing journals. The top journals are *Industrial Marketing Management*, with 13 articles, followed by the *Journal of Business and Industrial Marketing*, with six articles. These journals are the leading outlets for publishing B2B research. Moreover, I examined the methodological approaches that are commonly used to analyze marketing capabilities. I found that most studies in the sample utilized structural equation modeling, reflecting the relative popularity of studies using primary survey research designs. In addition, regression analysis, both hierarchical and non-hierarchical, was also frequently used. Only a few qualitative studies had been conducted. In addition to this, new methods, such as Fuzzy-set Qualitative Comparative Analysis (fsQCA), have started to appear in recent publications.

Figure 2.3. Most prolific journals.

Table 2.2. List of Marketing Capabilities Research in B2B Context

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
Akdeniz et al. (2010)	Marketing Resources Investment in Customer Relationships	Total Sales	Marketing Capabilities	Quantitative	Marketing capabilities enable firms to transform marketing resources to superior financial performance efficiently.
Mariadoss et al. (2011)		Sustainable Consumption Behavior Competitive Advantage	Marketing Capabilities	Quantitative	Identified key marketing capabilities that tie into innovation-based sustainability strategies, sustainable consumption behavior, and firm performance.
Merrilees et al. (2011)	Market Orientation	Financial Performance Marketing Performance	Branding Capability	Quantitative	Branding marketing capabilities are the strongest determinant of firm performance. The study also found that market orientation acts as an enabling mechanism for building marketing capabilities.
O'Cass and Ngo (2011b)	Entrepreneurial Orientation Market Orientation	Marketplace Performance	Marketing Capability	Quantitative	Marketing capability mediates the relationship between market orientation and marketplace performance.
Morgan and Slotegraaf (2012)			Higher-order Capabilities	Conceptual	

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
			Intermediate Capabilities Lower-order Capabilities		A typology was described for understanding how various B2B marketing capabilities are built.
O'Cass and Ngo (2012)	Market Orientation	Performance Value Relationship Value Co-creation Value	Marketing Capabilities	Quantitative	Marketing capabilities were shown to act as a full mediator of the relationship between market orientation and relationship value.
Liozu and Hinterhuber (2013)	Pricing Orientation	Relative Performance	Pricing Capability	Quantitative	CEO championing of pricing influences pricing capabilities and firm performance.
Chen et al. (2013)	Collaborative Communication	Customer-focused Performance Customer Cooperation Performance Financial Performance	Market-related Capabilities	Quantitative	Market-related capabilities completely mediate the collaborative communication–financial performance relationship, while market-related capabilities partially mediate the collaborative communication–customer-focused performance relationship.
Siahtiri et al. (2014)		Customer Attraction Customer Retention Customer Satisfaction	Marketing Capability	Quantitative	Marketing capabilities are a critical driver of customer-centric performance, one which enhances the firms' brand performance.

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
Zhang, Jiang, et al. (2015)		Brand Equity	Marketing Capability	Quantitative	Marketing capabilities improve brand equity directly and indirectly via value co-creation and customer value.
O'Cass et al. (2015)	Market Orientation	Customer-level Performance Firm-level Marketplace Performance	Marketing Capabilities	Quantitative	Marketing capabilities contribute to both firm and customer performance. In addition, they partially mediate the relationship between market orientation and performance.
O'Cass and Heirati (2015)	Market Orientation	New Product Performance	Brand Marketing Capability Marketing Mix Capability CRM Capability	Quantitative	Market-oriented firms are better at deploying marketing-mix capabilities, brand management capabilities, and customer relationship management capabilities, and these capabilities help drive new product performance.
Yang et al. (2015)		Abnormal Stock	Market-based Capability	Quantitative	Marketing capabilities were shown to be associated with firm value.
Tang et al. (2017)	Knowledge Sharing		Responsive Capability	Quantitative	Knowledge sharing is positively related to channel members' responsive capability.

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
Shoham et al. (2017)	Uncertainty Heterogeneity Munificence	Innovation Performance Financial Performance	Marketing Absorptive Capacity	Quantitative	An uncertain environment is a precursor of the effort to develop marketing capacity. Marketing absorptive capacity positively impacts financial performance and harms innovation performance.
Agostini et al. (2017)		Customer Performance	Marketing Capability	Quantitative	Customer performance was shown to be enhanced through a firm's marketing capability.
Liu et al. (2018)		Firm Performance	Marketing Capability	Quantitative	The complementary and balance configurations of marketing and technological capabilities influence alignment and adaptation and improve firm performance.
Guo et al. (2018)		Market Performance	Static Marketing Capability Dynamic Marketing Capability Adaptive Marketing Capability	Quantitative	The three dimensions of marketing capabilities (i.e., static marketing capability, dynamic marketing capability, and adaptive marketing capability) directly contribute to market performance.
Chang et al. (2018)		Brand Orientation	Marketing Capabilities	Quantitative	Marketing capability was shown to be positively related to brand orientation.

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
Sharma et al. (2018)		Export Performance	Marketing Capability	Quantitative	Marketing capability mediates between an exploration strategy and export performance.
Liu and Chen (2018)		New Collaboration Development	Competence-based Marketing Competence	Quantitative	Marketing competence indirectly affects collaborative relationships in buyer—supplier relationships through relative attention and relationship learning.
Ahmadi and O'Cass (2018)	Entrepreneurial Posture	First Product Advantage	Marketing Capabilities	Quantitative	The findings indicated the benefits of marketing capability for first product advantage.
Mora Cortez and Johnston (2018)		Comparison between the US and Latin America	Customer Relationship Management Marketing Channel	Qualitative	There are differences and similarities between the US, Chile, Peru, and Mexico in B2B marketing capabilities with different stages of economic development.
Yang et al. (2019)	Relational Strength		Buyer Marketing Capabilities	Quantitative	A buyer–supplier relationship is a necessity for building buyer marketing capabilities.
Nagy et al. (2019)		Market Performance Financial Performance	Ordinary Marketing Capability	Quantitative	Dynamic and operational marketing capabilities are complementary rather than

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
			Dynamic Marketing Capability		substitutive. The two marketing capabilities explain firm performance better jointly than in isolation.
Helm et al. (2020)	Market Orientation	Firm Performance	Marketing Mix Capabilities	Quantitative	Marketing mix capabilities transform the marketing intelligence activities into firm performance.
Lee et al. (2020)	Market Orientation	Brand Performance	Brand Management Capability	Quantitative	Market orientation relates positively to brand management capability, which in turn positively relates to brand performance.
Xie and Zheng (2020)	Learning Orientation	Industrial Brand Equity	Marketing Capability	Quantitative	Marketing capability serves as the mediator between learning orientation and industrial brand equity.
Pyper et al. (2020)	Financial Resources	Financial Performance Market Performance	Market Information Capabilities Branding Capabilities Marketing Planning Capabilities	Quantitative	Marketing capabilities are antecedents of strategic brand management, which, in turn, leads to increased financial and market performance.
Florea and Munteanu (2020)	Marketing Outsourcing			Quantitative	The relationship between marketing outsourcing and second-

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
			Second-order Marketing Competences		order marketing competencies resembles an inverted U curve.
Bauer et al. (2020)	Product Adaptation	Business Performance	Product Development Capacity	Quantitative	Firms should possess a strong product development capability to successfully implement strategic international adaptation decisions.
Kowalik et al. (2020)		International New Ventures Expansion	Specialized Marketing Capabilities Architectural Marketing Capabilities	Quantitative	Specialized marketing capabilities contribute to the early expansion of international new ventures through interaction with architectural marketing capabilities.
Madhavaram et al. (2021)	Intellectual Capital Structural Capital Cognitive Capital		Customization Capability	Quantitative	The findings support the role of organizational capital – intellectual capital, structural capital, and cognitive capital – in building customization capability.
Mainardes et al. (2021)		Sustained Competitive Advantage Market Orientation	Marketing Capabilities	Quantitative	Marketing capabilities play a significant role in the market orientation and perceived sustained competitive advantage.

Authors	Antecedents	Outcomes	MC Dimensions	Method	Results
Reimann et al. (2021)		International Marketing Performance	Dynamic Marketing Capabilities Adaptive Marketing Capabilities	Quantitative	A positive impact of dynamic and adaptive marketing capabilities on international marketing performance was demonstrated.

2.2.3.2 Dimensions of Marketing Capabilities

To more deeply understand the concept of marketing capabilities, we must examine the dimensions and underlying structures of the marketing capabilities construct. This can be accomplished by analyzing the ways in which the literature has conceptualized and operationalized the marketing capabilities construct. The findings of this review indicated a lack of consistency on dimensions of marketing capabilities. Some studies followed RBT, others assumed the market orientation perspective, whereas others followed an approach more akin to the dynamic capabilities perspective.

Day (1994) framework distinguishes between three marketing capabilities: inside-out, outside-in, and spanning capabilities. However, some marketing capabilities are missing from the framework, such as marketing communication and strategic marketing capabilities. Vorhies and Morgan (2003, 2005) suggested two components of marketing capabilities: specialized and architectural marketing capabilities. Specialized marketing capabilities consist of capabilities such as pricing, promotions, product development, and distribution channels. Architectural marketing capabilities include marketing planning and marketing research development capabilities. Nonetheless, this framework fails to recognize the dynamic nature of these capabilities as it focuses only on RBT.

Morgan (2012) further extended the previous work by adding two capabilities, i.e., cross-functional and dynamic marketing capabilities, into the existing two dimensions of marketing capabilities. In this framework, marketing capabilities are broken down into four types: specialized capabilities, cross-functional capabilities, architectural capabilities, and dynamic capabilities. Morgan developed a more comprehensive description of marketing capabilities within organizations by combining insights from RBT and the dynamic capabilities perspective. Day (2011) recently extended marketing capabilities even further by proposing adaptive marketing capabilities as an additional capability that enables firms to adjust quickly to fast-changing markets.

The literature review indicates a lack of consistency about what constitutes marketing capabilities and suggests that researchers tend to use different sub-capabilities to define marketing capabilities. Various authors have used a modified version by relying on one or a few dimensions of marketing capabilities (Morgan, Slotegraaf, et al., 2009a). Some other authors

have used unidimensional marketing capabilities measures without specifying the various sub-dimensions (Ju et al., 2018; O'Cass & Ngo, 2011b).

The thematic analyses in this systematic review found that the available indicators of marketing capabilities cluster around four themes, or dimensions. These four dimensions are in line with Day (2011) and Morgan (2012) and are as follows:

- Operational marketing capabilities
- Strategic marketing capabilities
- Dynamic marketing capabilities
- Adaptive marketing capabilities

Table 2.3 shows how I derived the four dimensions of marketing capabilities based on the extant literature. The table illustrates the constructs utilized in previous studies to measure marketing capabilities and their associated second-order dimensions. I discuss the four second-order dimensions of marketing capabilities in the next section.

Operational Marketing Capabilities

Operational marketing capabilities refer to a firm's competencies and skills associated with integrating specialized marketing knowledge (Hooley et al., 1999; Wilden & Gudergan, 2015). Operational marketing capabilities are concerned with functionally focused capabilities that reflect task-specific marketing activities (Mariadoss et al., 2011; Morgan, 2012). These capabilities are based around classical marketing mix activities, such as products, communications, pricing, and distribution (Vorhies et al., 2009). Operational marketing capabilities are similar to the specialized marketing capabilities stated in Morgan (2012) classification of marketing capabilities. In particular, operational marketing capabilities are recognized as tactical lower-level capabilities.

Operational marketing capabilities involve coordinating other functions to draw on inputs from outside of the marketing function and encompassing the tactical marketing program-related processes commonly needed to facilitate the implementation of marketing strategies (Morgan, 2012; Wilden & Gudergan, 2015). The core of operational marketing capabilities resides in the marketing function (Morgan, 2012). Operational marketing capabilities allow firms to form beneficial relationships with their customers, maintain established customer

bases, develop a suitable distribution system, and use market knowledge to their advantage (Wilden & Gudergan, 2015).

In addition to the firms' capabilities to develop superior-quality products and services using an efficient sales planning, management, and control system, operational marketing capabilities comprise competencies related to developing and executing effective marketing communication messages (Cruz-Ros et al., 2010). Operational marketing capabilities also include capabilities that involve pricing skills, which enable firms to set a competitive price and an extensive distribution channel to make their products widely available. Studies have utilized various indicators to measure operational marketing capabilities, such as marketing mix capability (Helm et al., 2020; Koo et al., 2016; O'Cass & Heirati, 2015; Zhang, Jiang, et al., 2015), pricing capability (Liozu & Hinterhuber, 2013), static marketing capability (Guo et al., 2018), ordinary marketing capability (Nagy et al., 2019), product development capability (Bauer et al., 2020), and competency-based marketing capabilities (Liu & Chen, 2018).

Table 2.3. Summary of Antecedents, Dimensions, and Outcomes of Marketing Capabilities

Antecedents	Dimensions	Outcomes
Intraorganizational Antecedents **Strategic Orientation** • Market Orientation (Ahmadi and O'Cass 2018; Helm, Krinner, and Endres 2020; Lee, O'Cass, and Sok 2020; Mariadoss, Tansuhaj, and Mouri 2011; Merrilees, Rundle-Thiele, and Lye 2011; O'Cass and Heirati 2015; O'Cass and Ngo 2011, 2012; O'Cass, Ngo, and Siahtiri 2015) • Entrepreneurial Orientation (O'Cass and Ngo 2011) • Innovation (Pscheidt-Gieseler et al. 2018) • Learning Orientation (Xie and Zheng 2020) • Brand Orientation (Lee, O'Cass, and Sok 2020) • Pricing Orientation (Liozu and Hinterhuber 2013) **Resources and Capital** • Financial Resources (Koo, Kim, and Kim 2016; Pyper et al. 2020) • Human Resources (Koo, Kim, and Kim 2016)	**Operational Marketing Capabilities** • Marketing Mix Capability (Ahmadi and O'Cass 2018; Chen, Li, and Arnold 2013; Griffith, Yalcinkaya, and Calantone 2010; Mainardes et al. 2021; Mariadoss, Tansuhaj, and Mouri 2011; O'Cass and Ngo 2011, 2012; Helm, Krinner, and Endres 2020; Koo, Kim, and Kim 2016; O'Cass and Heirati 2015; Zhang et al. 2015) • Pricing Capability (Liozu and Hinterhuber 2013) • Static Marketing Capability (Guo et al. 2018) • Ordinary Marketing Capability (Nagy, Jaakkola, and Koporcic 2019) • Product Development Capability (Bauer et al. 2020) • Competence-based Marketing Capabilities (Liu and Chen 2018) **Strategic Marketing Capabilities** • Marketing Capability (Agostini, Nosella, and Soranzo 2017; Chang et al. 2018; Sharma, Nguyen, and Crick 2018; Siahtiri, O'Cass, and Ngo 2014; Xie and Zheng 2020)	**Customer-based Performance** • Customer Attraction (Siahtiri, O'Cass, and Ngo 2014) • Co-creation Value (Chang et al. 2018; O'Cass and Ngo 2012) • Relationship Value (O'Cass and Ngo 2012) • Customer-focused Performance (Agostini, Nosella, and Soranzo 2017; Chen, Li, and Arnold 2013) • Customer-level Marketplace Performance (O'Cass, Ngo, and Siahtiri 2015) • Collaboration Development (Liu and Chen 2018) • Customer Retention (Siahtiri, O'Cass, and Ngo 2014) • Customer Satisfaction (Siahtiri, O'Cass, and Ngo 2014) **Marketing-based Performance** • Total Sales (Akdeniz, Gonzalez-Padron, and Calantone 2010)

Antecedents	Dimensions	Outcomes
• Human Capital (Griffith, Yalcinkaya, and Calantone 2010) • Organizational Capital (Griffith, Yalcinkaya, and Calantone 2010; Koo, Kim, and Kim 2016) • Informational Capital (Griffith, Yalcinkaya, and Calantone 2010) • Intellectual Capital (Madhavaram, Hunt, and Bicen 2021) • Cognitive Capital (Madhavaram, Hunt, and Bicen 2021) • Marketing Infrastructure (Koo, Kim, and Kim 2016) Interorganizational Antecedents • Buyer–Seller Relationship Strength (Yang, Jiang, and Xie 2019) • Relational Capital (Griffith, Yalcinkaya, and Calantone 2010) • Collaborative Communication (Chen, Li, and Arnold 2013) • Relationship Quality (Tang, Fu, and Xie 2017) • Outsourcing (Florea and Munteanu 2020)	• Brand Management Capability (Lee, O'Cass, and Sok 2020; Mariadoss, Tansuhaj, and Mouri 2011; O'Cass and Heirati 2015; Pyper et al. 2020) • Marketing Planning Capability (Mainardes et al. 2021; Pscheidt-Gieseler et al. 2018; Pyper et al. 2020) • Marketing Implementation Capabilities (Mainardes et al. 2021; Pscheidt-Gieseler et al. 2018) • Market Resource Deployment (O'Cass, Ngo, and Siahtiri 2015) Dynamic Marketing Capabilities • Dynamic Marketing Capability (Guo et al. 2018; Liu and Chen 2018; Nagy, Jaakkola, and Koporcic 2019) • Second-order Marketing Competences (Florea and Munteanu 2020) Adaptive Marketing Capabilities • Customization Capability (Madhavaram, Hunt, and Bicen 2021) • Buyer's Marketing Capability (Yang, Jiang, and Xie 2019) • Adaptive Marketing Capability (Guo et al. 2018; Liu and Chen 2018) • Responsive Capability (Tang, Fu, and Xie 2017)	• Firm-level Marketplace Performance (O'Cass, Ngo, and Siahtiri 2015) • Brand Equity (Xie and Zheng 2020; Zhang et al. 2015) • Brand Performance (Chang et al. 2018; Lee, O'Cass, and Sok 2020; Siahtiri, O'Cass, and Ngo 2014) • Relative Firm Performance (Liozu and Hinterhuber 2013) • Marketing Performance (Guo et al. 2018; Liu and Chen 2018; Mariadoss, Tansuhaj, and Mouri 2011; Nagy, Jaakkola, and Koporcic 2019; Pyper et al. 2020) Financial Performance • Financial Performance (Mariadoss, Tansuhaj, and Mouri 2011; Nagy, Jaakkola, and Koporcic 2019; Pyper et al. 2020) Innovation Performance • Innovation (Mariadoss, Tansuhaj, and Mouri 2011; Pscheidt-Gieseler et al. 2018)

Antecedents	Dimensions	Outcomes
		• New Product Performance (O'Cass and Heirati 2015) • Firm Product Advantage (Ahmadi and O'Cass 2018) • Performance Value (O'Cass and Ngo 2012) • Overall Performance (Bauer et al. 2020; Griffith, Yalcinkaya, and Calantone 2010; Helm, Krinner, and Endres 2020; Koo, Kim, and Kim 2016; Sharma, Nguyen, and Crick 2018) • Competitive Advantage (Mainardes et al. 2021)

Strategic Marketing Capabilities

Strategic marketing capabilities are organizational planning-related capabilities involved in designing strategic marketing plans and formulating strategies to accomplish these marketing goals (Morgan, 2012). Whereas operational marketing capabilities refer to the marketing mix's activities, strategic marketing capabilities are more strategically concerned with the planning and managing of operational marketing capabilities (Trez, 2012). Strategic marketing capabilities are used to orchestrate operational marketing capabilities and employ resource inputs related to market information, marketing strategy development, and execution (Shin & Aiken, 2012). The concepts of strategic marketing capabilities are related to the architectural marketing capabilities stated in Morgan (2012) dimensions of marketing capabilities.

Strategic marketing capabilities enable firms to plan appropriate combinations of available knowledge and other resources, execute the deployment of resources, and transform them into realized value offerings for target customers (Morgan et al., 2003). Marketing activities, such as competitor and internal company analysis, market segmentation and targeting, and product/service differentiation, are important elements of this capability (Cruz-Ros et al., 2010; Morgan, 2012). Strategic marketing capabilities include strategic marketing planning, strategy implementation, and market targeting and positioning capabilities. Strategic marketing planning is associated with having clear marketing goals and with the effective allocation of marketing resources (Morgan, 2012). Market segmentation capability is related to the competence associated with selecting target markets and positioning the firm's products/services effectively (Morgan, Vorhies, et al., 2009; Poenaru, 2015). Marketing strategy implementation refers to capabilities to effectively develop and execute marketing strategies and programs (Morgan, 2012).

In sum, strategic marketing capabilities deal with the planning and implementation of strategic marketing goals that facilitate the deployment of resources required to enact marketing decisions (Eng & Okten, 2011; Morgan, 2012). These strategic marketing capabilities in B2B research typically include brand management capability (Lee et al., 2020; Mariadoss et al., 2011; O'Cass & Heirati, 2015; Pyper et al., 2020), marketing planning capability (Mainardes et al., 2021; Pscheidt-Gieseler et al., 2018; Pyper et al., 2020), marketing implementation

capabilities (Mainardes et al., 2021; Pscheidt-Gieseler et al., 2018), and market resource deployment (O'Cass et al., 2015).

Dynamic Marketing Capabilities

Dynamic marketing capabilities originated from the dynamic capabilities perspective (Teece et al., 1997). Whereas the previous two marketing capabilities focus on current firm operations, dynamic marketing capabilities imply a firm's capacity to create new capabilities and process and respond to changing market conditions (Xu et al., 2018). Dynamic marketing capabilities are distinct from operational and strategic marketing capabilities because they comprise components of marketing resource reconfigurations and capability enhancement (Buccieri et al., 2020).

Dynamic marketing capabilities refer to the extent to which a firm continuously reconfigures market knowledge to leverage its resources and capabilities in ways that fit the rapidly changing market environment (Morgan, 2012). The central focus of dynamic marketing capabilities is developing, releasing, and integrating market knowledge to successfully address changes in the environment. Dynamic marketing capabilities allow firms to implement new strategies and capabilities by altering available resources and/or combining and transforming existing resources in various ways (Buccieri et al., 2020).

The utilization and renewal of marketing resources and knowledge management are the two main aspects required in dynamic marketing capabilities (Barrales-Molina et al., 2014). Consistent with the dynamic capability perspective and with the extant literature on marketing, this study considered dynamic marketing capabilities as a capability to create, extend, or modify a firm's resource and capability bases to achieve congruence with the changing environment (Buccieri et al., 2020; Helfat et al., 2007). Dynamic marketing capabilities are typically measured using indicators such as dynamic marketing capability (Guo et al., 2018; Liu & Chen, 2018; Nagy et al., 2019) and second-order marketing competencies (Florea & Munteanu, 2020).

Adaptive Marketing Capabilities

Adaptive marketing capabilities are the fourth dimension of marketing capabilities. Unlike dynamic marketing capabilities, adaptive marketing capabilities take a proactive approach to anticipate and respond to fast-moving market signals (Day, 2011; Guo et al., 2018). Adaptive marketing capabilities refer to a firm's competence to be vigilant and swiftly act on emerging trends and events in the relevant markets (Day, 2011). Day (2011, 2014) argued that the accelerating velocity and complexity of the market environment needs enhanced marketing capabilities. Thus, firms can deal with the rapidly increasing complexity of the market environment by vigilant market learning, adaptive market experimentation, and open marketing (Hunt & Madhavaram, 2019).

Day (2011) pointed out the gaps in the marketing capabilities literature and suggested three adaptive marketing capabilities: vigilant market learning, adaptive market experimentation, and open marketing capabilities. Vigilant market learning is an open-minded approach to latent needs that involves the willingness to be immersed in customers' lives and competitor strategies and the capability to sense and act on market signals (Day, 2011). This capability enhances firms' market insights with an advance warning system to anticipate market changes and discover unmet customer needs (Day, 2014).

The adaptive market experimentation capability involves a continuous learning process through market experiments (Guo et al., 2018). It encompasses the exploration of possibilities beyond the firm's natural boundaries and involves a willingness to learn from network partners' experiences and to challenge existing beliefs (Day, 2014; Yang et al., 2019). Open marketing involves building relationships that are more closely attuned to market changes, such as changes stemming from social networking technologies and new media (Day, 2014). It is centered on mobilizing external network partners' resources through cooperation and knowledge sharing (Yang et al., 2019). Various terms have been used to describe adaptive marketing capabilities in the extant B2B research. These capabilities are typically measured using indicators such as customization capability (Madhavaram et al., 2021), adaptive marketing capability (Guo et al., 2018; Liu & Chen, 2018), and responsive capability (Tang et al., 2017).

2.2.3.3 Antecedents of Marketing Capabilities

Empirical studies on marketing capabilities are relatively recent, with the earliest papers published in the late 1990s. Since then, marketing research has focused heavily on the antecedents and performance effects associated with marketing capabilities. Research on marketing capabilities in the B2B context has increased in the last few years but still lags behind research in the B2C context. Below, I review the previous empirical findings related to the antecedents of marketing capabilities.

Multiple antecedents have been indicated as influencing the development of marketing capabilities. Prior studies have provided evidence of the intraorganizational antecedents of marketing capabilities. These intraorganizational antecedents focus on factors involved within the organization, such as management issues, individual issues, and structural issues (Kirca & Tomas, 2009). Internal organizational factors are known to impact the development of marketing capabilities (Vorhies, 1998). The influence of intraorganizational factors on marketing capabilities can be explained using RBT. This is because RBT focuses on the intraorganizational factors that determine a firm's competitive advantage: resources and capabilities (Barney, 1991; Barney, 2001; Barney & Arikan, 2001).

Organizational factors are the key enablers in developing marketing capabilities because these capabilities are more inherent in leveraging organizational resources (Buccieri et al., 2020). The intraorganizational antecedents cover a relatively broad range of variables, from strategic orientations to organizational capital and resources. Table 2.3 shows the three intraorganizational categories affecting marketing capabilities: strategic orientations, organizational capital, and organizational resources.

Strategic orientations refer to the firm's guiding principles that influence strategy-making activities (Noble et al., 2002). Strategic orientation is a concept that includes philosophies such as market orientation, entrepreneurial orientation, learning orientation, technological orientation, employee orientation, and interaction orientation (Masa'deh et al., 2018; Theodosiou et al., 2012). These orientations contribute to developing marketing capabilities by providing a strategic direction that enhances a firm's market-based capabilities (Martin & Javalgi, 2016; Murray et al., 2011). The most studied category is marketing orientation, an organization-wide generation of market intelligence on current and future customer needs, the

dissemination of this intelligence across the organization, and organization-wide responsiveness to this intelligence (Jaworski & Kohli, 1993). Merrilees et al. (2011) and Lee et al. (2020), for instance, found that market orientation provides knowledge about the market and the customers upon which firms can develop strong marketing capabilities.

Other strategic orientations have been acknowledged to contribute to marketing capabilities. Entrepreneurial orientation is another strategic orientation that has been linked to marketing capabilities. O'Cass and Ngo (2011b) and Pscheidt-Gieseler et al. (2018), for example, indicated that entrepreneurially oriented firms are more likely to acquire and utilize marketing information that is important to the development of marketing capabilities. Furthermore, brand orientation, learning orientation, and pricing orientations were cited as contributing to the development of marketing capabilities (Lee et al., 2020; Liozu & Hinterhuber, 2013; Xie & Zheng, 2020).

Firm resources are assets that permit firms to conceive of and implement strategies that improve their efficiency and effectiveness (Barney, 1991). Firm resources include marketing resources, IT resources, and financial resources. These firm resources provide the necessary inputs required to build marketing capabilities. Most studies on these resources have focused on examining the influence of marketing and information resources on marketing capabilities. Collectively, these papers have found a positive relationship between the various firm resources and marketing capabilities (e.g., Koo et al. (2016); Pyper et al. (2020). These studies showed that firm resources play a key role in marketing capabilities by providing complementary assets that firms can draw upon to develop stronger marketing capabilities within the organization.

The third intraorganizational category is organizational capital, which refers to the organizational knowledge base that resides in a firm’s databases, as well as the firm’s norms, procedures, and culture (Lahiri 2013). Organizational capital, such as human, informational, intellectual, and cognitive capital, play an important role in developing marketing capabilities (Kaleka, 2011). For instance, cognitive capital significantly influences marketing capabilities by shaping organizational culture and building the capacity for change (Madhavaram et al., 2021). Moreover, human capital provides the requisite skills and knowledge needed to construct marketing capabilities (Griffith et al., 2010; Koo et al., 2016). Additional support for this

argument can be found in the work by Madhavaram, Hunt, and Bicen (2021), which demonstrated a positive association between intellectual capital and marketing capabilities.

Interorganizational factors are another antecedent of marketing capabilities. Interorganizational antecedents refer to resources gained from the interactions between actors outside organizational boundaries (Ma et al., 2009). Firms use knowledge and resources that originate from outside the organization to develop marketing capabilities (Florea & Munteanu, 2020). The importance of external antecedents has been identified by social network theory. Social network theory argues that firms' ties with external actors provide resources crucial for gaining a competitive advantage (e.g., Burt (1997); Rindfleisch and Moorman (2001); Swaminathan and Moorman (2009b). External network partners are central to marketing capabilities because, according to previous research, they possess resources, knowledge, technology, and capabilities not available internally (Gao et al., 2015; Gulati, 1998). Gaining access to knowledge and information from external partners, such as new demands from customers or suppliers and new government regulations, alongside market and technological advances contributes to marketing capabilities.

This systematic literature review found that few studies have examined the interorganizational antecedents of marketing capabilities in contrast to intraorganizational antecedents. Indeed, only four studies explored interorganizational antecedents. For instance, Florea and Munteanu (2020) argued that outsourcing provides external knowledge and experience that contribute to the firm's marketing capabilities. I found two studies that explored the connections between relationship strength and marketing capabilities. These studies argued that a collaborative relationship with external actors encourages knowledge sharing, which in turn contributes to marketing capabilities (Chen et al., 2013; Yang et al., 2019). Moreover, Griffith et al. (2010) found that relational capital positively affects the development of marketing capabilities.

2.2.3.4 Outcomes of Marketing Capabilities

Marketing capabilities have been found to contribute to various performance outcomes. The list of performance outcomes associated with marketing capabilities is quite comprehensive. I organized the performance outcomes into four main categories based on functional areas:

customer-based performance, market-related performance, innovation performance, and financial performance.

Several studies have indicated that marketing capabilities can enhance customer-based performance (O'Cass, Ngo, and Siahtiri 2015; Orr, Bush, and Vorhies 2011). Siahtiri, O'Cass, and NgoSiahtiri et al. (2014) suggested that marketing capabilities contribute to customer satisfaction by attracting new customers and retaining existing customers. Liu and Chen (2018) also demonstrated the importance of marketing capabilities in strengthening B2B relationships by revealing their effect on the development of collaborations. Other customer-based performance factors to which marketing capabilities contribute include co-creation value (Chang et al., 2018), relationship value (O'Cass & Ngo, 2012), customer-focused performance (Chen et al., 2013), and customer-level marketplace performance (O'Cass et al., 2015).

The second most common outcome of marketing capabilities was market-related performance. Researchers have used several types of marketing performance measures. Marketing capabilities increase the likelihood of total sales (Akdeniz et al., 2010) and improve firm-level marketplace performance (O'Cass et al., 2015). Likewise, marketing capabilities have been associated with market share, sales growth, and total sales (Mariadoss et al., 2011; Pyper et al., 2020). Marketing capabilities contribute to branding outcomes, such as brand equity (Xie & Zheng, 2020; Zhang, Jiang, et al., 2015) and brand performance (Chang et al., 2018; Siahtiri et al., 2014). In addition, marketing capabilities have been found to improve financial outcomes (Mariadoss et al., 2011; Nagy et al., 2019), innovation performance (Ahmadi & O'Cass, 2018; Pscheidt-Gieseler et al., 2018), and overall firm performance (Griffith et al., 2010; Helm et al., 2020; Koo et al., 2016).

2.2.4 Research Gaps and Future Research Directions

The contributions of this review to the marketing capabilities literature are fourfold. First, I provided an integrated definition of marketing capabilities by systematically reviewing the existing literature. Second, while critically analyzing existing dimensions, I discovered that marketing capabilities consist of four key dimensions: operational marketing capabilities (OMC), strategic marketing capabilities (SMC), dynamic marketing capabilities (DMC), and

adaptive marketing capabilities (AMC). Third, I delineated the antecedents and outcomes of marketing capabilities in the B2B context. Fourth, I contributed to the literature by providing suggestions for further research in the marketing capabilities literature stream.

This systematic literature review outlined the current state of research on marketing capabilities. The studies included in the review used a wide array of conceptual models and methods to study the antecedents and outcomes of marketing capabilities in B2B relationships. Based on the results obtained from the systematic review, I propose the following research agenda to direct future studies.

The review revealed that several antecedents contribute to marketing capabilities that are different in nature, such as organizational capital, firm resources, strategic orientations, and interorganizational factors. However, much remains to be explored to understand the development of marketing capabilities. Morgan (2019, p. 381), in his article, stated that "we have much less insight into how to build such marketing capabilities." As such, future studies are needed to further investigate how to develop and manage marketing capabilities. For example, marketing researchers have largely ignored the role of top management in the development of firm-level marketing capabilities. Marketing capabilities reflect the top management's action and resource allocation decisions (Feng et al., 2015). Hence, the CEO and CMO play a significant role in developing marketing capabilities by exploiting internal resources and exploring external resources. Top management greatly influences investments in marketing-related resources that are important to developing marketing capabilities (Liozu & Hinterhuber, 2013; Sanders & Carpenter, 1998). As such, much should be done to study how top management characteristics play a role in the development of marketing capabilities.

Too little is known about the digital technologies and big data that contribute to the development of marketing capabilities. Digital technologies engendered by the fourth industrial revolution are increasingly critical resources for firms to develop a sustained competitive advantage (Arromba et al., 2021). Digital technologies provide marketers with new ways to proactively access market information and respond to market changes. Related technologies such as big data analytics, business intelligence systems, and IoT platforms play a significant role in the development of marketing capabilities (Warner & Wäger, 2019). Moreover, emerging changes, such as artificial intelligence and blockchain, are creating new ways of

developing, measuring, and maintaining marketing capabilities. This suggests the need to address digital technology and big data analytics related to the development of marketing capabilities.

The antecedents discussed in the previous studies were focused on intraorganizational antecedents of marketing capabilities. Even though research on marketing capabilities has grown steadily, very few investigations have been conducted on the relationship between network structure and marketing capabilities. Indeed, too little research has been performed on the contribution of external sources of knowledge to a firm's marketing capabilities. What is missing in previous studies is the differential effect of the nature of partners and positions in the network on marketing capabilities and the conditions under which external partners contribute to the development of marketing capabilities.

Given the significance of marketing capabilities for firm performance, further investigations into the contributions of external network partners to marketing capabilities could yield valuable insights. In line with what was stated in the above paragraph, more research must be performed on the various network partners that contribute to marketing capabilities. Different network partners provide access to different resources, knowledge, and capabilities (Roper & Love, 2018). For example, government and business partners represent two distinct facets of the relationship and may therefore confer different resource benefits (Sheng et al., 2011a; Wu & Chen, 2012). Thus, the scope exists for empirical studies that treat network partners as distinct actors.

Too little effort has been devoted to developing a measure that can capture the important facets of marketing capabilities. Past research has used various measures of marketing capabilities. The absence of a conceptualization and measure of marketing capabilities in the B2B context has hampered research on this phenomenon. A conceptualization of marketing capabilities is required that can capture the key elements of marketing capabilities. Besides, capabilities vary across industry contexts and over time (Malik & Kotabe, 2009; Morgan et al., 2018). To capture this variation, there needs to be a measure that captures such a dynamism. Future researchers should be encouraged to explore how firms evaluate, develop, integrate, monitor, and manage marketing capabilities.

There are several mechanisms through which marketing capabilities contribute to firm performance outcomes. The mechanism through which marketing capabilities contribute to customer, marketing, innovation, and financial performance outcomes has received relatively little attention in marketing capability research. Insights gained from the mediating mechanism could advance our understanding of how marketing capabilities enhance a firm's competitive advantage. For instance, variables such as new market development and product enhancement can explain how and why marketing capabilities are important to improve firm performance.

2.3 Social Network Theory

The systematic review indicated that marketing capabilities research is growing but some areas remain unexplored. One important area that needs more research attention relates to the contribution of interorganizational networks to firm marketing capabilities. This part aims to introduce social network theory and explain why it is important for considering the structure of the network and the nature of relationships when studying the effects of interorganizational networks.

Much network understanding is based on the political science literature of the 1950s and 1960s and on the organizational sociology of the 1960s and 1970s, which describes interorganizational relations (Klijn, 1996). Social network theory has been popularized by contributions from Granovetter (1973) on the strength of weak ties, from Burt (1982, 1992) on structural holes, and from Coleman (1988) on network closure.

A network is a structure made up of a set of connected actors (individuals, groups, or organizations) called nodes, which are linked (connected) via different types of relationships, such as friendship, common interest, financial exchange, knowledge, or prestige (Gulati, 1998; Gulati et al., 2000). A network involves a complex pattern of formal and informal linkages between individuals, businesses, and other organizations that serve as a conduit for the flow of information and resources (Blundel & Smith, 2001; Bolander et al., 2015). Social network theory views relationships as a network consisting of a set of nodes and links (also called edges, ties, or connections) connecting these nodes (Wasserman & Faust, 1994). Nodes represent a set of actors within the network, such as individuals, groups, or organizations (Borgatti et al., 2018).

A link represents the relationship between the actors that channels the transfer of resources (Wasserman & Faust, 1994).

The pattern of links and the positions of nodes in a network produce a specific structure (Borgatti et al., 2018). The investigation of the structure of a network and the actors' structural position in the network is an important aspect of network research (Wu et al., 2016). Investigating the structure of a network can involve dyads (i.e., a pair of two actors and their relationship), triads (i.e., three actors and their relationship), or larger relationships, including entire networks (Wasserman and Faust 1994). Moreover, network exchanges between actors can be symmetrical or asymmetrical. Symmetrical exchange is a flow of resources and information in both directions, while asymmetrical exchange is a flow of resources and information in one direction between two actors (Borgatti et al., 2018; Schulze & Ries, 2017).

Social network theory addresses how a firm acquires, reaches, exchanges, or creates a bundle of valuable resources through its outside networks (Ahuja, 2000a, 2000b). Network theorists suggest that an external network produces social capital that provides competitive advantages (Burt, 2005). These external networks provide access to information, knowledge resources, and technologies that are not internally accessible (Bolander et al., 2015). The size of a firm's network and its position in the network determine the amount and diversity of resources available to the focal firm (Ahuja, 2000a; Owen-Smith & Powell, 2004).

2.3.1 Social Network Theory in Interorganizational Research

Social network theory is becoming a common theoretical framework in marketing research (Gupta & Saboo, 2021). This is not surprising since interactions and relationships are fundamental to marketing (Morris and Pitt 1994). The increasing popularity of social network theory is reflected in the fact that marketing encompasses a broad range of topics that can benefit from applying social network theory (van den Bulte and Wuyts 2007; Webster and Morrison 2004). Recent studies have called for more research that takes a network perspective in investigating marketing and interorganizational relationship phenomena (e.g., Gonzalez et al. (2014); Gupta and Saboo (2021); Naudé and Sutton-Brady (2019); Wathne and Fjeldstad (2020). Social network theory thus serves as a useful tool for examining how interactions among firms impact marketing efforts and firm-level outcomes. The literature has shown that

leveraging network relationships to exchange knowledge and information with customers, suppliers, partners, and others can lead to significant resource gains and competitive advantages (Fang et al. 2016; Gupta and Saboo 2021; Palmatier 2008).

Research on interorganizational relationships has grown dramatically since Arndt's (1979) seminal article on "domesticated markets." The importance of interorganizational networks and relationships was also highlighted by several researchers who subscribe to a relational-based view of the firm and by the marketing literature (e.g., Stern and Reve 1980; Dyer and Singh 1998; Heide 1994; Wathne and Heide 2004). Several studies have drawn on a network perspective lens to analyze interorganizational relationships and their impact on knowledge sharing, interfirm cooperation, and performance (Haugland, Ness, and Aarstad 2021; Williams 2005). These studies pointed out the importance of establishing close relationships with suppliers, customers, competitors, and other partners.

Firms establish interorganizational relationships to leverage external resources and capabilities. Dyer and Singh (1998, 661), for example, asserted that "idiosyncratic interfirm linkages may be a source of relational rents and competitive advantage," and "a firm's critical resources may span firm boundaries." Firms with inadequate internal resources and capabilities can leverage interfirm relationships to access key resources and information (Ahuja 2000). These interorganizational relationships allow firms to collaborate and pool resources and information with other firms (Lin 2011; Swaminathan and Moorman 2009). Firms' position within interorganizational networks provides them with access to information and social capital (van den Bulte & Wuyts, 2007). With its ties to other firms in the network, a focal firm can access information and knowledge it would not otherwise have, allowing it to find new suppliers, markets, technologies, and business opportunities (Barringer and Harrison 2000).

Interest has been growing in incorporating social network theory into B2B relationships. The shift from dyadic- to network-level analysis is becoming increasingly common (Gupta & Saboo, 2021; Hammervoll, 2016). Several studies have looked at the role of network structures in various interorganizational relationship contexts, including, but not limited to, the development of organizational capabilities (Mahmood et al. 2011; Parra-Requena et al. 2012), innovation (Fang et al. 2016; Wang et al. 2019), knowledge sharing (Gao, Xie, and Zhou 2015;

Liao and Phan 2016; Xie et al. 2016), buyer–supplier collaboration (Li et al. 2021), and relational benefits (Haugland, Ness, and Aarstad 2021).

Research into interorganizational networks captures relationships such as marketing alliances, partnering, buyer–seller arrangements, marketing channel coordination, and board interlocks. For instance, Swaminathan and Moorman (2009) investigated the value emanating from firms' network position in marketing alliances and reported a positive effect on alliance capabilities and shareholder value. Gupta et al. (2019) studied the interfirm network between buyer and seller firms to examine how networks' structural and functional attributes contribute to profitability. Zhang and Guan (2019) investigated interorganizational competitive relationships to analyze how the network characteristics of competitors influence organizational competitive capability and innovation performance. These and other, similar studies have analyzed a wide range of network measures.

Several network measures have been used in interorganizational research. Many studies have viewed networks from an egocentric perspective, but a few have utilized the sociocentric network perspectives. For example, based on the ego network of the firm alliance as the unit of analysis, Swaminathan and Moorman (2009a) investigated whether network centrality, network density, network efficiency, and network reputation influence marketing alliance capability and firm value creation. Gupta et al. (2019a) used buyer–seller density to measure the amount of information exchange between buyers and sellers based on the ratio of the actual number of ties between buyers and sellers to the maximum number of possible ties. In addition, Zhang and Guan (2019) utilized network density to indicate the cohesion of the egocentric network. Meanwhile, Tracey et al. (2014) used sociocentric network analysis to describe a network in terms of its density and centralization to study how the configuration of a network contributes to the emergence of particular governance practices.

Many interorganizational network studies have focused on the characteristics of network actors, such as the number of alliances, the frequency of interactions, and type of relationships (e.g., whether the relationship is strong or weak) (Gupta and Saboo 2021; Webster and Morrison 2004). In addition, few marketing outcomes have been considered in the extant literature (Gupta and Saboo 2021). In section 2.2, it was observed that prior studies have offered little insight into the complexities involved in the relationship between external

networks and firm marketing capabilities. Even though these studies provided useful insights, they were limited insofar as their capacity to capture the complex, multifaceted patterns of interorganizational interactions. It is important to go beyond this and to explore how network structures, the nature of network actors, and different network attributes influence firm capabilities and firm-level outcomes. In light of this, the following section discusses network structures, the nature of actors in networks, the content of network relationships, and various network representations to explain the multifaceted nature of interorganizational networks.

2.3.2 Egocentric and Sociocentric Approaches for Social Network Analysis

There are two main approaches to collecting social network data: egocentric and sociometric. The egocentric network is a network focused on a focal actor (ego) and consists of only the actors (alters) that are directly connected to the focal actor (ego) (Borgatti, Everett, and Johnson 2018; Hite and Hesterly 2001; Wasserman and Faust 1994). The egocentric approach collects network data from a focal actor, and the "ego" reports on its relationships with other actors (the "alters") in the network. This approach does not require every network member to report their ties with all other members in the network. Egocentric network data provide information about the size of a given actor's network connections, the composition of the actor's network, and the number of actors that share a tie within the network (Foster & Charles, 2017).

A sociocentric network involves the mapping and analyzing of pattern in the relationships between actors within identified network boundaries (Borgatti, Everett, and Johnson 2018). Sociocentric networks are sometimes referred to as whole or complete networks. In the sociometric approach, every network member reports their ties with all of the other actors (Opsahl, 2013). The analysis of social networks using sociocentric assumptions is typically limited to "closed" networks with predetermined boundaries (Bolander et al., 2015; Borgatti et al., 2018). Thus, each tie is reported on by both actors; as such, all network members report their ties with all of the other members in the network.

The sociocentric approach enables the testing of network-level hypotheses (Gonzalez et al., 2014). However, there are challenges to conducting network data collection using a whole

network. For instance, the a priori enumeration of network members is required to collect whole network data (Marsden, 2002). Another challenge with sociocentric analysis is the issue of clearly delineated boundaries (Gonzalez et al., 2014). When studying whole networks, network boundaries generally must be more carefully defined and delineated so that it is clear which nodes and ties are included in the network and which are not—this can be a difficult issue. The egocentric network approach provides an alternative strategy for data collection. In egocentric networks, what constitutes the network is typically defined as the network of relationships maintained by the focal actor.

Egocentric network data can be extracted from sociocentric network data by selecting a focal ego and examining only ties connected to this ego (Borgatti et al., 2018; Marin & Wellman, 2014). This is a suitable method when the research emphasizes understanding the network relationship from the ego's perspective (Marsden, 2002). The egocentric network allows for the analysis of large networks in cases where a complete mapping of actors is not realistic because of the size of the network (Borgatti et al., 2018). The egocentric approach can be useful when the informant is knowledgeable about and possesses accurate network relationships (Gupta et al., 2019b). Using egocentric analysis, it is possible to uncover how a firm develops its marketing capabilities through collaboration with directly connected partners. A sociocentric network allows for the collection and analysis of industry-wide information, which can be used to determine how positions within the network facilitate or hinder knowledge sharing within the industry (Mizruchi & Marquis, 2006).

Various network measures have been used to describe structural properties at the network level. Network centralization and network density are commonly used measures in sociocentric network data (Kim et al., 2011). Network density measures the degree of cohesiveness in a network (Gupta et al., 2019a; Kim et al., 2011). Network centralization captures the tendency to which the overall connectedness is organized around particular nodes in a network (Provan & Milward, 1995). Other network-level measures, such as reciprocity, transitivity, and distance, have rarely been explored (Kim et al., 2011).

The most common measure of a node-level network metric is centrality. Centrality refers to how central or well-connected an actor is in a network. Measures of centrality include degree centrality, closeness centrality, and betweenness centrality. Degree centrality measures the

extent to which a firm is connected to other nodes in the network (Aarstad et al., 2015a; Freeman, 1979a). Closeness centrality is a measure that captures how close a node is to all of the other nodes in the network (Aarstad et al., 2020; Freeman, 1979a). Betweenness centrality measures the extent to which a firm lies on paths linking other firms in the network (Freeman, 1979a; Kim et al., 2011). Another node-level measure is network constraint (Burt 1992), which captures the lack of structural holes in an ego's network (Aral & Alstyne, 2011). In addition, egocentric network diversity has been used to measure the heterogeneity of the alters in an ego's network (Carolan, 2014).

Analyzing network relationships from both sociocentric and egocentric perspectives can add to the body of knowledge in a way that either one alone might be unable to. This dissertation represents data collected from both egocentric and sociocentric networks. While the sociocentric network represents the ties between firms within the Ethiopian commodity exchange (ECX) market, the egocentric network represents the connections between ECX firms and actors of outside the ECX market.

The next section describes two network views of interorganizational networks. Two important views on interorganizational networks have emerged in research: One tends to argue for the merits of network closure (Coleman 1988, 1990), while the other emphasizes diverse networks with structural holes (Burt, 1992; Burt, 2005); Koka and Prescott (2002). Since this dissertation focuses on under what conditions each view benefits firms, the next part discusses these two network perspectives.

2.3.3 Cohesive and Diversified Networks

The extant literature suggests several frameworks for categorizing networks (Rauch et al., 2016). One of the most used and popular classifications is the distinction between structural and relational dimensions. The relational dimension describes the content of the ties, including the quality of relationships, the frequency of interaction, and the level of trust between actors (Lechner et al., 2010; Uzzi, 1996). The structural dimension denotes the presence or absence of links between actors, the position of a focal actor relative to others in a network, and the combination of direct and indirect ties surrounding the focal actor (Kim, 2014; Lechner et al., 2010). However, the relational and structural distinction has been criticized for overlapping and

not being defined independently (Rauch et al., 2016). Another framework differentiates networks into cohesive and diversified networks (Kraft & Bausch, 2018; Martinez & Aldrich, 2011; Rauch et al., 2016). The distinction into cohesive and diversified networks captures the two prominent network perspectives (i.e., "cohesion" and "diversity") that this dissertation examines (Martinez & Aldrich, 2011). It also provides insight into the different resource advantages that the focal firm acquires from its external network connections (Rauch et al., 2016).

Network cohesion refers to the extent to which a relationship is surrounded by a common third-party connection (Reagans & McEvily, 2003; Sosa, 2011). Coleman (1988, 1990) called these kinds of cohesive ties "network closure" (Gargiulo & Benassi, 2000). Cohesive networks are characterized by mutuality among ties, cohesion, closure, and embedded relationships (Hite & Hesterly, 2001; Rauch et al., 2016). A firm network is said to be dense when alters are directly connected to each other (Ozdemir et al., 2016; Peng & Mu, 2011). Network cohesion becomes strong when actors are embedded in a dense web of mutual third-party ties (Tortoriello et al., 2012).

The cohesion of a network is an indicator of the level of connectivity around the focal firm network. Cohesion in a firm's network promotes the development of trust, cooperation, and motivation to support among the network partners (Coleman, 1988; Gargiulo & Benassi, 2000). It also facilitates the acquisition of reliable and large amounts of knowledge from external partners (Tortoriello et al., 2012; Yu et al., 2011). Despite the benefits, cohesive networks are not without limitations, including limited access to new knowledge resources and the conveyance of redundant information (Burt, 1997, 2005; Granovetter, 1973; Wise, 2014).

Network diversity measures the extent to which a firm's contact contains partners that exhibit different attributes, resources, capabilities, and knowledge (Martinez & Aldrich, 2011; Reagans & McEvily, 2003). Diversity refers to the level of variation within a firm's partnership network. It reflects the extent to which firms have network partners from a variety of industries and with a wide range of knowledge bases. Collaboration with diverse partners may facilitate the acquisition of non-redundant knowledge and resources that a firm would not be able to develop otherwise through an internal process. Diverse networks provide access to a wide variety of information, resources, and multifaceted perspectives (Gao et al., 2015; Martinez &

Aldrich, 2011). Too much diversity in actor networks could lead to information overload and attention allocation problems (Ellis, 2010; Leeuw et al., 2014).

The distinction between cohesive and diverse networks is important because the two offer different types of knowledge advantages (Kraft & Bausch, 2018; Rauch et al., 2016). Knowledge shared in cohesive networks provides detailed insights and richness, while knowledge shared in diverse networks provides exposure to a broad range of knowledge and relatively unique insights (Guler & Nerkar, 2012; Lee, Kirkpatrick-Husk, et al., 2017; Xu & Cavusgil, 2019).

2.3.4 Network Content: Firm and Government Networks

A firm's external network refers to a set of horizontal and vertical relationships with other organizations, such as suppliers, customers, competitors, government agencies, or other entities, across industries and sectors (Gulati et al., 2000). These network ties have been widely categorized into two common subdimensions: business and political ties (Peng & Luo, 2000; Sheng et al., 2011a). Research has shown that market knowledge acquired from firm–government networks differs from that gained from firm–firm networks (Guo et al., 2020; Sheng et al., 2011a). Firms can access information about specific products and segments of the market through firm–firm networks, whereas firm–government relationships provide information related to policy, regulation, and industry (Yeniaras et al., 2020).

Business ties are the firm's connection with other firms, such as customers, suppliers, competitors, and other market collaborators (Peng and Luo 2000; Sheng, Zhou, and Li 2011). Political ties refer to the firm's connection with various government institutions, such as actors at various levels of the government, industrial bureaus, and regulatory and supporting organizations, such as investment and commercial administration bureaus (Bi et al., 2020; Li et al., 2009)2009). These network ties provide firms with access to valuable knowledge resources and information, enhance their reputation, and provide market legitimacy (Chen et al., 2018; Li et al., 2013).

Firms invest their resources to build and maintain a network of relationships with other partners, which they can use to access critical resources, such as knowledge, power, trust, reciprocity, and cooperation (Patel & Terjesen, 2011). However, not all network relationships

produce similar benefits (Sedita & Apa, 2015; Soda, 2011). Social network theory argues that a firm's access to external knowledge resources depends on the characteristics of the network in which the firm is embedded (Strobl & Peters, 2013). These two types of network ties often produce quite different information and legitimacy values to the firm.

Business ties contribute to marketing capabilities by providing firms with essential market resources (Sheng et al., 2011a). These ties help the firm establish market legitimacy, enhancing network partners' willingness to share relevant market information (Li et al., 2013; Zhang et al., 2016). By contrast, political ties contribute to marketing capabilities by offering information on government policy and aggregate industrial information (Luu & Ngo, 2018). These ties also provide political legitimacy that gives firms exclusive government endorsements and favorable treatment (Sheng et al., 2011a). Few studies have attempted to look into the influence of social capital on marketing capabilities (Kemper et al., 2011; Kemper et al., 2013; Parra-Requena et al., 2011). However, these prior studies failed to investigate the distinct effect of business and political networking on marketing capabilities and the conditions in which the cohesion and diversity in business and political networking contribute to marketing capabilities.

2.3.5 One- and Two-Mode Networks

Networks are representations of systems in which the nodes are connected by ties (Wasserman & Faust, 1994). Wasserman and Faust (1994) divided these network representations into two broad networks: single-mode networks and two-mode networks. One-mode networks, sometimes known as unipartite networks, consist of relations among a single set of similar actors and common nodes of operations, such as information exchange among salespersons in a sales organization (Ogundare & Oloruntoba, 2011; Zhang, 2010). Most network studies are defined as one-mode networks, with one set of nodes that are similar to each other.

Another form of network is a two-mode network, also known as a bipartite or affiliation network. Two-mode networks are related to the relationship between two different sets of actors or nodes (Zhang, 2010). Unlike the one-mode network, the relationship is generally unidirectional in a two-mode network, where the row actors relate to or choose the column actors; however, the column actors do not relate to the row actors (Wasserman & Iacobucci, 1991). These are a type of network in which the nodes belong to two different types of

organizations, and the flow of knowledge resources is usually directed between nodes of different types (Andrade et al., 2018; Sanz-Ibáñez et al., 2019).

Two-mode networks have been used to investigate the relationship between two different sets of actors (i.e., the rows of the matrix and the columns of the matrix, each representing different sets of actors) (Galaskiewicz & Wasserman, 1989). For example, two-mode network analysis has been used to study the relationship between contractors and awarded projects (Sedita & Apa, 2015), private firms and government-sponsored institutions (Andrade et al., 2018), knowledge networks representing the participation of actors in seminars and courses (Sanz-Ibáñez et al., 2019), or non-profit agencies in a community (Zhang, 2010). In this study, a one-mode network represented a firm–firm network. On the other hand, a two-mode bipartite network whereby the two modes are firms and government-sponsored agencies represented the firm–government network.

2.4 Contingency Perspective

The contingency perspective is important for better understanding the conditions under which various network structures produce a positive outcome for the organization (Wang, 2012). According to contingency theory, various environmental and organizational contingencies affect firms' strategies that, in turn, influence firms' configuration capabilities (Ceci & Prencipe, 2008; Donaldson, 2001). Network connections are not uniform in their effects; instead, the value derived from these networks is contingent upon the content of the tie and various environmental conditions (Adler & Seok-Woo, 2002; Vissa & Chacar, 2009).

There is scant empirical research that has used a contingency approach to explore the effectiveness of cohesive and diversified networks. The current study revives this discussion by bringing the nature of knowledge and environmental conditions to the forefront. Prior network literature has indicated that different types of knowledge are exchanged among network partners and that the nature of knowledge affects the superiority of a particular network structure (Ahuja, 2000a; Yu et al., 2011). Similarly, Kraft and Bausch (2018) showed that the effectiveness of cohesive and diversified networks depends on the firm's environment. The

next part discusses how network diversity and network cohesion effects on marketing capabilities are contingent upon the nature of knowledge and environmental conditions.

2.4.1 Knowledge Characteristics

Market knowledge refers to a firm's knowledge about their customers' needs and preferences and their competitors' marketing practices and actions (Luca & Atuahene-Gima, 2007; Marinova, 2004). This knowledge is associated with targeting customer sets, entering markets, marketing approaches, distribution channels, and future market developments (Burgers et al., 2008). Firms obtain market knowledge through internal marketing research activities or external actors, such as customers, distributors, competitors, and suppliers (Bao et al., 2012; Fang, 2008). Connections with external partners are mandatory for accessing market knowledge embedded within actors outside of the organization (Heirati & O'Cass, 2016; Luca & Atuahene-Gima, 2007).

The nature of knowledge concerning the market derived from external network partners is classified into two types: explicit and tacit market knowledge (Nonaka, 1994). In essence, knowledge exchanges between network partners span along a continuum ranging from explicit to tacit (i.e., low tacitness to high tacitness) (Becerra et al., 2008). Tacit market knowledge is the extent to which market knowledge is difficult to articulate explicitly but is also difficult to codify and communicate (Luca & Atuahene-Gima, 2007). When market knowledge is tacit, it is difficult to transfer, imitate, or replicate (Cavusgil et al., 2003; Reed & DeFillippi, 1990). Tacit market knowledge includes skills and know-how, market insights, mental models, and trade secrets. However, low tacit market knowledge represents the knowledge that can be codified and easily transferred between actors (Arikan, 2009) through written reports and information technology systems (Jiménez-Castillo & Sánchez-Pérez, 2013).

The nature of market knowledge has a differential role in the process of transferring, assimilating, and integrating knowledge from external network partners (Jin et al., 2019; Luca & Atuahene-Gima, 2007). Previous studies have indicated that the extent of knowledge transfer from external partners varies depending on the nature of the knowledge being transferred (Zhao & Lavin, 2012). Tacit knowledge can be transferred via learning, collaborative experiences, and activities (Nonaka and Takeuchi 1995). The nature of market knowledge

obtained from the network partners influences the relationship between firms' external networks and marketing capabilities.

2.4.2 Environmental Conditions

Environmental conditions are crucial factors that affect the value a firm extracts from its external network partners (de Vaan, 2014). Firms that compete in the same industry experience a homogenous input and output market and technological conditions that define the environment in which they operate (Nohria & Gulati, 1994). Environmental and market conditions are theorized to influence the relative importance that various network structures have on organizational outcomes (Andersen, 2013; Suarez, 2005). Empirical studies have indicated that environmental conditions influence the direction and strength of the effect that networks exert on firms' outcomes (Eisingerich et al., 2010; Wang, 2012).

Environmental dynamism is concerned with the degree to which the external environment is characterized by “change in technologies, variations in customer preferences, and fluctuations in product demand or supply of materials” (Jansen et al., 2006, p. 1664). Environmental dynamism measures the rate of change, absence of pattern, and instability in a firm's external environment (Dess & Beard, 1984). Based on these characteristics, a firm's environment can be positioned on a continuum ranging from stable to dynamic (Priem et al., 1995). Firms in a stable environment tend to deal with less uncertainty in their external environment than their counterparts in dynamic environments (Tim et al., 2000).

The change and dynamics in the firm's external environment provide opportunities and pose threats that create different implications (Zhou, Mavondo, et al., 2019). A firm that operates in a stable environment experiences low-level changes in product demand, technology, consumer taste, and competitive forces, posing a minimal effect on a firm's operation. However, a dynamic environment requires being alert to market changes and ready to react quickly to competitor actions with a flexible structure (Sett, 2018). In addition, these frequent and rapid changes in the external environment increase the heterogeneity of actors in the market and make the existing products and offerings quickly become obsolete (Chan et al., 2016).

Change in the dynamism of the environment comes with new requirements and ways of doing things, which is accompanied by the need for new competences and skill requirements (Kim et al., 2020). These changes also require a shift in the amount and variety of knowledge required to develop competencies needed to compete in the market (Koka & Prescott, 2008). Thus, the knowledge value obtained from an external network partner is contingent upon the characteristics of the environment in which a firm operates.

2.5 Concluding Remarks

The theoretical foundation of marketing capabilities is presented in this part, followed by a systematic literature review that provides a concise overview of what is currently known about marketing capabilities in B2B relationships. Marketing capabilities research has grown over the last two decades. The development of marketing capabilities can be traced to RBT and dynamic capabilities.

I presented a systematic review of 35 empirical studies that provided evidence on the antecedents and outcomes marketing capabilities in the B2B relationships context. The literature review identified four dimensions of marketing capabilities: operational, strategic, dynamic, and adaptive. The review results indicated that marketing capabilities are the main contributor to business performance and competitive advantage. In addition, two main antecedents of marketing capabilities were identified: intraorganizational and interorganizational. Overall, these studies have predominantly focused on the performance implications of marketing capabilities. The systematic review also found that marketing capabilities are not sufficiently studied from the outside-in perspective.

I then discussed social network theory to explain how interorganizational networks contribute to firm marketing capabilities. I briefly explained the foundations of social network theory, followed by the basic concepts of social network theory. Following that, I presented network concepts pertinent to this dissertation. The network relationships were discussed in terms of cohesion and diversity. Thereafter, I explained the nature of the actors within the network based on firm and government actors. In the final part, a contingency perspective was discussed to show how various contingency factors affect network relationships.

One of the main research gaps indicated in this chapter is what Morgan (2019, p. 381) called "…. insight into how to build … marketing capabilities." Other researchers, such as Yang et al. (2019) and Mu et al. (2018b), have also stressed the need to consider external network partners' contribution to marketing capabilities. Considering the research gaps detected in the systematic review, I introduced social network theory in the second part of this chapter. RBT has been criticized for ignoring factors outside of the firm (De Toni & Tonchia, 2003). I combined three marketing capabilities literature with social network theory and extended marketing capabilities research beyond intraorganizational variables to interorganizational variables. In doing so, this dissertation makes up for the "lack of cross-fertilization between research on network theory and the resource-based theory" (Burt & Soda, 2021, p.2).

The theoretical framework provides a useful approach for understanding and studying how external network partners contribute to marketing capabilities. Introducing social network theory into marketing capabilities research provides an understanding of marketing capabilities from the outside-in perspective (Day, 2011, 2014; Mu et al., 2018b). I also introduced the contingency perspective to explain the conditions under which external partners contribute to developing marketing capabilities. The next chapter will emphasize discussing the conceptual model derived from resource-based theory, dynamic capabilities perspective, social network theory, and contingency perspective to discuss how to develop marketing capabilities using networks.

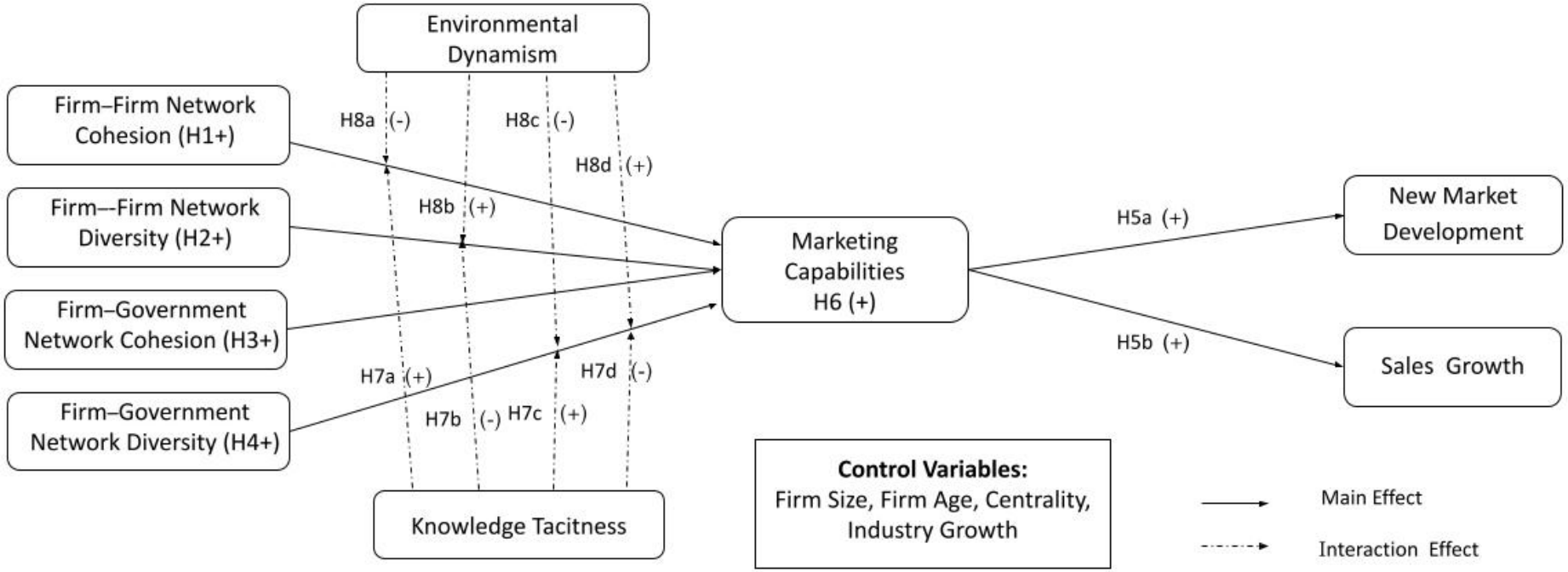
3 Conceptual Model and Hypothesis Development

3.1 Introduction

This chapter aims to develop a conceptual model to show how resources obtained from external networks can be used to enhance marketing capabilities. The chapter proposes that external network partners may enable firms to access resources that allow them to develop marketing capabilities. While developing conceptual models, a series of theoretically justified hypotheses are proposed. The research hypotheses indicate that there exists a relationship between interorganizational networks and marketing capabilities, as well as between marketing capabilities and new market development and sales growth.

As outlined in previous chapters, the dissertation integrates social network theory, marketing capabilities literature, and contingency perspective to investigate the effects of firm–firm networks and firm–government networks on the development of marketing capabilities and firm performance. It combines these viewpoints and illustrates how external resources and knowledge can add up to internal knowledge to enhance the marketing capabilities of firms and improve their competitive advantage. I developed the research model combining RBT and the dynamic capabilities perspective to address a firm's possession of resources and capabilities and social network theory to address how a firm's network influences access to resources and capabilities. Combining these two theories provided a comprehensive framework to understand the development of marketing capabilities. By adopting a contingency perspective, I also investigated whether and when cohesive and diverse networks are beneficial to developing marketing capabilities.

Figure 3.1. The conceptual model of the study.



The literature review led to the development of a conceptual model and the formulation of the hypotheses as illustrated in Figure 3.1. As shown in the figure, this dissertation examined the effect of firm–firm networks and firm–government networks on marketing capabilities. While firm–firm networks contribute to marketing capabilities by providing firms with essential market resources, firm–government networks provide resources, legitimacy, and information benefits, which are crucial to developing marketing capabilities (Sheng et al., 2011a). In addition, the network literature broadly distinguishes between two types of networks: cohesive and diversified networks (Kraft & Bausch, 2018; Rauch et al., 2016). Cohesive networks help firms gain rich-quality knowledge, whereas diverse networks allow firms to access a wide variety of knowledge sources (Andrade et al., 2018; Gao et al., 2015).

The research model showcases how cohesive and diversified networks' contribution to marketing capabilities varies depending on the nature of knowledge content and environmental conditions in which firms operate. It expands the discussion on the link between interorganizational networks and marketing capabilities by considering conditions under which the knowledge resources available to a firm in its collaborative relationships influence marketing capabilities. In addition, it shows the performance effect of marketing capabilities on new market development and sales growth. Moreover, it illustrates how marketing capabilities resulting from market resources obtained from external network partners contribute to new market development and sales growth.

The common way to study marketing capabilities has been as a unidimensional construct despite having various dimensions. Following this tradition, I define marketing capabilities as a construct having four first-order constructs: operational, strategic, dynamic, and adaptive marketing capabilities. In line with Morgan (2012) and Day (2011), I use the multidimensional second-order marketing capabilities construct, which is consistent with theory and previous empirical studies (Massiera et al., 2018; Morgan, 2012; Morgan, Vorhies, et al., 2009). From a methodological standpoint, using marketing capabilities as a second-order construct provides a more parsimonious model with fewer

parameters to estimate and with more degrees of freedom, thus leading to more easily interpretable results.

Although it is possible that the relative advantages of various network constructs may differ across dimensions of marketing capabilities, I expect that both a diverse and cohesive network will contribute to all the dimensions of marketing capabilities. However, I do not expect that their contributions will be identical. For instance, a diverse network could be more important to dynamic and adaptive marketing capabilities than operational and strategic marketing capabilities. On the other hand, cohesion could be more important to operational and strategic marketing capabilities than dynamic and adaptive marketing capabilities. Moreover, at the end of the fifth chapter, I provide additional analyses to illustrate how each network construct plays out with each dimension of marketing capabilities. The remainder of this chapter will discuss the development of the research hypotheses.

3.2 Firm–Firm Networks and Marketing Capabilities

Network cohesion refers to the extent to which a focal firm network is surrounded by common third-party connections (Reagans & McEvily, 2003). It measures the degree of interconnectedness among alters in the network of a focal firm (Coleman, 2000). The notion of network cohesion focuses on the interaction within a firm network and captured based on the density of the network that surrounds a focal firm (Oh et al., 2005; Ruiz-Ortega et al., 2017; Soda, 2011). Cohesive ties in a focal firm's network promote a regulatory environment that facilitates trust and cooperation between network partners (Gargiulo & Benassi, 2000).

Extant literature has reported mixed results on the effectiveness of cohesive networks. Some of these studies reported negative effects of cohesion on international business performance (Sharma et al., 2019) and research output and efficiency (Lin et al., 2020). Other studies found a positive effect of cohesion on exploitative innovation (Lyu et al., 2019), technological competitive capability (Zhang & Guan, 2019), and innovation performance (Zhang & Guan, 2019). In addition, several other studies have shown that

increased cohesion could lead to positive outcomes, but extreme cohesion negatively impacts firm outcomes, resembling an inverted U-shape effect (e.g., Carnovale et al. (2019); Giuliani (2013); Jiang et al. (2018). In this study, I argue that an increase in the cohesion of a focal firm's network enhances its marketing capabilities.

I argue that cohesion in the firm–firm network contributes to developing marketing capabilities by providing marketing resources and knowledge in two different ways. First, network cohesion enhances the quality of knowledge resources obtained from network partners. The normative environment in cohesive networks enables firms to ensure the reliability of resources and knowledge obtained from external partners (Coleman, 2000; Gargiulo & Benassi, 2000). Cohesion facilitates the sharing of quality and rich knowledge resources in the network (Rauch et al., 2016). Such a benefit from access to high-quality market knowledge helps firms accurately make sense of the market environment and develop market insights that provide a sound understanding of customer desires (Yang et al., 2019). It also serves as a means of acquiring external market knowledge and contributing to the improvement of firms' marketing capabilities (Tang et al., 2017).

Second, cohesive networks are characterized by mutual orientation, coordination, and network partners' willingness to collaborate with each other (Hatani & McGaughey, 2013). The established trust in the network encourages collaboration and cooperation between network partners and creates learning opportunities, which, in turn, promotes the development of marketing capabilities (Jan Kemper et al., 2011). In addition, collaboration with other partners with complementary resources and/or capabilities allows firms to leverage the knowledge that they would be unable to develop using their internal resources (Whitehead et al., 2016). These efforts add up to the kind of market knowledge needed to perform marketing activities to enlarge the focal firm's knowledge base and contribute to marketing capabilities. For example, Evers et al. (2012) showed that trust and collaboration with cooperative stakeholders improved firms' operational, strategic, and dynamic marketing capabilities. Thus, I argue that network cohesion contributes to the development of marketing capabilities: as network cohesion increases, it positively improves firms' marketing capabilities.

H1: An increase in the cohesion of the firm–firm network will positively influence the focal firm's marketing capabilities.

Network diversity represents the range of different types of network partners with which a focal firm collaborates (Patel & Terjesen, 2011; Rocks et al., 2005). A firm with diverse network partners interacts with heterogeneous contacts that exhibit different attributes, including firms such as suppliers, customers, and competitors (Batjargal, 2003; Parida et al., 2016). A diverse network of contacts results in a network of relationships with firms that possess non-redundant resources, knowledge, and capabilities (Ma et al., 2009; Swaminathan & Moorman, 2009b). For example, Procter & Gamble has arrangements with several diverse networks of partners with complementary knowledge that provide access to a wider range of new market insights, talent, and new capabilities (Day, 2011). Previous studies on the performance benefits of firm–firm network diversity provide mixed findings indicating negative (Goerzen & Beamish, 2005), positive (Ma et al., 2009), and inverted U-shaped relationships (Delbufalo, 2015). In this study, I argue that an increase in the diversity of a focal firm network enhances marketing capabilities through the two dimensions of knowledge (Bonesso et al., 2011).

First, having a diverse network increases the breadth of knowledge and resources a firm can access. Knowledge breadth refers to the variety and heterogeneity of knowledge resources found in a firm's external knowledge sources (Xu & Cavusgil, 2019; Zhou & Li, 2012). Diversified networks provide access to a heterogeneous and wide range of information and resources from a variety of sources (Eisingerich et al., 2010; Lee, Kirkpatrick-Husk, et al., 2017). This expands the variety of knowledge pools from which a firm can draw knowledge resources, leading to greater overall knowledge and learning and, thus, facilitating the development of firms' marketing capabilities (Patel and Terjesen 2011). In addition, diversity within the network opens a pathway for multiple perspectives that provide a complete understanding of the market (Wu 2011; Wang and Chung 2013). Thus, I argue that an increase in network diversity stimulates a deeper understanding of the market and various ways of dealing with competitive forces (Gao et al., 2015), yielding superior marketing actions, tactics, and strategies.

Second, increasing the diversity of a firm's network increases the novelty of the knowledge resources that the firm has access to (Gao et al., 2015; Phelps, 2010). Knowledge novelty describes the extent to which a firm's external knowledge sources contain new market insights or information (Bonesso et al., 2011; Gao et al., 2015). Diversified networks expose firms to unique sources of knowledge resources that facilitate the accumulation of unique market information (Gao et al., 2015; Wang & Chung, 2013; Wu, 2011). Linkages with a variety of firms enhance the likelihood of gaining new and non-redundant information related to technology, organizational processes, and market trends (Goerzen and Beamish 2005). It also makes it easier for firms to gain quick access to unique information about the customers, competitors, and other actors in the market (Rauch et al. 2016). A firm with unique market knowledge can develop capabilities that produce new solutions to market problems and can enable them to respond proactively to unexpected changes in the market environment (Delbufalo, 2015; Fang et al., 2016). Accordingly, I argue that a diverse firm–firm network provides a wide range of new market knowledge that can contribute to the development of firms' marketing capabilities.

> H2: An increase in the diversity of the firm–firm network will positively influence the focal firm's marketing capabilities.

3.3 Firm–Government Networks and Marketing Capabilities

The firm–government network represents connections with actors in government offices, such as industrial bureaus, regulatory and supporting organizations, government-sponsored institutions, and investment and commercial administration bureaus (Andrade et al., 2018; Sheng et al., 2011a). Having a closer tie with governmental agencies helps a firm deal with various regulations smoothly and obtain benefits from resource allocation (Guo et al., 2014; Sun et al., 2012). These ties also help firms gain access to valuable information and obtain institutional support, thus generating advantages over competing firms (Guo et al., 2014; Heirati & O'Cass, 2016; Wu & Chen, 2012). It is important to note that the content of knowledge obtained from a firm–government network is different

from that acquired from a firm–firm network (Guo et al., 2020; Yeniaras et al., 2020). While firm–firm networks offer access to product- and segment-specific market information, government relationships provide policy-, regulatory-, and industry-level information (Sheng et al., 2011a; Yeniaras et al., 2020).

Firm–government networks contribute to the development of marketing capabilities in three different ways. First, firm–government networks facilitate access to valuable resources controlled by the government (Xin & Pearce, 1996), thus supporting the development of marketing capabilities. In emerging markets, governments control valuable tangible and intangible resources, such as finance, market, and legitimacy resources (Zheng et al., 2015). Considering this, firms foster relationships with government-sponsored institutions to exploit these resources (Sun et al., 2012).

Second, closer ties with the government allow firms to acquire information related to the country's strategic directions, industrial development plans, industry outlooks, and the policy intentions of the national government (Sheng et al., 2011a). These networks also help firms obtain information regarding business environments, such as industry reforms, competitors, and market intelligence data (Gu et al., 2008). These resources are an invaluable ingredient for gaining knowledge about existing and future market conditions that can build alertness about a firm's capability. Third, firm–government relationships contribute to the organization's market knowledge through various business linkage opportunities that can only be accessed through public platforms. The Ethiopian Agricultural Transformation Agency's Ethiopian Agribusiness Accelerator Platform is an excellent example of such a market linkage opportunity. The business linkages of this platform allow firms to access other partner resources and capabilities and to open up avenues for cooperation and knowledge transfer (Zhang & Zhu, 2018).

Prior empirical research has yielded mixed findings on the effect of the firm–government relationship. Several studies have argued that having closer ties leads to performance benefits (Zhu et al., 2017), while others have shown a negative effect on firm outcomes (Li et al., 2009); still other studies have yielded an inverted U-shaped relationship (Wu, 2011). This study introduced network cohesion and diversity into the firm–government relationship and sought to address the discrepancy in the findings of

prior empirical studies. Thus, I argue that an increase in the diversity and cohesion of firm–government networks enhance the development of marketing capabilities via different mechanisms.

Cohesion captures the general level of interconnectedness in a firm–government network. As stated in the previous chapter, the firm–government network is represented by a two-mode bipartite network. As such, firm–government network cohesion measures the overlap between neighborhoods of firms and the closeness of the firm's connection with governmental institutions (Andrade et al., 2018). Specifically, it measures the extent to which a firm's ties to government institutions are also linked to other firms in the network. I would expect firm–government, like firm–firm, cohesion to contribute to the development of marketing capabilities.

Cohesive firm–government networks encourage cooperative interactions that facilitate the transfer of large volumes of valuable knowledge resources and allow firms to gain more in-depth insights into customers and markets (Bratkovic et al., 2015; Martin et al., 2018). High network cohesion fosters the development of marketing capabilities by increasing the efficiency of the knowledge flow and knowledge recombination process (Andrade et al., 2018). Thus, I expect that firm–government network cohesion provides insights that offer a deeper understanding of the market environment and contribute to the development of marketing capabilities.

> H3: An increase in the cohesion of the firm–government network will positively influence the focal firm's marketing capabilities.

Firm–government network diversity reflects the range of the firm's connection with government-sponsored agencies and government offices at various levels of government (Andrade et al., 2018; Fang et al., 2011; Josephson et al., 2019). Firms with low diversity have connections with few partners in the government, whereas firms with high diversity have a working relationship with a variety of governmental partners. Each government agency provides various kinds of resources and knowledge benefits. For example, government authorities, such as the Ethiopian Coffee and Tea Authority, provide training and capacity development services for firms operating in the coffee market. In contrast,

others, such as the Ethiopia Planning Commission, provide access to market intelligence information on the current and future outlook of the industry.

Creating a connection with these diverse groups of stakeholders allows a firm to access complementary resources and the knowledge necessary to build firm capability (Peng & Luo, 2000; Yu et al., 2019). As the diversity in the firm–government network increases, firms are exposed to a wider range of knowledge resources from various governmental agencies, which adds knowledge that contributes to the various dimensions of marketing capabilities. Combining knowledge obtained from different government institutions provides a better understanding of industrial and market changes, broadening a firm's knowledge pool. With this knowledge, the focal firm is better equipped to effectively develop the marketing capabilities that the market demands. Thus, I argue that the diversity of the firm–government network produces relatively diverse and non-redundant knowledge resources that contribute to the development of marketing capabilities.

> H4: An increase in the diversity of the firm–government network will positively influence the focal firm’s marketing capabilities.

H1–H4 deal with the effect of diversity and cohesion in firm–firm and firm–government networks on marketing capabilities. I argued that network cohesion and network diversity contribute to marketing capabilities, but they do so differently. I also demonstrated that the benefits and knowledge gained from firm–firm and firm–government networks are distinct. In the following, I discuss how marketing capabilities contribute to new market development and sales growth and how the contribution of network cohesion and network diversity to marketing capabilities varies depending on knowledge tacitness and environmental dynamism.

3.4 Effect of Marketing Capabilities

A considerable amount of research has been conducted on the contribution of marketing capabilities to firm performance. However, the systematic review in the second chapter indicates that most previous studies have focused on relating marketing capabilities to profitability, new product performance, marketing performance, and overall performance (Eisend et al., 2016; Ngo & O'Cass, 2012; O'Cass et al., 2012). This dissertation extends the discussion of the relationship between marketing capabilities and firm performance using backward-looking measures of sales growth and incorporating forward-looking new market development.

New market development refers to the offering of existing products to new customers, segments, or markets (Easingwood et al., 2006; Harrison & Hart, 1987). Developing new markets also involves adopting new ways of serving customers and new distribution channels (Lee & Colarelli, 2003). Developing new markets opens the door for increased growth and profitability for firms by offering new customers and lowering costs (Min & Kim, 2021). Firms can gain a new market share and grow by expanding into new markets (Mulyana et al., 2020). In addition, Chou and Shih (2020) emphasized the need for firms to develop new market opportunities to survive in a competitive environment. To do so, firms need capabilities that will enable them to seize market opportunities and take advantage of new markets (Min & Kim, 2021).

Marketing capabilities permit firms to accurately sense the needs of particular market segments and quickly respond to them (Day, 2011). Superior marketing capabilities empower firms to acquire and exploit market information and better predict the trajectory of customer preferences (Wu, 2013). Marketing capabilities allow firms to detect new market insights and take advantage of market opportunities to develop offerings that serve both existing and new customers (Mu, 2015). The accumulated knowledge related to market changes gives a firm the competence to develop new markets and expand existing ones. The expansion of the existing market and the development of new markets produce returns by exploiting existing customers and acquiring new ones (Azizi et al., 2009; O'Cass et al., 2012). So, I contend that marketing

capabilities enable firms to create new markets and expand their present market opportunities.

Sales growth captures the change in sales revenue captured from products and services sold to each customer between two consecutive periods (Wetzel et al., 2014). A limited number of studies have been conducted to examine the effect of marketing capabilities on sales growth, and these studies produced inconsistent findings. For example, Feng et al. (2017) did not get support for the direct effect of marketing capabilities on sales growth. On the other hand, Morgan, Slotegraaf, et al. (2009b) found support for the positive effect of market-sensing capabilities on sales growth.

Marketing capabilities enhance firm growth by enhancing existing products to meet customer needs. The marketing capabilities that represent accumulated knowledge provide insights into how to improve existing products that enhance product quality and performance requirements (Akroush Mamoun, 2012). Marketing capabilities enable a firm to engage in activities associated with the design and implementation of product improvements that make them more attractive to customers (O'Dwyer, 2009; Wang et al., 2013). Better products attract new customers and encourage existing customers to buy more, increasing the revenue obtained from the sale of the products (Angulo-Ruiz et al., 2014; O'Cass & Ngo, 2011a).

Market capabilities provide market knowledge that enables firms to identify underserved segments and channels that competitors fail to fulfill (Morgan, Slotegraaf, et al., 2009b). Thus, I argue that marketing capabilities contribute to the sales growth of firms by repositioning and improving existing products with enhanced performance or updated features.

> H5: Marketing capabilities positively affect new market development (H5a) and sales growth (H5b).

This study also contends that marketing capabilities play a mediating role in the relationship between firm network connections and firm performance. Although firm network connections have been shown to cause firms to achieve greater performance, little is known about the process of linking network relationships to firm performance. I

propose that marketing capabilities are an important organizational process that mediates the effect of network relationships on firm performance.

Firms need to develop certain capabilities that leverage external knowledge resources to create economic value for them (Barney, 1991; Xu et al., 2018). By having internal capabilities, firms are better able to leverage complementary external resources available from their social capital (Lee et al., 2001). The problem is that some firms may lack the marketing capabilities necessary to fully utilize the knowledge resources obtained from network actors or take full advantage of opportunities. This is where marketing capabilities come into play, translating external knowledge into tangible benefits.

Firms can be surrounded by a cohesive network or have diverse knowledge, but they may not necessarily benefit from such a position in the network if they lack the capabilities to coordinate activities and make use of marketing resources. Prior discussions have indicated that external firm networks act as a precursor to developing marketing capabilities by providing diverse and rich information and resources. Cohesion within a firm's networks provides important normative and cooperative benefits, enhancing a firm's capabilities to compete (Chi et al., 2010). Moreover, knowledge sharing with diverse network partners keeps the firms updated with heterogeneous and novel information so that they can gain the capability needed to compete (Gao et al., 2015; Vandaie & Zaheer, 2015).

Relationships with network partners provide firms with access to resources that allow them to develop marketing capabilities (Yang et al., 2019). Marketing capabilities are fundamental to a firm's success because they are the processes through which resources are combined and transformed into value offerings, which result in competitive advantages (Merrilees et al., 2011; Morgan, Slotegraaf, et al., 2009b; Murray et al., 2011). Previous studies have also indicated that marketing capabilities act as a mediator that brings resources together and enables firms to efficiently deploy them (Jahanshahi et al.; O'Cass & Ngo, 2012; Sok et al., 2017). I argue that external firm networks contribute to marketing capabilities, which enhances firm performance by exploiting external knowledge resources (Yang et al., 2019), developing new markets, and enhancing sales

performance (Angulo-Ruiz et al., 2018). Therefore, marketing capabilities reflect a key capability process through which interorganizational relationships contribute to new market development and sales growth.

> H6: Marketing capabilities partially mediate the effect of firm–firm network and firm–government network characteristics (i.e., cohesion and diversity) on new market development and sales growth.

3.5 The Moderating Effect of Knowledge Tacitness

Previous empirical studies have investigated the contingent effect of network structure on firm outcomes, such as sales, innovation, and firm performance. A limited number of studies have also investigated contingent factors, such as individual- and firm-level motivations (Wang et al., 2017), firm-level resources (Bellavitis et al., 2017), and market forces (Gao et al., 2015). However, prior studies have overlooked the importance of the nature of knowledge and environmental conditions. In addition, the studies included in the systematic literature review focused only on the direct effect of network relationships on marketing capabilities. An important gap exists regarding the conditions under which interorganizational networks contribute to marketing capabilities. Integrating the contingency perspective with social network theory, I argue that the effects of cohesive and diversified networks on marketing capabilities are contingent upon knowledge tacitness and environmental dynamism.

Knowledge tacitness is the extent to which external information and knowledge resources are difficult to access, structure, organize, transfer, and document (Im et al., 2016; Luca & Atuahene-Gima, 2007). Tacit knowledge is deeply rooted in procedures and routines that make knowledge sharing and communication between organizations difficult (Zhao & Lavin, 2012). Network interaction involves sharing knowledge, although some forms of knowledge are more difficult to share than others (Uddin et al., 2020). Low tacit knowledge can be accessed from network partners through written reports and information technology systems, including technical reports, business plans, training manuals, marketing research and customer lists, and public policy statements. On the

other hand, the sharing of highly tacit knowledge includes market tactics, marketing insights, experiences, new marketing expertise, managerial techniques, and similar knowledge types. Sharing knowledge with different degrees of tacitness requires a distinct network relationship and structure (Dhanaraj et al., 2004).

The exchange of tacit knowledge resources requires a normative mechanism that encourages sharing between partners. A cohesive network fosters a normative environment that facilitates cooperation and deepens mutual understanding among partners (Coleman, 1988; Gargiulo & Benassi, 2000). The mutual understanding that exists in cohesion facilitates the acquisition of tacit knowledge from external actors. In addition, trust in a cohesive network motivates network members to share higher-quality and sensitive tacit knowledge (Kreiser, 2011). In contrast, sharing a low level of tacit knowledge does not require strong mutual understanding or a high level of trust between the partners (Becerra et al., 2008).

The benefit a firm obtains from a cohesive network increase as the tacitness of knowledge acquired from network partners increases. In the context of low knowledge tacitness, the increase in network cohesion is less likely to change the amount of knowledge shared between partners. This is because there is no need to have strong trust and cooperation between network partners to share low tacit knowledge. However, as tacitness increases, it becomes essential for a firm to be surrounded by common third-party connections. Transferring tacit knowledge can be enhanced when network relationships are embedded in a cohesive network surrounded by common third-party connections (Reagans & McEvily, 2003; Subramanian & Soh, 2017). Thus, I argue that knowledge tacitness moderates the relationship between network cohesion and marketing capabilities such that the effect of cohesive networks on marketing capabilities becomes stronger as the tacitness of knowledge increases.

> H7: An increase in knowledge tacitness strengthens the effect of firm–firm network cohesion ($H7_a$) and firm–government network cohesion ($H7_b$) on marketing capabilities.

A diverse network involves partners from different industries, which are differentiated from each other in various ways, including structures, goals, expertise, and

knowledge (Harrison & Klein, 2007). The difference in background, experiences, and expertise implied in the network is more likely to increase the difficulty of acquiring tacit knowledge from a diverse pool of partners. Thus, the increase in knowledge tacitness is expected to increase the difficulty of knowledge sharing and communication among network partners with different operational backgrounds (Heirati & Siahtiri, 2019). For this reason, it is challenging to transfer tacit knowledge in diverse network settings (Koka & Prescott, 2008; Wuyts & Dutta, 2014).

A diverse network is conducive to building marketing capabilities in a low tacit knowledge context in which its transfer does not require high levels of trust and embeddedness (Dhanaraj et al., 2004; Nonaka, 1994). A diverse network usually involves fewer opportunities for interaction among network members, which increases the difficulty of sharing complex or tacit information (Aral & Van Alstyne, 2011). The difficulties involved in sharing tacit knowledge decrease the volume of knowledge acquired and the marginal benefits obtained from diverse network partners. Similarly, the benefits obtained from diversified networks stagnate as the knowledge accessible from network partners increases. Thus, I argue that the contribution from diverse networks to marketing capabilities becomes weaker as the tacitness of external knowledge resource increases.

> H7: An increase in knowledge tacitness weakens the effect of firm–firm network diversity ($H7_c$) and firm–government network diversity ($H7_d$) on marketing capabilities.

3.6 The Moderating Effect of the Environmental Dynamism

Environmental dynamism describes the rate of change and the instability and unpredictability of a firm's external environment (Dess & Beard, 1984). Dynamic environments are characterized by rapid changes in technology, unpredictability in customer preferences, and fluctuations in product demand or supply of materials (Rosenbusch et al., 2013). In a stable environment in which customer preferences are relatively unchanged, firms focus on previous experience and the knowledge at hand,

making the need for new knowledge and information neither urgent nor vital (Intezari & Pauleen, 2014). However, in a dynamic environment, the market demand is fast-changing and highly unstable, with a definite need for new skills and knowledge and for the refinement of existing knowledge and capabilities (Lee, Kim, et al., 2017).

A firm that operates in a dynamic environment requires a different network configuration than a firm operating in a stable environment (Eisingerich et al., 2010). Cohesion creates an obligation that diminishes the privilege of firms going beyond the current network relationship and exploring new market opportunities (Li et al., 2008), which puts firms in a vulnerable position during a sudden shift in technology and market conditions. The network inertia prevalent in closed ties blocks the flow of new information, limits firms' ability to respond to environmental changes (Kim et al., 2006), and is likely to inhibit new knowledge acquisition (Guler & Nerkar, 2012; Zhou et al., 2014).

A cohesive network limits the flow of knowledge resources needed to develop the capabilities required in a dynamic environment. However, in a stable environment, cohesion is essential to accessing substantial resources and information relevant to building marketing capabilities. Because of this, I posit that as the dynamism of the environment increases, the increased closedness of the network becomes a hindrance to the flow of new market knowledge and insight, thereby hindering the development of marketing capabilities.

> H8: An increase in environmental dynamism weakens the effect of firm–firm network cohesion ($H8_a$) and firm–government network cohesion ($H8_b$) on marketing capabilities.

Firms under rapidly changing environments require diverse information to make sound decisions and adapt to the dynamic market and technological trends (Pae et al., 2002; Sullivan & Tang, 2012). A diverse network fosters access to novel and diverse knowledge for firms (Gao et al., 2015). Under a highly dynamic environment, firms prefer partners that can provide unique and varied skills, knowledge, and resources, making diverse networks relatively important in such a context (Tatarynowicz et al., 2016). There is less need for unique and varied knowledge in a low dynamic environment, making the

need for diverse network contacts inessential. Thus, I argue that the contribution of diverse networks to marketing capabilities becomes stronger as the environmental dynamism increases.

> H8: An increase in environmental dynamism strengthens the effect of firm–firm network diversity ($H8_c$) and firm–government network diversity ($H8_d$) on marketing capabilities.

Summary

This chapter discussed the research model and hypotheses designed based on the marketing capabilities literature, social network theory, and contingency perspective. The research model demonstrates the external antecedents and performance implications of marketing capabilities. I proposed hypotheses concerning the contribution of interorganizational networks to the development of marketing capabilities. Besides, I argued that the contributions of interorganizational networks vary depending on environmental dynamism and knowledge tacitness. Moreover, I covered the performance effect of marketing capabilities and their role in the relationship between interorganizational networks and firm performance. The next chapter discusses the research methods used to test the research hypotheses discussed in this chapter.

4 Research Methods

4.1 Introduction

This chapter covers the methodology used in this study. The first part discusses the research strategy and the choice of research design. The next part discusses the empirical setting in which data collection took place, the Ethiopian Commodity Exchange (ECX) market, and explains the reasons for choosing this setting. Next, the chapter describes the data collection instrument, data collection procedure, choice of key informant approach, and the corresponding quality of the informants. The chapter concludes by describing the measures used for the dependent, independent, and control variables and their associated indicators.

4.2 Research Design

The choice of research design is the most critical stage in the research process because it affects the execution of the research process, including the choice of instruments, sampling, data analysis techniques, and other research decisions (De Vaus, 2001). The selection of a research design depends heavily on the underlying research questions that the study seeks to answer (Malhotra & Birks, 2006). As such, it is crucial to choose a proper research design, one that fits the research problem and is appropriate to the purpose of the phenomenon under investigation. The research design employed in this study can be characterized as theory testing aimed at using theories to develop hypotheses and clarify the factors contributing to the occurrence of a particular phenomenon. This study followed a quantitative, non-experimental, multivariate cross-sectional research design (Creswell, 2014).

This study did not rely only on the data obtained from a cross-sectional survey; it began with some qualitative methods in the preliminary stages by conducting 30 – 60-minute semi-structured interviews with five informants who were managers of firms operating in the ECX market. During these interviews, I asked the informants about their working relationship with other firms in the ECX, firms operating outside of the ECX, and governmental agencies. The use of these qualitative methods was effective for acquiring

a deeper understanding of the actors involved in the ECX trading network. The information obtained from the interviews was used to refine and revise the initial conceptual model and then develop the final conceptual model. Besides, it was used as input to prepare the content of the survey questionnaire. Table 4.1. shows the profile of the interview participants.

Table 4.1. Interview Participant Profile

Interviewee	Job Positions	ECX Experience	Firm Size (No. of Employees)
1	Managing Director	7 Years	86
2	Marketing and Sales Team Leader	10 Years	55
3	General Manager	5 Years	64
4	Business Development Manager	4 Years	24
5	General Manager	4 Years	124

The cross-sectional design was appropriate for this study because it allowed for the detection of patterns and relationships between variables of interest that were strongly rooted in theory and to make inferences based on these associations (Creswell, 2014; Rindfleisch et al., 2008). In addition, cross-sectional surveys are a powerful tool for collecting social network data and for testing theoretical models (Borgatti et al., 2018; Bryman, 2012). They also represent a suitable research design for economically collecting firm-level data for many variables from a large sample of respondents (Spector, 2019). Thus, a cross-sectional survey research design was a suitable approach for this study.

Any kind of research design has its limitations. Cross-sectional designs have been criticized for their limitations concerning common method variance and the inability to draw causal conclusions (Rindfleisch et al., 2008). Despite these limitations, a cross-sectional survey design continues to be the most widely used method in marketing strategy and B2B research (Hulland et al., 2018). Various measures can be taken to partly remedy these limitations and thereby get the most out of a cross-sectional design. For example, the issue of common method bias and causality can be mitigated through a

well-designed cross-sectional survey, the inclusion of control variables, and the use of multiple data sources (Rindfleisch et al., 2008; Spector, 2019).

Accordingly, I took measures to reduce the adverse effects associated with cross-sectional designs on the study findings. The endogenous and some exogenous variables were measured using different measurement scales and different measures. Notably, the perceptual data were obtained via a cross-sectional survey, while sales data were obtained from secondary sources. Sales growth was measured using data obtained three months after the collection of the survey data. Network data were based on respondent firms' interactions with other network partners in the past two fiscal years.

4.3 Empirical Setting

The selection of the research setting was based on the nature of the phenomenon of interest: the role of external network partners in developing marketing capabilities. This work best fits in settings involving significant interactions with private and government network actors in knowledge exchange and collective learning processes. Additionally, this study was well suited to a context in which network actors exhibit variations in their network characteristics. There are many potential research settings that can be used to investigate this phenomenon, including firms in high-velocity industries such as manufacturing, biotechnology, engineering, pharmaceuticals, and commodity-trading firms operating in a volatile market environment.

Before deciding on a suitable empirical setting for the study, a thorough assessment of the available alternative industrial settings was conducted. In the end, the ECX was chosen as an empirical setting for this research. The final decision on the empirical setting was made based on the relevance of the research model to the commodity market characteristics and the availability and accessibility of both primary and secondary data from the ECX. Moreover, firms operating in the ECX demonstrated sufficient variation in terms of the degree of the chosen study variables to warrant investigation.

The ECX is a national multicommodity exchange that brings together buyers and sellers of agricultural commodities. This commodity exchange was established in 2008 as a wholly state-owned market institution with the vision of revolutionizing Ethiopia's

tradition-bound agricultural value chain into a market-oriented production system. It also aimed to promote increased participation by agricultural producers by providing up-to-date market information. The ECX offers a modern trading service at the head office in Addis Ababa and 22 branches across Ethiopia. The ECX has grown from trading 138,000 tons in its first year to 788,910 tons of agricultural commodities in 2019. It has managed to execute more than five million tons of commodities and more than 550,000 trade transactions in the last 10 years. After the establishment of the ECX, Ethiopia has seen an 84% increase in agricultural commodities exports.

The ECX has launched nine commodities into the trading system in the last 12 years. The exchange started with trading coffee. As of 2019, the trading floor in Addis Ababa handled spot contracts in commodities such as coffee, sesame, red kidney beans, white pea beans, green mung beans, chickpeas, soybeans, maize, and wheat. Coffee takes the lead in market share and trade volume, accounting for 36% and 65%, respectively. The exchange started its operation with 67 members in 2008, and this figure has gradually increased to a total of more than 300 members serving more than three million farmers.

This study chose commodity-trading firms operating in the ECX market as the research setting to empirically test the theoretical model. There are several reasons for considering the ECX setting as worth studying. First, a commodity market is worthy of investigation because of the rapid changes in the market environment (Spavound, 2019). This kind of market requires a systemic approach to generate and integrate market knowledge and skills within the organization and gives the researcher an exciting context to study the development of marketing capabilities.

Second, ECX firms usually obtain market information from both business partners and government institutions. This market involves the interaction and cooperation of several governmental and business actors that offer an appropriate context to test how the variation in firm–firm networks and firm–government networks contribute to marketing capabilities. Several businesses and governmental actors are involved in ECX activities. Trading firms must interact and cooperate with these stakeholders to build their capacity and get things done. The multitude of network partners from which the

market knowledge is obtained provides a conducive setting to investigate the effect of network connections on marketing capabilities development.

Third, another reason relates to the relevance of marketing capabilities in commodities markets. The importance of marketing competence and knowledge in commodity industries has been documented in previous studies (Ejrami et al., 2016; Figueroa, 2013; Gugissa et al., 2021; Kaplinsky & Fitter, 2004). Building marketing capabilities has been identified as one of the main challenges for commodity suppliers in Ethiopia (Brethenoux et al., 2012; Sisay et al., 2017). As such, this empirical context provides a solid opportunity to test the theory regarding how firms leverage partners to improve their marketing capabilities.

Moreover, the Ethiopian commodity market is an emerging and relatively young industry in which the importance of networks and external partners are more likely to be evident (Danis et al., 2011). The informational benefits of external partners are then expected to be greater and to warrant an investigation into such settings. In addition, the emerging economy setting of Ethiopia is characterized by having significant voids in informational markets where social networks often substitute for such failures, thereby providing exciting opportunities for exploration (Kebede, 2018; Peng & Luo, 2000). Moreover, previous studies have been conducted in commodity markets based on social network theory and the marketing capabilities literature (Bekiros et al., 2017; Figueroa, 2013; Marin et al., 2019; Sachitra, 2018). Overall, this selected setting provided a thorough setting for testing the hypotheses.

4.4 Questionnaire Development

This study followed the procedure suggested by Churchill (1979) and DeVellis (2003) in developing the questionnaire survey instrument for the study variables. I began with a thorough scrutiny of the previous literature on social network theory, marketing strategy, and marketing capabilities. Then, I examined existing instruments designed to measure the study variables. The initial items were subjected to expert judgment for clarity, redundancy, readability, and content validity.

The primary data collection instrument was a structured questionnaire. The questions about networks were divided into three parts. The first section dealt with questions about firm collaboration and interaction with trading firms within the ECX on matters related to the commodity market during the last two fiscal years. The second question was related to firms' collaboration and interactions with other firms outside of the ECX on matters related to the commodity market during the last two fiscal years. The key informants were also asked to list the names of government and government-sponsored agencies with which they interacted for the past two years regarding activities related to commodity exchange. Based on the semi-structured interview, the maximum number of alters that the focal firm can list in each of the questions was limited to 20.

The second section included questions that measured marketing capabilities, environmental dynamism, knowledge tacitness, and new market development constructs. On the one hand, marketing capabilities and new market development questions were measured relative to other trading firms within the ECX using a seven-point Likert scale (−1 = "far below competitors" to 3 = "far above competitors"). On the other hand, environmental dynamism and knowledge tacitness were measured using a seven-point Likert scale (1 = "strongly disagree" to 7 "strongly agree"). The last part covered questions related to the general profile of the firm, control variables, marker variables, and key informant quality measures. The last part also included a combination of Likert scales with closed-ended and open-ended questions.

Because the measurement items were developed in English, the translation to Amharic was conducted using the back-translation method to ensure that the instrument in Amharic conveyed the equivalent meaning to the original English questionnaire. First, one translator translated the questionnaire into Amharic, and then another independent translator who was blinded to the original questionnaire translated the questionnaire back into English. Then, it was checked for discrepancies in wording between the two versions of the English language questionnaires. Additional back-translations and modifications were repeated until a consensus between the translators was reached.

The pretest of the questionnaire was conducted with eight individuals, all of whom were managers and representatives of firms trading in the ECX. Two other managers

were contacted for a pretest, but it was impossible to receive their responses in time due to their business-related schedules. After filling out the questionnaire, in a semi-structured interview, six were asked to provide feedback on the appropriateness and clarity of each questionnaire item. Based on their feedback, I conducted further refinements to the questionnaire. The final questionnaire was seven pages and is provided in the Appendix.

4.5 Key Informant Approach to the Survey Questionnaire

The selection of the appropriate self-report survey-based data collection was another important survey research decision. Several methods can be used to collect survey data from study participants, but each has its advantages and disadvantages. Often, network and marketing research studies rely on the responses obtained from key informants to obtain data on firm-level constructs (Nordman & Tolstoy, 2014). The key informant approach was chosen as the most suitable option for this study context because data on such variables are often unavailable in archives.

The key informant approach is the preferred method for providing organizational information on various variables in a short period (Seidler, 1974). A key person from each ECX trading firm was contacted and asked to take part in the survey. The single key-informant approach was chosen over the multiple key-informant approach because it is difficult to obtain a significant number of informants from each firm who know about their firm's interactions and transactions in the exchange market. A single informant was appropriate in contexts in which a single person has experience and access to relevant information (Krause et al., 2018; Min et al., 2007). Thus, the manager who represented the company in the exchange market was chosen as the key informant. Such managers are direct participants in their organization's boundary-spanning activities.

The key informant was selected based on the following four criteria. First, the key informant's role in the firm makes him or her knowledgeable about the issues being studied. This knowledge should be aligned with the constructs of interest (Krause et al., 2018). Second, the key informant was involved in decisions associated with interactions with other stakeholders and transactions in the exchange market. Third, the key

informant was willing and able to take part in the data collection. Finally, I considered the degree to which the key informant represented the firm's perspectives as described in the survey (Patterson et al., 1996). Thus, a manager with an in-depth understanding of the firm's exchange transactions with other actors was chosen as the key informant.

4.6 Data Collection Procedures

The primary data were collected from ECX member firms using a self-administered questionnaire. Data collection was administered from May 2019 to July 2019. First, the list of ECX member firms was obtained from the Ethiopia Commodities Exchange Authority (ECXA) database. The list contains the physical addresses, email addresses, and phone numbers of the firms registered to trade in the ECX. Based on the addresses obtained from the ECXA, phone calls were made to ask the firms if they would be willing to participate in the data collection. The drop-and-collect survey method was used to administer the questionnaire (Brown 1987). This method involves the researcher(s) and/or an adequately trained field assistant personally delivering the questionnaire to the target respondent. This method is commonly used in developing countries and has a higher response rate than other alternative data collection methods (Crosno et al., 2013).

The unit of analysis for this study was defined at the firm level. I obtained secondary sales data from the transaction records of the ECX and ECXA. Network data were collected using the name generator technique instead of a roster method (Marsden, 2005). Name generators are free to recall questions in which respondents are asked to list all of the firms/actors with whom they interact and share relevant information (Badi et al., 2017; Rice et al., 2014). Despite its limitation, the free recall method was suitable for this study context due to its efficiency and the possibility of reducing careless responses. Researchers have also recommended using a free recall method over the roster method when the network includes more than 30 members (Grieser, 2019).

The study participants had to maintain an active trading status in the ECX for at least two years to be included in the survey. I contacted all 301 members who were eligible to participate in the survey. Overall, 204 valid completed questionnaires were returned for an eventual response rate of 68%. However, in social network studies,

response rates are calculated as nodal and relational response rates (Knoke & Yang, 2008). The data consist of asymmetric non-directed network ties. In a non-directed network, relational response rates are measured from information provided by either one or both dyad members. This study used the Knoke and Yang (2008) equation to calculate the response rate at the relational level for a non-directed network. For a complete, non-directed network of N actors with no alter reports from M actors, the response rate for a particular relation is calculated as follows:

$$R\begin{cases} = 100\% \text{ when } \mathrm{M} = 0 \\ = \left(1 - \dfrac{\mathrm{M\ x\ (N-1)}}{2\ \mathrm{x}\ \mathrm{C_N^2}}\right) \mathrm{x}\ 100\% \text{ when } 0 < \mathrm{M} < \mathrm{N} \\ = 0 \text{ perecent when } \mathrm{M} = \mathrm{N} \end{cases}$$

where M is the number of missing actors, and N is the network size. A relational network response rate of 70% is typically required in social network analysis to calculate reliable network measures (Knoke & Yang, 2008). The relational response rate was 90%, which is above the minimum relational response rate for the network required to calculate reliable social network measures. Therefore, the network in this study represented the vast majority of possible connections among members of the ECX network. The relationships captured in this network are not limited to ECX member firms. There were 1053 firms and 37 government agencies enumerated by the respondents, representing a combined 2591 network actors.

4.7 Informant Quality

The quality of key informants is an essential factor in survey research and can influence the validity of the data and findings. The key informants must have extensive knowledge of the activities and interactions that their firm has had with its external network partners. This study evaluated the quality of informants using one item that assessed each informant's knowledge, competence, and familiarity with the items included in the questionnaire using one seven-point Likert scale question (1 = "very low" to 7 = "very high") (Kumar et al., 1992). Two questionnaires were omitted for having a score lower

than 4 (i.e., 2 and 3). The mean informant quality rating was 6.17, demonstrating confidence in the knowledge and competence of the key informants.

4.8 Measurement and Operationalization of Variables

The research instruments were developed based on the literature review and interviews with actors associated with the study setting. A total of eight primary constructs and four control variables were used in the study. The measures included a mix of single-item and multi-item scales. The latent constructs of the study were measured using reflective indicators formulated on a seven-point Likert scale. The network constructs were operationalized as a firm-level network property and were calculated based on a formula adapted from the existing literature. The following section describes the development of the constructs and the measures used in this research.

4.8.1 Firms and Government: Two Distinct Modes of Network Actors

Although both firms and government institutions contribute to the development of capabilities, the nature of these two partners is quite different (Andrade et al., 2018; Yeniaras et al., 2020). This distinction is important because business firms and government institutions capture two distinct facets of the relationship and provide access to different resources (Sheng et al., 2011a). A review of the extant literature indicates that firms and government institutions play a distinct and fundamental role in a firm's efforts to obtain resources (Fan et al., 2013; Guo et al., 2020). In addition, I interviewed ECX member firms to understand how they interact with the government and business actors. Managers I interviewed were in agreement with the literature in that business firms and government institutions play a fundamental role in securing external resources.

My interviews with the ECX trading firm managers revealed that business and government actors often vary in terms of resource possession and knowledge sharing behaviors. As one manager articulated, “Our business networks are the source of market resources and new market insights …. what we usually get from the government is that

regulatory resources and industry-level market intelligence, which are difficult to find in the open market."

The other distinction is related to network-building tactics deployed to establish a relationship with the network actors (Josephson et al., 2019). One interviewee noted that building relationships with other firms requires "trust, reciprocity, and mutual benefits," whereas building relationships with government institutions involves tactics such as "corporate responsibility and stakeholders' engagement." Moreover, there are differences in market information and in the flow of resources. The direction of the resource and information flow in a firm–firm relationship is usually bidirectional, or, as one interviewee stated, "reciprocal exchange." In contrast, the direction of the resource flow concerning market information and resources in the firm–government relationship is "largely from the government to firms," i.e., unidirectional, as noted by another interviewee.

I attempted to contact the government institutions named in the firm–government network after the survey for a follow-up investigation to determine whether they collaborated on matters related to ECX trading issues before August 2019. This was done in two stages. First, I searched news stories and reports online to check whether the government institutions were involved in joint collaborative projects or activities. The online search included the government institutions' websites, ECX publications, and other independent and government agencies reports. Second, I contacted the government institutions and emailed them to inquire about whether they collaborated with other institutions regarding ECX trading activities. After several attempts, I received email responses from seven governmental institutions. Their responses corroborated my online search, indicating that they had no joint collaborative projects with the listed governmental institutions to tackle matters related to the ECX.

The other important issue in operationalizing network constructs is the representation of the relationship between network actors. As I discussed in the second chapter, the structural variables in a social network are measured based on distinct, set entities referred to as modes (Wasserman & Faust, 1994). These variables are measured on a single set of nodes in the one-mode network and two sets of nodes in the two-mode

network (Fujimoto et al., 2011). The first is a unipartite network, while the second, with two nodes, is known as a bipartite network.

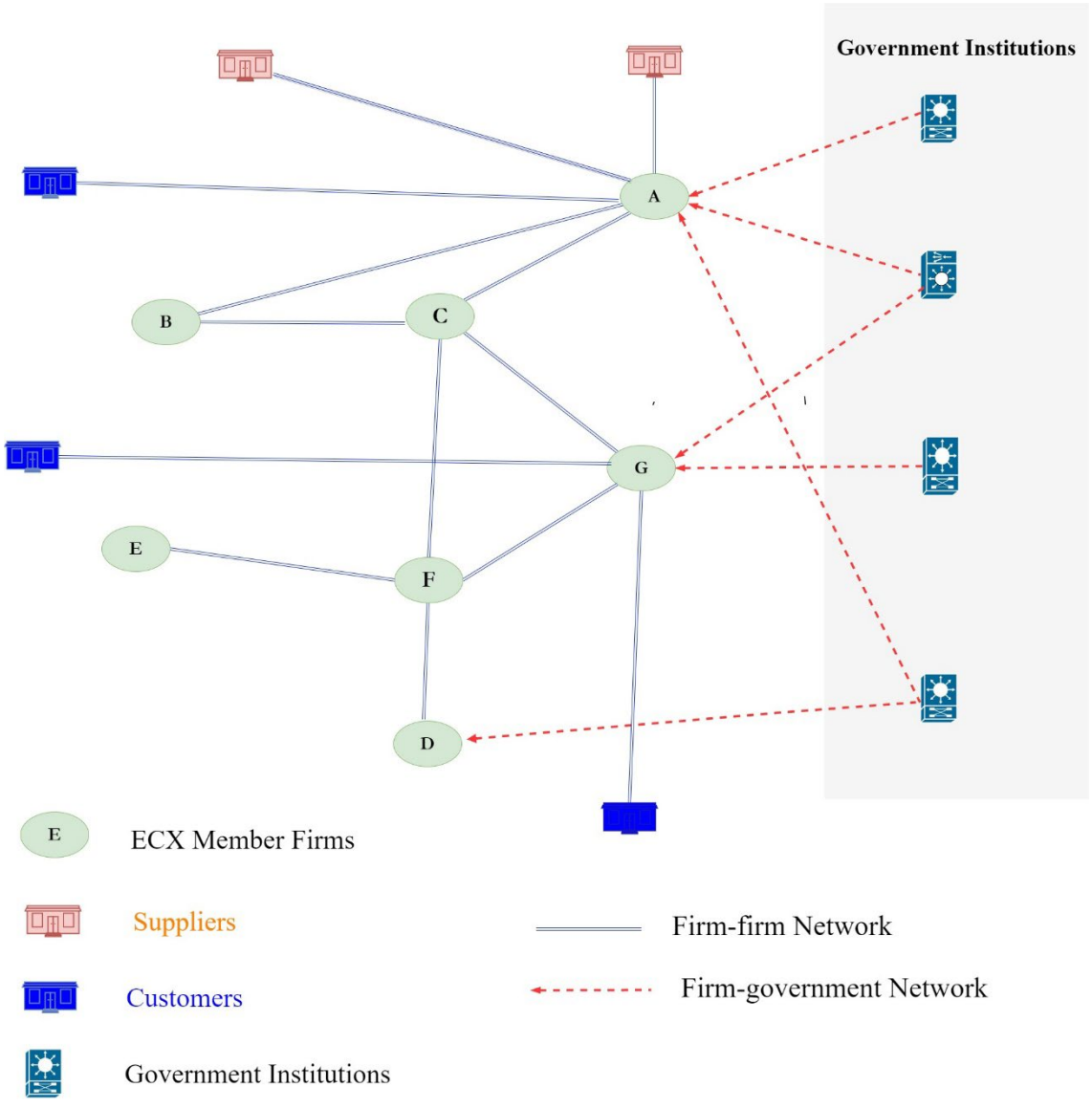
Unipartite networks are those whose nodes are exclusive of one entity type (Andrade et al., 2018; Borgatti et al., 2018). A unipartite network has a one-mode architecture with one type of node with mutual similarities (Opsahl, 2013). Unipartite networks have been extensively used to study network structures in B2B relationships. For instance, Gupta et al. (2019b); Sharma et al. (2019); Zhang and Guan (2019) used a unipartite structure to operationalize buyer–supplier networks. Andrade et al. (2018) also used a unipartite structure for the firm–firm network data derived from the same industry network. In line with the previous literature, I consider the firm–firm network as a one-mode unipartite network.

A bipartite network is a network in which two classes of nodes exist, and connections are made between the node of the first class and the node of the second class (Latapy et al., 2008; Wasserman & Iacobucci, 1991). The firm–government network is considered bipartite since there are two types of nodes, firms and government institutions, and ties connect nodes of different types (Andrade et al., 2018; Heemskerk et al., 2012). As shown in Figure 4.1, the link between focal firms and government institutions is directed, reflecting the flow of knowledge resources from government-affiliated institutions to focal firms.

The bipartite network has been used widely in bank–firm credit network research. For example, De Masi and Gallegati (2012) and Lux (2016, 2020) used a bipartite network to construct the relationship between banks and corporate firms. The bipartite network has also been used in corporate board interlock research, where directors are affiliated with firms on whose boards they serve (e.g., Srinivasan et al. (2018) and Koskinen and Edling (2012)). Other examples of two-mode network analysis include the analysis of a network that consists of contractors to awarded projects (Sedita & Apa, 2015), software developers' software projects (Grewal et al., 2006), knowledge networks representing the participation of actors in seminars and courses (Sanz-Ibáñez et al., 2019), and non-profit agencies in a community (Zhang, 2010).

Research that has studied the collaboration between firms and government agencies has also used a bipartite network structure. For example, Andrade et al. (2018) used a bipartite network structure to represent the research collaboration between firms and government-sponsored institutions. Similarly, Heemskerk et al. (2012) operationalized the corporate–government network as a bipartite network with state organizations and private firms' nodes. In line with this, I operationalized the firm–government network as a two-mode bipartite network. Furthermore, empirical studies have used both one-mode and two-mode networks simultaneously in the same study. There are several of these, such as Andrade et al. (2018); Delcamp and Leiponen (2014); Gupta et al. (2019b); Liu et al. (2013).

Figure 4.1. Firm–firm and firm–government networks.



An example of a firm network diagram is illustrated in Figure 4.1, where both the firm–firm and the firm–government networks can be observed. The blue lines represent firm–firm connections. The firm–firm network includes ECX member firms (in circles) and non-ECX member firms, such as supplier and customer firms. The dotted red lines indicate the connections in the firm–government network.

Different network measures have been used to capture the two competing perspectives on interorganizational networks. Network cohesion and network diversity are commonly used metrics to measure the two competing perspectives of interorganizational networks: network closure and openness, respectively (Martinez & Aldrich, 2011; Rauch et al., 2016). Network cohesion represents the most common and intuitive way to measure the firm's connectedness in the network (Borgatti et al., 2018; Peng & Dey, 2013). Hence, it captures the idea of network closure, which reflects the degree of interconnectedness in a firm's network (Ahuja et al., 2012; Coleman, 1988, 1990; Gargiulo & Benassi, 2000). Moreover, network diversity captures the alternative perspective, which focuses on the importance of diverse collaborative networks that provide access to wide sources of non-redundant information (Burt, 1992; Martinez & Aldrich, 2011; Rauch et al., 2016).

4.8.2 Network Measures

Firm–Firm Network Cohesion

Network cohesion refers to the extent to which a focal firm network involves alters who are themselves closely interconnected (Burt, 1997; Jiang et al., 2018). In line with the definition of firm–firm network cohesion, the clustering coefficient was used to capture the extent to which the focal firm neighbors (i.e., alters) are interconnected. Previous studies in network analysis have used the clustering coefficient to measure network cohesion (Funk, 2014; Guler & Nerkar, 2012; Lyu et al., 2019; Soda, 2011). The clustering coefficient measures firm–firm network cohesion as a ratio of the number of existing connections between alters to the maximum possible number of connections among the alters (Chai et al., 2011; Morone et al., 2019).

The clustering coefficient of actor *j* is given by:

$$Cj = \frac{2e_j}{k_j\left(k_j - 1\right)}$$

where,

k_j is the number of alters in actor *j* network, and

e_j indicates the number of connections between alters.

The resulting coefficient indicates the degree of the actor's network cohesion. For example, firm C has four alters (A, B, G, and F) and two connections between alters, resulting in a cohesion score of 0.33 (i.e., (2(2)/4(3)), whereas firm F has four alters (C, D, E, and G) and only one connection between alters, resulting in a cohesion score of 0.16 (i.e., (2(1)/4(3)). The clustering coefficient value can range from 0 to 1, and larger values signal higher levels of cohesion. The coefficient equals 1 if all alters are interconnected. In this example, firm C has a more cohesive network than does firm F.

Firm–Firm Network Diversity

Network diversity is defined as the range of different network partner types with which a focal firm has connections and collaborations (Rocks et al., 2005). It also refers to firms' contacts with organizations that exhibit different attributes and resources (Rauch et al., 2016). The network diversity has been measured in various ways in the past. One way to measure network diversity is to determine the level of structural holes in an actor's network, which is based on Burt's (1992) formulation of network constraint (Aral & Van Alstyne, 2011). However, this formulation does not capture the diversity in the network partners that this study sought to measure.

Harrison and Klein (2007) recommend Blau's (1977) heterogeneity index to measure knowledge and resource diversity. Besides, Blau's heterogeneity index is a common measure in marketing and strategy research used to calculate partner diversity in firm–firm and alliance networks (e.g., Fang et al. (2016); (Huang et al., 2018); Leeuw et al. (2014); Sarkar et al. (2009). Thus, I used Blau's heterogeneity index to measure the

diversity of information and capabilities in a firm's network partners (Oerlemans et al., 2013; Phelps, 2010).

The following steps were used to calculate the firm–firm network diversity. In the survey questionnaire, respondents were asked to list the names of firms with which they had had any collaboration related to ECX trading activities over the past two years. This list included both ECX member firms and non-ECX member firms. Following Leeuw et al. (2014), seven categories of business network partners were then identified based on the list obtained from the respondents: (a) customers/exporters, (b) suppliers, (c) competitors, (d) consulting firms, (e) research institutes and universities, (f) marketing collaborators, and (g) subsidiary/sister firms. The number of different partners with which the firm had collaborated varied from 1 to 7. Next, I identified the number of network partners in each of these categories. Finally, Blau's formula was used to calculate the diversity of each firm as 1 minus the sum of the squared proportions of a firm's network partners in each category divided by the firm's total number of network partners:

$$D = 1 - \sum_{j=1}^{n} p_i^2$$

where,

D is the diversity of the firm network measure, and

P is the proportion of the firm's network partners in each of the network categories.

The result of this calculation is a diversity score with a value between 0 and 1. A value close to 1 indicates a higher degree of network partner diversity. For example, Figure 4.1 shows that firm A has five network partners, two of which are in the supplier category, two are in the competitor category, and one is in the customer category. The network diversity score is calculated as $(1 – (2/5)^2 + (1/5)^2 + (2/5)^2) = 0.64$, whereas firm G has four network partners, two of which are competitors, and the other two are customers, resulting in a network diversity score of $(1 – (2/4)^2 + (2/4)^2)) = 0.50$, indicating that firm C has a more diverse firm–firm network than firm F.

Firm–Government Network Cohesion

Cohesion in a firm–government network measures the degree to which a firm–government network has overlapping connections with other network actors due to their collaboration with the same government institution. Network cohesion measures the overlap between neighborhoods of nodes (i.e., firms). Miniclustering was used to measure the bipartite network cohesion (Andrade et al., 2018; Latapy et al., 2008). The measure captures the tendency of a focal firm alter—in this case, a government agency—to connect with other trading firms in the ECX. To measure firm–government network cohesion, the two-mode networks were projected into one-mode adjacency matrices. Based on the formula from Latapy, Magnien, and Vecchio (2008), I calculated the bipartite network cohesion as shown below:

$$cc(u) = \frac{\sum_{v \in N(N(u))} cc(u,v)}{|N\big(N(u)\big)|}$$

where u and v represent a pair of nodes (u represents the focal firm and v represents government institutions), and N(N(u)) represents the number of nodes (connections) at a distance of 2 from u (firm), excluding u:

$$cc(u,v) = \frac{|N(u) \cap N(v)|}{\min(|N(u)|, |N(v)|)}$$

where min (|N(u)|,|N(v)|) corresponds to the absolute minimum number of total nodes that are neighbors of u and v, u and x, u and y, and so on.

This example explains the procedures employed to calculate bipartite network cohesion. The first step was to compute the value of cc (u, v) for each firm. Figure 4.1 illustrates that firm A has connections with three government institutions (i.e., A, D, and G). First, I had to calculate cc (A, G) and cc (A, D) for firm A. Then, I divided the number of overlaps between firm A and firm G by the minimum total number of arrows that emanated from A and G, and A and D. The next step involved calculating each firm's miniclusters. The number of miniclusters for a firm were calculated by dividing the summation of cc (c, v) values by the number of nodes at a distance of 2, excluding the firm A node. Firm A has connections with three government institutions and overlaps with G and D. The firm's bipartite cohesion is therefore cc(A) = (0.5 + 1 + 0.5)/3 = 0.67.

Firm G has a connection with two government institutions and overlaps with only firm A. Thus, the bipartite cohesion of firm G is cc (G) = 0.5/1 = 0.5. Firm A has a higher cohesion in the firm–government network than does firm G in this network.

Firm–Government Network Diversity

Firm–government network diversity refers to the degree of heterogeneity in the government partners with whom the firm has connections and collaborations. This study divided the different partner types in a firm–government network into four categories: (a) government offices at various levels of government; (b) public research, innovation, and educational centers; (c) financial institutions and commercial administration bureaus; and (d) government-sponsored enterprises and other government-funded institutions. Blau's heterogeneity index was used to measure the diversity of information and resources obtained from government and government-affiliated institutions. The formula used to calculate firm–government network diversity is:

$$D = 1 - \sum_{j=1}^{n} p_i^2$$

where D is the diversity of the firm–government network measure, and P is the proportion of the firm's network partners in each of the network categories. For example, a firm with a total of eight government-affiliated partners, two in the first category, two in the second category, one in the third category, and three in the fourth category, will have a network diversity score of $(1 – (2/8)^2 + (2/8)^2 + (1/8)^2 + (3/8)^2) = 0.72$. The result of the calculation is that a diversity score is between 0 and 1. A value close to 1 indicates a higher degree of network diversity.

4.8.3 Marketing Capabilities

Researchers have indicated several methods to operationalize marketing capabilities. Each method has its strengths and weaknesses. The literature review indicated that the approach used varies depending on data availability, research methodology, and data analysis techniques. I measured marketing capabilities with multi-item measures using

primary survey data. However, there are four conventional approaches used by researchers to measure marketing capabilities.

The first method uses a qualitative approach based on in-depth interviews and case studies to measure marketing capabilities. In this approach, marketing capabilities were assessed based on the interview transcripts coded concerning the different types of marketing capabilities and preceded by assigning quotes to the labels summarizing the key characteristics of their contents. On a few occasions, archival data were used to supplement the interview.

Bruni and Verona (2009); Liu and Ko (2012); Lutz Kaufmann and Roesch (2012), and Evers et al. (2012) used the qualitative method to assess marketing capabilities. They conducted in-depth, semi-structured interviews with CEOs, marketing managers, and sales representatives. Archival data were incorporated from business magazine reports, annual reports, business plans, and internal documents. The qualitative method provides a detailed understanding of the specific marketing capabilities and explores the dynamic process in developing marketing capabilities. However, it has been criticized for its small sample size and generalizability problems.

The second approach measures marketing capabilities based on proxy measures of capability obtained from secondary data. This approach uses proxies such as market share (Moorman & Slotegraaf, 1999), advertising or selling, general and administrative (SGA) expenditures, and sales and selling expenses, as well as the number of sales executives (Arora & Nandkumar, 2012). This method can also use a ratio of marketing expenditure to total sales and a ratio of advertising expenditures to net sales as an indicator of a firm's marketing capabilities (Konwar et al., 2017; Wang et al., 2011). This method provides an opportunity to study marketing capabilities across long-term time frames and to test causal hypotheses. However, the method has been criticized for not addressing the whole conceptualization of marketing capabilities.

The third method uses input–output approaches utilizing stochastic frontier estimation to measure marketing capabilities. This approach measures marketing capabilities by calibrating how well a firm can convert inputs and resources (e.g., advertising, sales expenses, trademarks) into specific, desirable, marketing-related

outputs (e.g., sales, profitability). This method estimates the maximum observed efficient frontier among firms in an industry in converting resources into desirable marketing output objectives in a sample of firms (Morgan et al., 2018). It then compares this maximum value with the actual resource to output performance of each firm in a sample (Bahadir et al., 2008).

This method has been praised for being well aligned with the conceptualization of marketing capabilities because it measures how well a firm can deploy its available resources to implement marketing activities that achieve desired marketing outcomes relative to competitors in the industry (Morgan et al., 2018). However, the use of SGA expenses can lead to biased estimates of marketing capabilities (Ptok et al., 2018).

The fourth method uses survey items to measure marketing capabilities. This method uses the knowledge-based approach to assess the knowledge and skills that constitute marketing capabilities. Researchers use key informants to rate the marketing capabilities of their firm as compared to other rival firms in the same industry. This method enables researchers to assess the marketing capabilities of various firms and can be combined with secondary performance data to study their performance implications. This method allows researchers to examine multiple antecedents and the impact of marketing capabilities. It is the most widely used method to operationalize marketing capabilities.

Based on Day (2011) and Morgan (2012), this study proposed marketing capabilities as a multidimensional construct comprising four dimensions: operational, strategic, dynamic, and adaptive. Operational marketing capabilities are functionally focused capabilities used to combine competencies that reflect task-specific marketing activities (Morgan, 2012; Vorhies et al., 2009). Operational marketing capabilities comprise functional marketing processes used to design and implement marketing mix-elements, such as product, pricing, distribution, marketing communication, and selling capabilities. Items were designed based on Morgan (2012) and Morgan, Vorhies, et al. (2009) and modified to reflect the research context. It was measured using five items designed on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”).

Strategic marketing capabilities are organizational planning-related capabilities involved in designing strategic marketing plans and formulating strategies to accomplish these marketing goals (Morgan, 2012). They include strategic marketing planning, marketing strategy implementation, and market targeting and positioning capabilities. Items were designed based on Morgan (2012) and Morgan, Vorhies, et al. (2009) and modified to reflect the research context. These items were measured using three items rated on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”).

Dynamic marketing capabilities refer to the extent to which a firm continuously reconfigures market knowledge to leverage its resources and capabilities in ways that fit the rapidly changing market environment (Morgan, 2012). These capabilities include those involving reconfiguring market resources, coordinating various departments, and renewing marketing methods or strategies to respond to changing market conditions. Items were designed based on Pavlou and El Sawy (2011), Falasca et al. (2017), and Mitręga (2019) and modified to reflect the research context. Dynamic marketing capabilities were measured using three items rated on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”). Adaptive marketing capabilities are the fourth dimension of marketing capabilities. Consistent with the definition of Day (2011), items were designed based on Guo et al. (2018) and Shen et al. (2020) and measured using five items rated on a seven-point Likert scale (1 = “strongly disagree” to 7 = “strongly agree”).

4.8.4 Knowledge Tacitness

Interorganizational knowledge exchange is quite common, and many studies have examined the benefits of knowledge sharing between firms (Arikan, 2009; Loebbecke et al., 2016). Knowledge involves various degrees of tacitness and complexity (Luca & Atuahene-Gima, 2007). Knowledge tacitness is the extent to which market knowledge obtained from external partners is not explicit but is instead difficult to codify and communicate (Hansen, 1999, 2002). Network actors in the ECX market share knowledge at various levels of tacitness with actors inside and outside of the industry.

The ECX trading firm managers' interviews indicated that focal firms acquire market information from various sources. When asked about knowledge sharing, one interviewee noted that “we get a wide variety of information from trading firms and government institutions which are useful for marketing tactics.” Another senior manager commented: “Most information we need is not readily available. We usually rely on our close contact or their partners to help us get relevant and timely market information.” The information obtained consists of price, shipment, market news, weather, market insights, demand forecast, supply and orders, international trends, national trends, and processing techniques. In addition, trading firms obtain knowledge, including insights into country-specific market and industrial issues.

The nature of communication between focal firms and other actors takes place through one-on-one interactions, group meetings, electronic communications using the internet and emails, and phone calls. Training and seminars are other methods whereby ECX trading firms receive and share knowledge relevant to the exchange activities. These involve verbal communication and written documents. As one of the interviewees said, “it comes in written reports and brochures or involves face-to-face discussion on matters related to the commodity exchange.”

The measure of knowledge tacitness captures the degree to which market knowledge obtained from external network partners is difficult to codify, articulate, and communicate (Jin et al., 2019; Luca & Atuahene-Gima, 2007). I measured knowledge tacitness using four items modified from Hansen (1999, 2002) and Luca and Atuahene-Gima (2007). This construct captures the level of tacitness in the knowledge and information resources obtained from external network partners. The measure deals with the difficulty of identifying, documenting, understanding, articulating, and communicating external market knowledge. To develop the measure, a seven-point Likert scale was used (1 = “strongly disagree” to 7 = “strongly agree”).

4.8.5 Environmental Dynamism

Environmental dynamism is the degree and instability of changes in a firm's external environment (Li & Richard Ye, 1999; Simerly & Li, 2000). The commodity market is characterized by competitive producers and rapidly growing demand (Cartas, 2015). It is also characterized by complex behavior related to volatility in price and inventory levels (Čermák, 2017). The development in information technologies has also changed how commodity traders interact and do business with each other (Getahun, 2020). This study measured environmental dynamism using items borrowed from Miller and Friesen (1983) and Zahra (1993). The measure deals with change in the market, competition, customer preferences, and information technology. It was measured using four items rated on a seven-point Likert scale (1 = "strongly disagree" to 7 = "strongly agree").

Dependent Variables

Several studies have indicated the importance of multiple measures of firm performance (Heavey & Simsek, 2015; Stam & Elfring, 2008). I collected data on both subjective and objective measures of firm performance. Subjective measures are more accessible and reliable than objective indicators, providing insights into non-financial aspects of performance (Stam & Elfring, 2008). Objective measures of firm performance are less likely to suffer from common method bias, but they can be challenging to obtain because they are usually privately held (Heavey & Simsek, 2015). Considering the strength and weakness of each type of measure, both varieties were used in this research. I used subjective measures of new market development and sales growth as an objective performance measure.

4.8.6 Sales Growth

Sales growth is the most espoused measure of market-based performance. Sales growth measures the percentage change in sales revenue captured from products and services

sold to each customer between two consecutive periods (Wetzel et al., 2014). Sales growth indicates how quickly the firm is growing and how well it maintains its overall economic position in the market (Jalbert et al., 2012). Sales growth indicates the current cash flows and could also influence the firm market value (Jalbert et al., 2012; Lo & Sheu, 2007). Previous studies in marketing have used sales growth to measure firm performance (Gonzalez et al., 2014; Morgan, Slotegraaf, et al., 2009a; Whitler et al., 2018).

In this study, sales growth was measured using objective secondary data obtained from the ECX. Sales data were gathered one quarter after the survey data were collected and compared with the previous quarter's sales data. To compute the sales growth, I divided the quarterly sales at time t by the difference between sales at time t – 1 and sales at time t, as shown below.

$$\text{Sales growth rate} = \left(\frac{\text{Sales}_{t+1} - \text{Sales}_{t}}{\text{Sales}_{t}}\right)$$

4.8.7 New Market Development

New market development is the second construct utilized to measure market-based performance in this study. New market development refers to the offering of existing products to new customers, segments, or markets (Easingwood et al., 2006; Harrison & Hart, 1987). It also involves using new distribution channels and new ways of serving customers (Lee & Colarelli, 2003). Firms develop new markets to expand their customer base and increase sales revenue from existing products.

This study measured new market development using four items borrowed from Easingwood et al. (2006); Lee and Colarelli (2003); Min and Kim (2021). The measure deals with firm performance in serving new customers, market segments, and channels to reach new markets. The items were measured using a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree").

4.8.8 Control Variables

This study controlled several variables to account for firm heterogeneity based on the marketing literature and the context of the study. The study used four control variables, i.e., firm age, firm size, network centrality, and industry growth. The measures used are discussed below.

Firm Size: Firm size is a common control variable due to its reported relationship with various organizational capabilities and firm performance measures. Previous studies have indicated an effect of firm size on marketing capabilities (Kemper et al., 2011) and firm performance (Morgan, Slotegraaf, et al., 2009a). Firm size was measured using numerous empirical indicators, such as total assets, sales volume, and the number of employees (Feng et al., 2015; Mu et al., 2018b; Yu et al., 2017). In line with previous marketing research, this study used the number of employees in the firm as a proxy measure of firm size. Then, the firm size was calculated using the logarithm of the number of permanent full-time employees (Josephson et al., 2019).

Firm Age: Firm age has been used in previous marketing capabilities studies as a control variable (Kemper et al., 2011; Yang et al., 2019). These studies reported a positive relationship between marketing capabilities and firm performance (Nguyen et al., 2013; Sok et al., 2017). The most common way to measure firm age is the time between the initial establishment and the present (in years). Firm age was measured as a single-item measure based on the number of years the firm has been in existence.

Degree of Centrality: The degree of centrality was used as a control variable to account for the network effect. The degree of centrality measures the number of nodes to which a firm is directly connected (Aarstad et al., 2015b; Freeman, 1979b). The degree of centrality was controlled because it may affect the flow of information and resources (Kim & Fortado, 2021). Specifically, the centrality of firms in the networks might influence the development of capabilities and firm performance by increasing firms' access to information and firms' visibility in the network. I used the relative (normalized) degree of centrality measure proposed by Freeman (1979b) to measure firm network centrality. The value representing the firm and government networks was used to control network cohesion and diversity effects. Thus, the degree of centrality of node p_k is given by:

$$C_D = (p_k) = \frac{\sum_{i=1}^{n} a(p_i, p_k)}{n-1}$$

where n is the number of direct contacts in the network representing the size of the network, and $a(p_i, p_k) = 1$ if node p_i is connected to p_k and $a(p_i, p_k) = 0$ otherwise.

Industry Growth: Industry growth was defined as the growth in commodity production for two consecutive years. The extant literature indicated that industry growth is a factor that could increase firm performance and must be incorporated to determine the net effects of firm antecedents on firm performance (Chowdhury, 2011; Leischnig et al., 2016). The industry growth rate was measured by taking the ratio of the difference in commodity production between 2018 and 2019 and dividing it by commodity production in 2018:

$$\text{Industry Growth} = \left(\frac{\text{Production}_{2019} - \text{Production}_{2018}}{\text{Production}_{2018}} \right)$$

Summary

This chapter discussed the research method used in this study. First, it addressed the choice of a cross-sectional research design and the selection of the empirical setting. Then, it covered the design of the data collection instruments and their translation and administration. Data sources and sampling methods were also covered in this chapter. The chapter additionally covered the key-informant approach used in the data collection. Finally, the chapter discussed the operationalization of the dependent, independent, moderator, and control variables. Table 4.2 summarizes the measures used in this study and the associated operationalization and sources. The next chapter deals with the findings of the study.

Table 4.2. Summary of Measures Used in This Study

Construct	Operationalization	Source	Citations
Sales Growth (Sales)	Divided the difference of the t+1 quarterly sales and the prior period (t) quarterly sales by the prior period (t) quarterly sales	Archival	Jiang et al. (2015); Morgan, Slotegraaf, et al. (2009a)
New Market Development (NMD)	Served new customer segments and markets Utilized new distribution channels to reach the market Developed new ways to build and improve customer relationships Attracted a significant number of new customers	Survey	Lee and Colarelli (2003); Easingwood et al. (2006)
Marketing Capabilities (MC) Operational Marketing Capabilities (OMC)	Developed and executed effective marketing communication messages Provided products and services with a superior quality and value Had an efficient sales planning, management, and control system Had an extensive distribution channel coverage to make the products widely available	Survey	Morgan (2012); Morgan, Vorhies, et al. (2009)

	Monitored competitor prices and used pricing skills to set a competitive price	
Strategic Marketing Capabilities (SMC)	Had clear marketing goals and allocated marketing resources effectively Was able to segment and target the market effectively Developed and executed marketing strategies and programs effectively	Morgan (2012); Morgan, Vorhies, et al. (2009)
Dynamic Marketing Capabilities (DMC)	Continuously renewed marketing methods and strategies to respond to changes in the market Coordinated various departments and functions to respond to changes in the market Reconfigured marketing resources and capabilities to align with market conditions	Pavlou and El Sawy (2011); Falasca et al. (2017); Mitręga (2019)
Adaptive Marketing Capabilities (AMC)	Was able to detect market signals on a timely and accurate basis Proactively anticipated market trends and opportunities and responded accordingly	Guo et al. (2018); Shen et al. (2020)

	Actively sought collaboration to achieve synergy and quickly responded to market opportunities Actively conducted market experiments based on market forecasts Used emerging technologies to track market changes and opportunities		
Firm–Firm Network Cohesion (BCC)	Clustering coefficient that measured the ratio of the number of existing connections between alters to the maximum possible number of connections among the alters	Survey	Guler and Nerkar (2012)
Firm–Firm Network Diversity (BDIV)	Blau's heterogeneity index used to measure the dispersion of business network contacts across seven industry categories	Survey	Alonso and Andrews (2019); Sarkar et al. (2009)
Firm–Government Network Cohesion (GCC)	Miniclustering that measured the tendency of a focal firm alter—in this case, a government agency connected with other trading firms in the ECX	Survey	Andrade et al. (2018); Latapy et al. (2008)
Firm–Government Network Diversity (GDIV)	Blau's heterogeneity index used to measure the dispersion of government network contacts across four government categories	Survey	Alonso and Andrews (2019); Sarkar et al. (2009)

Environmental Dynamism (ED)	Customer needs and preferences are changing rapidly Product demands and preferences are uncertain Frequent and significant changes in the number of competitors Production or service technologies are changing rapidly	Survey	Miller and Friesen (1983); Zahra (1993)
Knowledge Tacitness (EKT)	Difficult to document and sufficiently explain in written words Highly practical and can only be gained through first-hand experience and engagement Mainly reports, manuals, and written documents Difficult to communicate and capture in written words	Survey	Hansen (1999, 2002); Luca and Atuahene-Gima (2007)
Firm Size (Lsize)	Natural logarithm of the number of employees in the firm	Survey	Josephson et al. (2019)
Firm Age (Lage)	Natural logarithm of the number of years firms have been in operation	Survey	Heirati et al. (2013)
Degree Centrality (NC)	Number of other nodes with which a firm is directly connected	Survey	Aarstad et al. (2015a, 2015b)
Industry Growth (ING)	The increase/decrease in the commodity production between 2018 and 2019	Archival	Lee et al. (2016)

5 Data Analysis and Findings

5.1 Introduction

This chapter covers three critical elements of the data analysis, i.e., data examination, measurement model evaluation, and hypothesis testing. The data examination covers data entry accuracy, handling missing values and outliers, and checking for normality and linearity. The assessment of the measurement model deals with remedies used to control method biases, non-response bias, measurement evaluation, endogeneity, and the assessment of reliability and validity of the constructs. This chapter also presents the evaluation of the structural model and the testing of direct effects, followed by testing the mediating and moderating effects. I used MPlus version 8.3. to evaluate the measurement model and to conduct structural equation modeling (SEM).

5.2 Data Screening

Survey data collection can contain numerous errors, such as incorrect responses, which cannot be detected without thorough data screening. Data screening needs to be carried out to ensure that the quality of the data is sufficient for data analysis. The data collected should be examined before conducting any statistical data analysis and should consider issues related to the accuracy of data entry, the handling of missing data, outlier issues, and normality requirements in the dataset (Kline, 2005).

Data entry quality was assessed by verification checks of completeness, correctness, and consistency (Sadiq, 2013). Data entry accuracy was first evaluated using the point-by-point agreement method by re-entering 21 randomly selected questionnaires (10% of the observations) and checking their agreement with the data entered (Caloto & the, 2001). There were no differences between the two entries. Then, the accuracy of data entry was checked by proofreading all of the data entered in the Excel sheet. Moreover, the data were assessed by conducting descriptive statistics analysis of each variable's maximum and minimum values.

5.3 Dealing with Missing Values and Outliers

Missing values are an endemic problem in survey research that occurs due to non-responses beyond the control of the data collector, censoring, administrative errors, and other, similar factors (Tabachnick & Fidell, 2013). Several proactive measures were taken before data collection to prevent missing data due to the mode of data collection. First, steps were taken at the questionnaire design stage to limit the occurrence of missing values. Self-administered surveys result in fewer missing data than online or mail surveys (de Leeuw, 1992, 2001). In addition, the questionnaire was designed so that it had clear instructions in exact and understandable words. I explained the purpose of the study and encouraged the survey respondents to fill out the questionnaire accurately. To increase response rates, monetary incentives through a lottery method were used to encourage participants to fill out the questionnaire completely. After the data were collected, each of the two winners received a smartphone.

After data collection, patterns of missing data were inspected. I removed 16 cases with missing archival data for two consecutive periods. After excluding these cases, the final sample included 186 firm respondents. All of the remaining variables included in the questionnaire had a missing values equivalent to less than 5% of the observations. The dataset had less than 2% missing values concerning marketing capabilities, environmental dynamism, and knowledge tacitness. Among the control variables, firm size had less than 3% missing values. No other variable had more than 1% missing values. According to Tabachnick and Fidell (2013), missing values can be a problem when more than 5% of the data are missing per variable.

Little's test of missing completely at random (MCAR) was performed to examine the distribution pattern of the missing data. The assumption of MCAR data is more likely to apply when a dataset has only a few missing observations (Pigott, 2001). Little's test of MCAR produced a non-significant result (chi-square (χ^2) test = 1165.37; degrees of freedom (*df*) = 1245; sig. = 0.95), suggesting that missing data were missing in a completely random way. The test results indicated that the means of the missing and non-missing groups were not statistically different. Thus, there was no serious concern about missing values in these data.

Apart from missing values, outliers are another common problem that may influence the results of any multivariate analysis. Outliers are problematic because they may potentially cause non-normality in the distribution of the data (Brown, 2006). There are several ways to identify outliers. The standardized scores (*z*-scores) are the most widely used technique to evaluate univariate outliers. A standardized *z*-score was calculated for each measure to assess outliers. A large *z*-score value was considered an outlier, but various authors have suggested different cutoff points. Kline (2005) recommended a *z*-score value of ±3.0; in contrast, Harrington (2009) suggested that an observation with a *z*-score higher than an absolute value of 4.0 should be excluded from the dataset.

This study treated a case with a *z*-score greater than an absolute value of 4 in any one variable as an outlier. A thorough examination of the *z*-scores revealed that no case had a *z*-score value greater than ±4.0. Eleven cases had a *z*-score value between ±3.0 and ±4.0, and no case exceeded the threshold on more than a single variable. Based on ±4.0 as a cutoff point, none of the cases had extreme attributes. Hence, none of these values were removed from the dataset.

5.4 Linearity and Normality

Linearity is one of the assumptions that must be met in all multivariate statistical techniques. The most common way to assess linearity is to visually inspect and examine the scatterplots of standardized residual values and identify any non-linear patterns in the data. The scatterplot of residuals shown in Appendix 2A did not indicate any systematic non-linear pattern between the variables, which means that the model met the assumption of linearity.

Normality is the other requirement of multivariate statistical techniques. To evaluate univariate normality, skewness and kurtosis values were assessed for each variable. The value of skewness and kurtosis should fall within the range of −2 to +2, and some may also suggest that range of -3 to +3 (Kline, 2005; Tabachnick & Fidell, 2013). The table in Appendix 2B shows the descriptive statistics that describe the characteristics of the entire set of variables used in the study. It consists of the minimum values, maximum

values, mean, standard deviation, skewness, and kurtosis. The skewness statistical values of the variables ranged from −1.05 to 1.65, and the kurtosis statistical values ranged from −1.43 to 3.71. Overall, the data can be considered normally distributed because all variables except firm size were free of problematic levels of skewness and kurtosis.

Achieving univariate normality of individual variables may usually suffice to achieve multivariate normality, although this does not sufficiently address multivariate normality. Thus, I conducted Mardia's multivariate normality test (Mardia, 1970, 1979). The *p*-values for Mardia's test indicated that multivariate skewness and kurtosis were significantly different from 0, indicating a violation of the multivariate normality assumption. MPlus has rescaling-based robust estimators, such as robust maximum likelihood (MLR) and mean-adjusted ML, to deal with non-normal data (Wang & Wang, 2012). Thus, I used an MLR estimator for model estimation.

5.5 Assessment of the Measurement Model

Anderson and Gerbing (1988) suggested the assessment of the goodness of fit of the measurement model before testing the hypothesized relationship. Thus, confirmatory factor analysis (CFA) was used to assess whether the measurement model fit the sample data adequately. The assessment of the measurement model involved three sequences of activities: the development of a measurement model that represented the pattern of the relationship between the observed and latent constructs, the fitting of the specified model to the sample, and the evaluation of the goodness of fit of the model (Brown, 2006).

Both absolute and incremental fit indices were used to evaluate the overall fit of the model. The absolute fit indices used included the χ^2 test, a normed chi-square statistic (NC), a standardized root mean square residual (SRMR), and a root mean square error of approximation (RMSEA). The incremental fit indices used were the comparative fit index (CFI) and the Tucker–Lewis index (TLI). First, the assessment of marketing capabilities as a second-order construct was accomplished, followed by the test of the full measurement model that consisted of the four latent constructs (i.e., marketing

capabilities, environmental dynamism, knowledge tacitness, and new market development).

5.5.1 Dimensionality of the Higher-Order Construct

This study had one higher-order construct: i.e., marketing capabilities. Some researchers have used marketing capabilities as a first-order construct, while others have used it as a higher-order construct. The most widely used was that by Vorhies and Morgan (2005), which included several first-order constructs and one second-order construct. Morgan (2012) later developed four first-order constructs and one second-order construct for marketing capabilities. Based on Day (2011) and Morgan (2012), the present study proposed that marketing capabilities as a multidimensional construct comprised four dimensions.

Table 5.1. Results from the Assessment of the Marketing Capabilities Construct

Model	$\chi^2(df)$	RMSEA	CFI	TLI	SRMR	Model Comparison	
						$\Delta\chi^2(\Delta df)$	*p*-value
Model 1 (Second Order)	86.34 (73)	0.03	0.99	0.99	0.04		
Model 2 (Four Factor II)	86.37 (71)	0.03	0.99	0.99	0.03	0.03 (2)	0.98
Model 3 (Four Factor)	132.59 (98)	0.05	0.98	0.97	0.05	46.25 (25)	0.01
Model 4 (Two Factor)	524.35 (103)	0.15	0.73	0.69	0.11	438.01 (30)	0.00
Model 5 (One Factor)	716.56 (104)	0.18	0.61	0.56	0.11	630.22 (31)	0.00

This study regarded marketing capabilities as a second-order construct. Marketing capabilities were conceptualized as a single second-order construct, one which is composed of four first-order constructs: operational marketing capabilities (OMC), strategic marketing capabilities (SMC), dynamic marketing capabilities (DMC), and adaptive marketing capabilities (AMC). First, CFA was conducted for a one-factor model, a two-factor model, and a four-factor model to determine the first-order measurement model for marketing capabilities. Then, marketing capabilities as a second-order

construct were examined through the estimation of a different, alternative second-order measurement model.

Several CFA models were conducted to set the number of dimensions and measurement items in the marketing capabilities model. The initial one-factor marketing capabilities model used 16 items. The initial one-factor model of marketing capabilities showed very weak fit indices (χ^2 = 716.56, *df* = 104, *p* < 0.01, CFI = 0.61, TLI = 0.56, RMSEA = 0.18, SRMR = 0.11), indicating that the data did not fit the model very well. Then, a second attempt was made to develop a two-factor model. The fit indices showed that the model did not provide an acceptable fit for the data (χ^2 = 524.35, *df* = 103, *p* < 0.01, CFI = 0.73, TLI = 0.69, RMSEA = 0.15, SRMR = 0.11).

Next, the four-factor marketing capabilities measurement model composed of OMC, SMC, DMC, and AMC was assessed. The result showed that the model fit indices were significantly improved (χ^2 = 132.59, *df* = 98, *p* < 0.05, CFI = 0.98, TLI = 0.97, RMSEA = 0.044, SRMR = 0.05). However, one additional attempt was made to improve model fit by deleting MC13 (i.e., which showed a small loading and cross-loading with other items) and MC3. The result of the third model showed that the model fit indices were significantly improved (χ^2 = 86.37, *df* = 71, *p* > 0.05, CFI = 0.99, TLI = 0.99, RMSEA = 0.03, SRMR = 0.03). The CFA results showed that the four-factor model was a better fit to the data than the other two models. The item loadings were significant; hence, this model was retained as the final four-factor model for the marketing capabilities construct.

The second-order marketing capabilities measurement model posited that marketing capabilities could be explained by four first-order factors (i.e., OMC, SMC, DMC, and AMC) and one second-order factor (i.e., marketing capabilities). The fit indices indicated that the second-order marketing capabilities model was the best fit (χ^2 = 86.34, *df* = 73, *p* > 0.05, CFI = 0.99, TLI = 0.99, RMSEA = 0.03, SRMR = 0.04). A further comparison was conducted between the rival first-order model and a more restrictive hypothesized second-order model. Compared with the hypothesized second-order four-factor model, the rival first-order four-factor model was less restrictive. A chi-square difference test was conducted to determine whether the rival model significantly improved the model

fit. According to the model comparison in Table 5.1, the chi-square difference was not significant (p = 0.98), thereby supporting the hypothesized second-order model.

The item loadings in the second-order model were significant and uniform. The modification indices associated with the cross-loadings were small, indicating that items were assigned to the appropriate constructs. The highest MI was 11.23 for MC9 cross-loading with MC8. All other modification indices were smaller than 10. The four first-order indicator loadings on the second-order marketing capabilities construct were significant at 0.73, 0.65, 0.71, and 0.71 (p < 0.01). Therefore, this model was chosen to measure marketing capabilities in further analysis.

5.5.2 Validation of the Measurement Model

The full measurement model was evaluated for model fit before the structural model was tested. Because there were four latent constructs in this study (i.e., three single-order constructs and one second-order construct), the full measurement model consisted of marketing capabilities, knowledge tacitness, environmental dynamism, and new market development. Multiple fit indices were used to assess the goodness of fit of the measurement model (Kline, 2005; Niemand & Mai, 2018). In addition, the measurement model was assessed with regard to its factor loadings and their significance.

The CFA results of the final measurement model showed a reasonable fit of the model to the data. Although the chi-square statistic was significant (χ^2 = 323.73, df = 265, p < 0.01), an inspection of several complementary goodness of fit indices suggested that the model provided an adequate fit to the data (CFI = 0.98, TLI = 0.97, RMSEA = 0.04 (p = 0.02, SRMR = 0.05). These four fit indices collectively provided a satisfactory overall model fit (Bagozzi & Yi, 2012). All of the factor loadings were significant at the 0.01 level. The standardized solution showed good convergence among the indicators of each factor. Appendix 3C shows the diagrammatic presentation of the measurement model.

Kline (2005) and Niemand and Mai (2018) recommended using multiple fit indices to assess the goodness of fit of the measurement model. The TLI, χ^2 test, CFI, RMSEA, and SRMR values were used to assess the goodness of fit of the measurement model. In

addition, the measurement model was assessed with regard to its factor loadings and their significance.

5.6 Common Method Variance

Common method bias is a problem that occurs in cross-sectional correlational designs with self-reported data collected from a single respondent. This problem influences the reliability, validity, and covariation between constructs (Podsakoff et al., 2012). Several measures can be taken to reduce the adverse effect of common method bias on the research findings. In this research, procedural and statistical remedies were taken to control for different sources of method bias. One was to minimize their effects through carefully designing the study's procedures, while the other was to statistically control for the impact of method biases after the data had been gathered.

First, I addressed the sources of common method bias by applying procedural remedies during the questionnaire design and data collection. One of the major causes of common method bias is obtaining measures of both independent and dependent variables from the same rater source (MacKenzie & Podsakoff, 2012). I thus used different measures for the predictor and one of the criterion variables to control for method bias. I obtained network data and marketing capabilities measures from key informants, and firm performance (i.e., sales growth) was measured using a secondary source. I avoided ambiguous or unfamiliar terms, vague concepts, and double-barreled questions (Reio, 2010). Moreover, the respondents were assured that their answers were anonymous. The instructions clearly stated that there were no right or wrong answers, and that they should answer the questions as honestly as possible.

The second remedy for method bias is statistical and affects the ex-post phase of the research process. The literature requires the use of statistical remedies, even after implementing procedural remedies (Podsakoff et al., 2012). Several statistical methods have been proposed to assess common method variance in the extant literature. I utilized three of the statistical remedies mentioned in Podsakoff et al. (2003) to address common method biases, i.e., Harman's single-factor test, the marker variable technique, and an unmeasured latent methods factor.

The single-factor test was performed to test a single factor that accounted for the covariances among all items. The principal components (PC), principal axis factoring (PAF), and ML extraction methods were used for factor analysis of the measurement items: marketing capabilities, environmental dynamism, knowledge tacitness, and new market development. The PC analysis generated a seven-factor solution with eigenvalues greater than 1.0, accounting for approximately 78% of the total variance, while the first factor accounted for only 31.58% of the total variance. The first factor accounted for 30.43% and 30.32% of the variance for the factor solutions generated using PAF and ML extraction methods, respectively. The result obtained from the three extraction methods indicated that the first factor accounted for less than 50% of the variance, demonstrating that the majority of the variance could not be attributed to a single factor (Podsakoff & Organ, 1986). Then, a single-factor model was generated with all measurement items joined into a single latent construct. Harman's single-factor model was significantly worse than the measurement model (χ^2 = 2124.66 (377), CFI = 0.41, TLI = 0.37, RMSEA = 0.16, SRMR = 0.14). These results did not suggest the presence of common method bias.

The marker variable technique was also used to assess common method bias (Lindell & Whitney, 2001). This method was implemented by correlating the marker variable with the focal latent variables in the model. A single life satisfaction item was used as a marker variable because it was regarded as a theoretically unrelated variable (O'Cass & Sok, 2012). Table 5.5 shows the correlation between the marker variable and other theoretically relevant variables. The result showed that the average value of correlation coefficients between the marker variable and other variables was 0.05. The marker variable did not significantly correlate with theoretically relevant key constructs. Thus, this statistical test suggests that common bias was not substantial concern in this research.

I also employed the unmeasured latent method factor to check for the presence of common method bias. All of the observed variables in the measurement model were loaded to their assigned latent factors and the unmeasured latent factor. All item loadings were still significant after the inclusion of the latent factor. The fit indices obtained from the model with the common latent factor were compared to the fit indices of the actual

measurement model. The fit indices of the model with the common latent factor (χ^2 = 295.82, *df* = 242, $p < 0.05$) did not change the model significantly ($\Delta\chi^2$ = 27.08, *df* = 24, $p = 0.30$), which showed little evidence for the presence of common method bias. The variance of each item accounted for by common method variance was less than 2%. Harman's single-factor test, the marker variable technique, and the unmeasured latent method demonstrated that common method bias was not a serious concern in this study.

5.7 Endogeneity

Endogeneity is a common problem in survey-based empirical research in the B2B relationship (Sande & Ghosh, 2018; Zaefarian et al., 2017). Endogeneity can arise in survey research for several reasons, including reverse causality and omitted variable bias.

The findings of this research could suffer from reverse causality such that firms with strong capabilities may attract collaborators and engage more in networking activities. This study attempted to address reverse causality using temporal separation by introducing a time lag between the independent and dependent variables (Bolander et al., 2015; Zaefarian et al., 2017). The data for sales growth were obtained from the ECX records three months following the survey. In addition, data collection instructions required informants to provide information about their network relationships over the past two years and their marketing capabilities measures at the current time.

Network-related studies could also suffer from endogeneity concerns arising from omitted variable bias. Unobservable variables can induce spurious correlations between network variables, marketing capabilities, and new market development and sales growth. For example, diversity in firm–firm and firm–government networks is likely shaped by the networking experience, networking ability, or networking culture of the focal firm. Such firm-level characteristics are typically unobserved and might create endogeneity concerns. In addition, alters of focal firms may also collaborate in anticipation of access to market insights in the future. These unobserved intentions might correlate with marketing capabilities and sales growth, suggesting possible endogeneity in network cohesion constructs.

There are various approaches to check whether the findings are robust to endogeneity concerns. The common solution to endogeneity is finding instrumental variables correlated with the independent variable but not correlated with the error term (Rutz & Watson, 2019; Sande & Ghosh, 2018). Unfortunately, I was unable to find appropriate instrumental variables that fulfilled the strength and validity requirements. It is, therefore, important to highlight this limitation as I was unable to undertake omitted variable bias analysis for the endogenous variables.

5.8 Assessment of Non-response Bias

Non-response bias is a form of systematic error that occurs due to differences between responders and non-responders in a survey (Billiet & Matsuo, 2012). It is common in marketing research to compare responders with non-responders to assess the potential effect of non-response bias (Hulland et al., 2018). It is a problem when non-respondents differ in meaningful ways from respondents on one or more of the variables of interest. I compared respondent firms and non-respondent firms based on sales growth to assess possible non-response bias. None of these indicators differed at the $p < 0.05$ level. Thus, non-response bias did not seem to pose a major problem in terms of the data. The dataset involving 186 observations was therefore used to test the hypotheses.

5.9 Reliability and Validity of the Constructs

The construct-level reliability was assessed using composite reliability (CR), and item reliabilities were evaluated using the value of standardized loadings. CR is a measure used to assess the internal consistency of items measuring the construct. The common rule of thumb for CR is that the value be greater than or equal to 0.70 (Hulland et al., 2018). As shown in Table 5.2, all of the CR values were above the recommended level of 0.70 (i.e., ranging from 0.82 to 0.92). Thus, the CR coefficient values obtained in this study satisfied the good internal consistency criteria laid out by Bagozzi and Yi (2012) and Hulland et al. (2018).

Table 5.2. Item Loadings and Construct Reliabilities

Variables	Item	Loading	*t*-value	CR	AVE	ASV
New Market Development	NM1	0.76	14.51	0.88	0.65	0.06
	NM2	0.84	25.56			
	NM3	0.84	24.67			
	NM4	0.78	18.93			
Environmental Dynamism	ED1	0.79	13.03	0.87	0.63	0.06
	ED2	0.74	13.09			
	ED3	0.90	19.24			
	ED4	0.74	11.76			
Knowledge Tacitness	EKT1	0.87	24.07	0.89	0.73	0.07
	EKT2	0.83	22.29			
	EKT4	0.87	21.68			
Operational Marketing Capabilities	MC1	0.79	16.01	0.89	0.67	0.20
	MC2	0.87	28.73			
	MC4	0.83	19.66			
	MC5	0.79	17.24			
Strategic Marketing Capabilities	MC6	0.84	26.07	0.90	0.74	0.17
	MC7	0.88	36.39			
	MC8	0.87	26.83			
Dynamic Marketing Capabilities	MC9	0.80	2.31	0.84	0.64	0.19
	MC10	0.85	25.11			
	MC11	0.75	14.85			
Adaptive Marketing Capabilities	MC12	0.83	22.26	0.92	0.74	0.20
	MC14	0.90	33.49			
	MC15	0.86	27.46			
	MC16	0.85	26.54			
Second-Order Marketing Capabilities	OMC	0.75	12.56	0.82	0.53	-
	SMC	0.67	9.27			
	DMC	0.72	1.57			
	AMC	0.77	14.56			

Note. Composite reliability (CR), average variance extracted (AVE), average shared variance (ASV).

Item reliabilities were assessed by examining the factor loadings and measurement errors, which were expected to be higher than 0.6 and lower than 0.4, respectively (Bagozzi & Yi, 1988). The loadings were significant and ranged from 0.74 to 0.90, with all measurement error values being less than 0.4, indicating a high level of individual item reliability. The average variance extracted (AVE) can also be used in assessing reliability, and a value higher than 0.5 is regarded as a reliable measure (Hair et al., 2014). The results showed that the AVE value ranged from 0.53 to 0.74, indicating strong reliability of the constructs. Table 5.2 shows the construct items, factor loadings, CR, AVE, and average shared variance (ASV). The results showed that all measures reached a satisfying level of reliability.

The commonly used validity measures are content, convergent, and discriminant validity. First, content validity was established by adopting valid and reliable measures from the relevant previous literature. Then, to establish the instrument's content validity, managers were selected from firms trading on the ECX to review the questionnaire. Six managers reviewed the questionnaires to assess the appropriateness of the question wordings and the understandability of the items in the questionnaire. The managers were also asked to assess the questionnaire length, clarity, relevance, and organization. The managers provided good feedback on the appropriateness and ease of answering the questions. Based on the feedback obtained from the managers, minor changes were made to the questionnaires to make them sensible and appropriate.

Convergent validity was assessed by examining three measures: factor loadings, CR, and AVE. AVE measures the amount of variance that a latent variable construct captures from its indicator relative to the amount of variance due to the measurement error (Fornell & Larcker, 1981). The AVE values range from 0 to 1, and values above 0.5 are treated as an indication of convergent validity (Bagozzi & Yi, 1988; Bagozzi et al., 1991). This study showed that all AVE values were above the recommended cut-off point of 0.50 and ranged from 0.53 to 0.74, indicating sufficient convergent validity.

The convergent validity of the constructs was also assessed by examining the size of factor loadings of each indicator on its corresponding construct. A significant and high factor loading value on the underlying construct indicates convergence (Anderson &

Gerbing, 1988). Hulland et al. (2018) suggested that the factor loadings should be statistically significant and higher than 0.70 to provide enough evidence for convergent validity. This study found that the factor loadings of all items were higher than 0.7, indicating reasonably strong convergent validity. Therefore, convergent validity can be claimed for the latent constructs included in this study. Table 5.2 shows the assessment of the construct validity for environmental dynamism, marketing capabilities, knowledge tacitness, and new market development constructs.

Table 5.3. Squared Interconstruct Correlation and AVE

	EKT	ED	OMC	SMC	DMC	AMC	NMD	MC
EKT	**0.73**							
ED	0.01	**0.63**						
OMC	0.07	0.07	**0.67**					
SMC	0.06	0.05	0.26	**0.74**				
DMC	0.06	0.06	0.30	0.24	**0.64**			
AMC	0.07	0.07	0.32	0.26	0.29	**0.74**		
NMD	0.02	0.05	0.08	0.07	0.08	0.09	**0.65**	
MC	0.12	0.12	-	-	-	-	-	**0.53**

Note. Diagonal and bold numbers are the AVE for each construct, while off-diagonal numbers are the squared correlations between constructs.

Discriminant validity was also conducted to assess the validity of the measures. I used the two approaches suggested by Voorhees et al. (2016) to determine discriminant validity: i.e., AVE–squared correlations (SV) comparison (Fornell & Larcker, 1981) and the Heterotrait–Monotrait (HTMT) ratio (Henseler et al., 2015). Table 5.3 depicts the SV among the constructs and the AVE value. The result shows that the SV was less than the AVE extracted for all constructs in the measurement items. This means that the amount of variance captured by the construct was closer to its measurement items than to any other construct. Thus, the results confirmed that each measure tapped into different and distinct constructs.

The discriminant validity of the constructs was further validated using a measure recently proposed by Henseler et al. (2015): the HTMT ratio of correlations. The HTMT ratio is calculated based on the value of the average correlations between constructs relative to the geometric mean of the average correlations within indicators of the same constructs (Voorhees et al., 2016). Henseler et al. (2015) recommended a threshold value of 0.90 for conceptually similar constructs and a cutoff value of 0.85 for conceptually distinct constructs. The HTMT ratios between the first-order construct results are presented in Table 5.4. All HTMT ratios (ranging from 0.12 to 0.60) were lower than the 0.85 threshold, thus supporting the discriminant validity of the constructs.

Table 5.4. Discriminant Validity: HTMT Ratio

	OMC	SMC	DMC	AMC	EKT	ED	NMD
MC							
OMC	1.00						
SMC	0.58	1.00					
DMC	0.60	0.60	1.00				
AMC	0.60	0.55	0.55	1.00			
EKT	0.22	0.25	0.26	0.31	1.00		
ED	0.31	0.32	0.24	0.21	0.12	1.00	
NMD	0.24	0.27	0.22	0.36	0.13	0.22	1.00

Note. OMC – Operational marketing capabilities; SMC – Strategic marketing capabilities; DMC – Dynamic marketing capabilities; AMC – Adaptive marketing capabilities; MC – Marketing capabilities; NMD – New market development; ED – Environmental dynamism; EKT – Knowledge tacitness

Table 5.5 shows the mean, standard deviation, and correlations between the study variables. As demonstrated in the table, all network variables, except firm–government network cohesion, were positively correlated with marketing capabilities. In addition, marketing capabilities were positively correlated with sales growth and new market development.

Table 5.5. Mean, Standard Deviation, and Correlations of the Variables

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. BCC	0.11	0.08													
2. GCC	0.51	0.09	−0.08												
3. BDIV	0.55	0.14	0.02	−0.07											
4. GDIV	0.53	0.14	−0.05	0.08	.19**										
5. ED	4.35	1.38	0.13	0.05	0.07	0.09									
6. EKT	3.81	1.98	−0.34**	0.02	0.16*	0.17*	0.10								
7. MC	1.02	0.83	0.28**	−0.03	0.24**	0.19*	0.29**	0.29**							
8. Sales	0.24	0.72	0.04	0.06	0.24**	0.20**	0.20**	0.02	0.28**						
9. NMD	1.22	0.93	0.10	−0.07	0.25**	0.16*	0.19*	0.11	0.32**	0.21**					
10. ING	0.15	0.07	0.06	0.01	−0.00	0.05	−0.06	−0.09	0.05	0.09	−0.06				
11. Lage	3.26	0.38	0.15*	0.11	0.33**	−0.02	0.16*	0.16*	0.16*	−0.07	0.06	0.07			
12. Lsize	3.35	0.61	0.06	−0.00	−0.04	−0.10	-0.05	-0.04	−0.01	0.01	0.06	−0.8	−0.00		
13. NC	0.12	0.03	0.02	0.26**	0.16*	0.16*	0.10	0.02	0.08	−0.01	0.08	0.01	−0.01	−0.06	
14. MARK	5.03	1.78	−0.01	0.09	-0.02	0.01	0.09	−0.08	−0.02	0.11	0.03	0.02	0.01	−0.10	0.03

Note. M and *SD* represent mean and standard deviation, respectively. * $p < 0.05$; ** $p < 0.01$.
BCC – Firm–firm network cohesion; GCC – Firm–government network cohesion; BDIV – Firm–firm network diversity; GDIV – Firm–government network diversity; ED – Environmental dynamism; EKT – Knowledge tacitness; MC – Marketing capabilities; Sales – Sales growth; NMD – New market development; NC – Network centrality; ING – Industry growth; Lage – Firm age; Lsize – Firm size; MARK – Marker variable.

5.10 Analysis and Results

This study analyzed firms' networks in which two types of networks were involved: one-mode networks of firm-to-firm connections between trading firms operating within the ECX market and a two-mode network with two distinct types of actors – firms and the government. Figure 3D in the appendix shows the firm–firm network and firm–government network diagrams. The firm–firm network contained 4155 ties, and the firm–government network contained 1290 firm-to-government ties. The firm–firm and firm–government networks differed greatly in their structures. While the firm–firm network demonstrated an average cohesion score of 0.11, the firm–government network had a relatively strong cohesion, at 0.50.

One of the network data analysis concerns is the influence of a subgroup of actors within the network structure. Networks might involve subsets of actors within a larger network, thus raising the possibility that network measures may be influenced by the shared connection within the subset of actors in the network (Wasserman and Faust 1994). In this study context, subsets of firms in the network may have more similar relationships with each other than they do with other actors in the network. This kind of situation violates the assumption of independence of observation, a common assumption of multivariate statistics, and may inflate the χ^2 and underestimate standard errors, thereby leading to incorrect inferences (Stapleton 2006). Procedural steps were thus taken to control for the influence of interdependence between network observations.

I started by determining the appropriate number of a structurally equivalent subset of network actors. I used CONCOR in UCINET to establish a structurally equivalent subset of actors in the network. CONCOR (an acronym for CONvergence of iterated CORrelations) is a method in UCINET used to identify sets of entities with distinct relationship patterns and divide them based on their interaction patterns. This technique identifies groups of actors with similar relationship patterns and divides them into structurally equivalent blocks (Wasserman and Faust 1994). Structurally equivalent blocks should exhibit correlated relationship patterns within themselves, and minimal correlations should exist with external actors (White et al. 1976; Shah 1998).

To find the appropriate number of blocks, I used CONCOR to partition the actors in the network into blocks of powers of 2 (2 blocks, 4 blocks, 8 blocks, 16 blocks, etc.) based on their structural equivalence. In CONCOR, to determine the number of successive partitions to permit, the *R*-squared value is used to describe the fitness of the blocks. The *R*-squared was 0.44, 0.55., and 0.58 for 2, 4, and 8 blocks, respectively. Because the *R*-squared value appeared to level at block 8, I chose four equivalent sets of niches that were more similar among themselves than with others. More importantly, the partition that consisted of four structurally equivalent blocks tended to have an average within-block and external correlation of 0.55 and 0.09, respectively. Therefore, the four blocks were used to control for subgroup effects addressing the independence of observations.

Next, I conducted analyses using the maximum likelihood robust (MLR) estimator. The MLR estimator provides modeling and estimation algorithms that correct deviations from normality associated with grouped data (Asparouhov and Muthén 2006). Specifically, the TYPE = COMPLEX option of the analysis command was used to correct for the non-independence of observations (Muthén & Muthén, 2017). The MLR estimator and the TYPE = COMPLEX option provides corrected standard-error estimates that decreased the potential bias in the test statistics (Giannotta et al., 2019).

5.11 Testing the Research Model

I tested the hypotheses in three steps. First, I tested the main effect model. The purpose was to test the direct effect of network constructs on marketing capabilities and the effect of marketing capabilities on new market development and sales growth. Then, I conducted a mediation model suggested by H6 to test the mediating effect of marketing capabilities on the relationship between independent and dependent variables. Finally, environmental dynamism and knowledge tacitness were incorporated as a moderator to test the moderation effects, as suggested by H7 and H8.

The main effect hypotheses were tested using SEM with the MLR estimator in MPlus 8.3. The chi-square test result was statistically significant (χ^2 = 372.40, *df* = 306, *p* = 0.013), suggesting that the model was inadequate for describing the data. However, the normed chi-square statistic (NC) was within the acceptable range (i.e., 1.2). In

addition, the other fit indices suggested that the model fit the data: CFI = 0.97, TLI = 0.96, RMSEA = 0.03 (p = 0.01), SRMR = 0.05) (Hu & Bentler, 1999). However, despite the chi-square test result, all of the goodness of fit indices showed that the model fit the data reasonably well.

In Table 5.6, Model 1 shows the estimation results of the main effect model. I found support for the positive main effect of firm–firm network cohesion on marketing capabilities (β = 0.25, p < 0.01), as predicted by H1. However, the results failed to support the relationship between firm–government network cohesion and marketing capabilities (β = −0.05, p > 0.05). The results also provided support for H3 and H4, indicating that both firm–firm network diversity and firm–government network diversity contribute to the development of marketing capabilities (β = 0.21, p < 0.05; β = 0.23, p < 0.05, respectively). Moreover, marketing capabilities had a strong effect on sales growth (β = 0.36, p < 0.01), which provides support for H5. Similarly, marketing capabilities strongly influenced new market development (β = 0.40, p < 0.01). From the control variables, I found that firm age was negatively related to sales growth (β = -0.14, p < 0.05). The remaining control variables yielded insignificant results on marketing capabilities, new marketing development, and sales growth.

Table 5.6. Testing Results for the Hypotheses

Variables	Hypotheses	Model 1 (Main Effect)						Model 2 (Moderating Effect)	
		Marketing Capabilities		Sales Growth		New Market Development		Marketing Capabilities	
		β	*t*-values	β	*t*-values	β	*t*-values	β	*t*-values
Main Effects									
Firm–Firm Cohesion	H1	0.25	2.97**					0.46	6.12**
Firm–Government Cohesion	H2	−0.05	−0.58					−0.04	−.051
Firm–Firm Diversity	H3	0.21	2.18*					0.17	2.59**
Firm–Government Diversity	H4	0.23	2.21*					−0.03	−0.37
Environmental Dynamism (ED)								0.41	0.47
Knowledge Tacitness (EKT)								−0.25	−0.27
Marketing Capabilities	H5			0.36	4.04**	0.40	4.56**		
Moderating Effect									
Firm–Firm Cohesion × EKT	H7a							0.23	2.83**
Firm–Government Cohesion × EKT	H7b							0.21	2.07*
Firm–Firm Diversity × EKT	H7c							−0.10	−1.71
Firm–Government Diversity × EKT	H7d							−0.13	−1.25
Firm–Firm Cohesion × ED	H8a							−0.22	−2.92**
Firm–Government Cohesion × ED	H8b							−0.12	−1.24
Firm–Firm Diversity × ED	H8c							0.20	3.13**

Firm–Government Diversity × ED	H8d						0.06	0.66
Control Variables								
Firm Age		0.09	0.88	−0.14	−1.54	0.00	0.04	-0.13	-1.98*
Firm Size		0.00	0.03	0.02	0.26	0.06	0.86	0.02	0.40
Degree of Centrality		0.05	0.08	−0.04	−0.60	0.06	0.80	0.09	1.47
Industry Growth				0.08	1.28	-0.07	-0.87		
R-Square (R^2)			0.21		0.14		0.17		0.41

Note. $N = 186$. $^*p < 0.05$; $^{**}p < 0.01$.

5.12 Mediating Effect of Marketing Capabilities

H6 posits that marketing capabilities mediate the relationship between network variables and firm performance outcomes (i.e., new market development and sales growth). The significance of the mediating effect of marketing capabilities was tested, and the results are summarized in Table 5.7. I followed the steps recommended by Hayes (2009) and Zhao et al. (2010) to establish mediation. First, an independent variable should be significantly related to a mediator, which was supported for firm–firm network cohesion ($\beta = 0.25$, $p < 0.01$), firm–firm network diversity ($\beta = 0.20$, $p < 0.05$), and firm–government network diversity ($\beta = 0.22$, $p < 0.05$).

Second, a mediator should be significantly related to a dependent variable after controlling for the effect of the independent variable. After controlling for the independent variables, marketing capabilities were significantly related to new market development ($\beta = 0.33$, $p < 0.01$) and also significantly related to sales ($\beta = 0.31$, $p < 0.01$). Finally, I tested the mediation effect of marketing capabilities on the path between network constructs (i.e., firm–firm network cohesion, firm–firm network diversity, and firm–government network diversity) and performance outcomes (i.e., new market development and sales growth).

The results demonstrated that marketing capabilities significantly mediated the effect of firm–firm network cohesion ($\beta = 0.09$, $p < 0.05$), firm–firm network diversity ($\beta = 0.07$, $p < 0.05$), and firm–government network diversity ($\beta = 0.07$, $p < 0.05$) on new market development. Marketing capabilities were also a significant mediator in the effect of firm–firm network cohesion ($\beta = 0.08$, $p < 0.05$), firm–firm network diversity ($\beta = 0.06$, $p < 0.05$), and firm–government network diversity ($\beta = 0.06$, $p < 0.05$) on sales growth. After the inclusion of the mediator, the direct effect of firm–firm network cohesion on sales growth and new market development was reduced to a non-significant value. Therefore, marketing capabilities only indirectly mediated the effect of firm–firm network cohesion on new market development and sales growth.

Regarding firm–firm network diversity and firm–government network diversity, the relationship was weaker but still significant—partial mediation existed. Overall, H6 was

partially supported. I did not consider the mediating effect of marketing capabilities in firm–government network cohesion, sales growth, and new market development relationships because the first condition was not met.

Table 5.7. Results for Mediating Effects

Mediating Effects	Standardized Coefficient	*t*-values
Firm–Firm Network Cohesion → MC → Sales Growth	0.08	2.33*
Firm–Government Network Cohesion → MC → Sales Growth	−0.01	−0.39
Firm–Firm Network Diversity → MC → Sales Growth	0.06	2.03*
Firm–Government Network Diversity → MC → Sales Growth	0.06	2.12
Firm–Firm Network Cohesion → MC → NMD	0.09	2.40*
Firm–Government Network Cohesion → MC → NMD	−0.01	−0.39
Firm–Firm Network Diversity → MC → NMD	0.07	2.09*
Firm–Government Network Diversity → MC → NMD	0.07	2.17*

N = 186. *p < 0.05; **p < 0.01.

Note. MC – Marketing capabilities; NMD – New market development.

5.13 Testing the Moderating Effects

This part involved testing the moderating effect of environmental dynamism and knowledge tacitness in the relationship between network variables and marketing capabilities. H7 posits that the nature of knowledge gained from external partners is expected to have a dual role in the relationship between network structure and marketing capabilities: i.e., it strengthens the relationship between network cohesion and marketing capabilities and weakens the relationship between network diversity and marketing capabilities.

In Table 5.6, Model 2 contains the moderating effect of knowledge tacitness on the relationship between network connections and marketing capabilities. The moderating effect of knowledge tacitness in the relationship between firm–firm network cohesion and marketing capabilities was significant (β = 0.23, p < 0.01), providing evidence to

support H7a. Similarly, knowledge tacitness positively moderated the effect of firm–government network cohesion on marketing capabilities (β = 0.21, p < 0.01), providing evidence supporting H7b. These results support the hypothesis that cohesive networks are conducive to accessing tacit market knowledge from external partners to contribute to marketing capabilities.

H7c and H7d stated that an increase in knowledge tacitness weakens the effect of network diversity on marketing capabilities. The findings showed that the moderating effect of knowledge tacitness in the relationship between firm–firm network diversity and marketing capabilities was ultimately insignificant (β = −0.10, p > 0.05), failing to support H7c. Similarly, the moderating effect of knowledge tacitness in the relationship between firm–government network diversity and marketing capabilities was negative and insignificant (β = −0.13, p > 0.05), failing to support H7d.

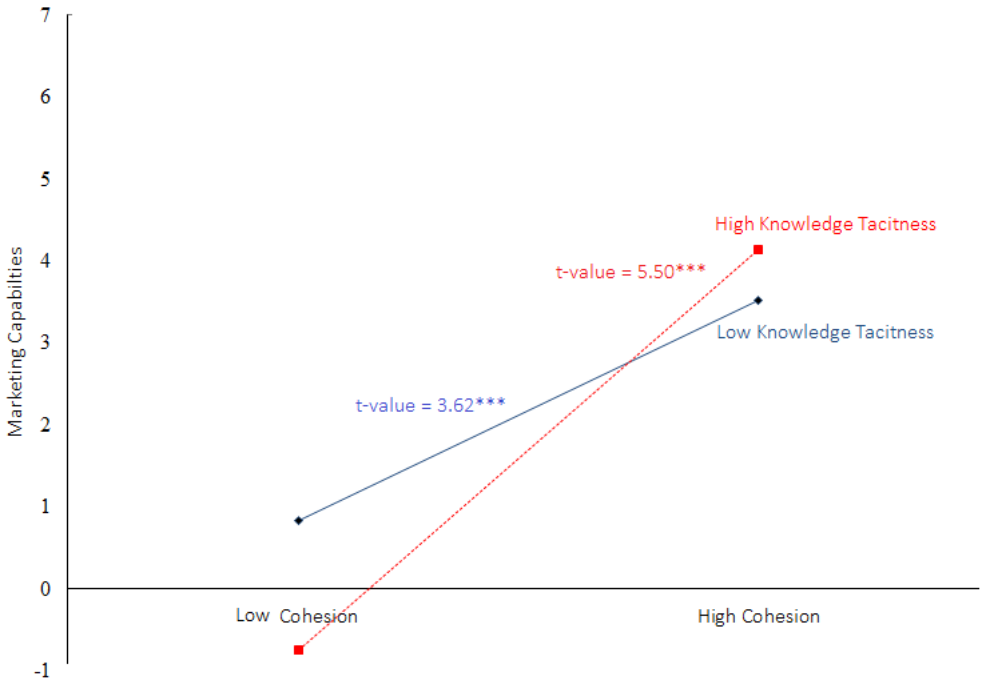
H8 was associated with the moderating effect of environmental dynamism. Environmental dynamism was expected to weaken the relationship between network cohesion and marketing capabilities and to strengthen the relationship between network diversity and marketing capabilities. As expected, environmental dynamism negatively moderated the relationship between firm–firm network cohesion and marketing capabilities (β = −0.22, p < 0.01), providing evidence to support H8a. However, the moderating effect of environmental dynamism in the relationship between firm–government network cohesion and marketing capabilities was negative but insignificant (β = −0.12, p > 0.05), thereby failing to provide evidence to support H8b.

H8c and H8d stated that an increase in environmental dynamism increases the effect of network diversity on marketing capabilities. The findings indicated that the moderating effect of environmental dynamism was positive and significant in the relationship between firm–firm network diversity and marketing capabilities (β = 0.20, p < 0.01). However, the moderating effect of environmental dynamism was insignificant in the relationship between firm–government network diversity and marketing capabilities (β = 0.06, p > 0.05), providing evidence to support H8c but failing to support H8d. The result thus only supports the argument that diversity in the firm–firm network is conducive to accessing valuable knowledge resources in a dynamic market environment.

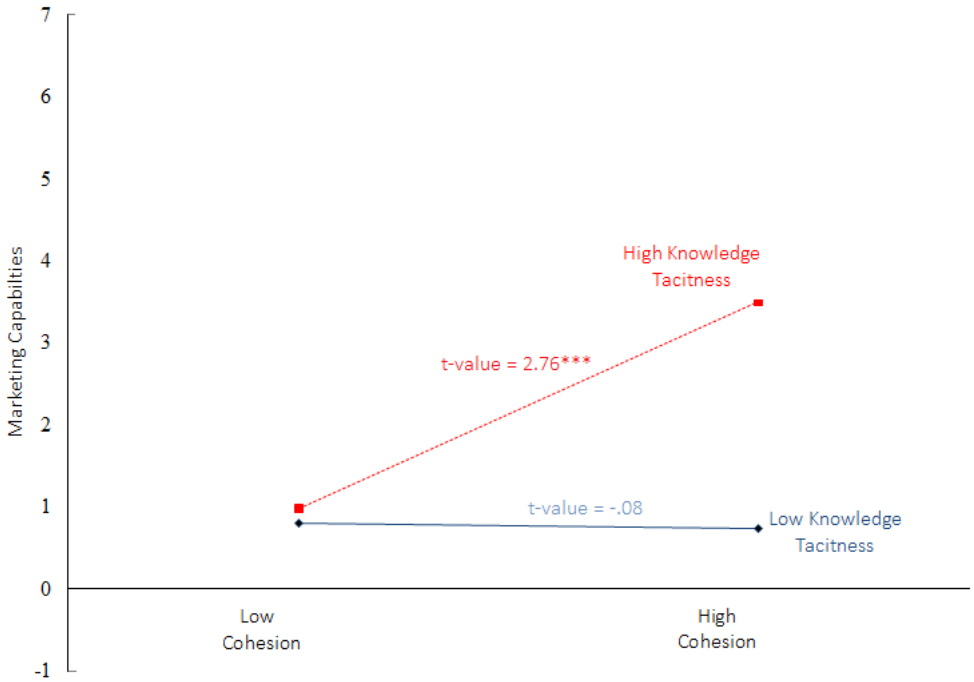
I conducted a graphical analysis to further explore the moderating effect of knowledge tacitness and environmental dynamism. Figure 5.1 presents the graphical analysis of the significant moderating effect from Model 2 for high and low levels of knowledge tacitness and environmental dynamism. Figure A depicts the moderating effect of knowledge tacitness in the relationship between firm–firm network cohesion and marketing capabilities. It showed that when knowledge is highly tacit, an increase in the cohesiveness of a firm–firm network contributes positively to marketing capabilities. For low-level tacit knowledge, having higher cohesion in a firm–firm network also contributes to marketing capabilities. However, the strength of the effect is more substantial for a highly cohesive network with high knowledge tacitness and a low cohesive network with low knowledge tacitness.

Figure 5.1. Graphical analysis of moderation effect.

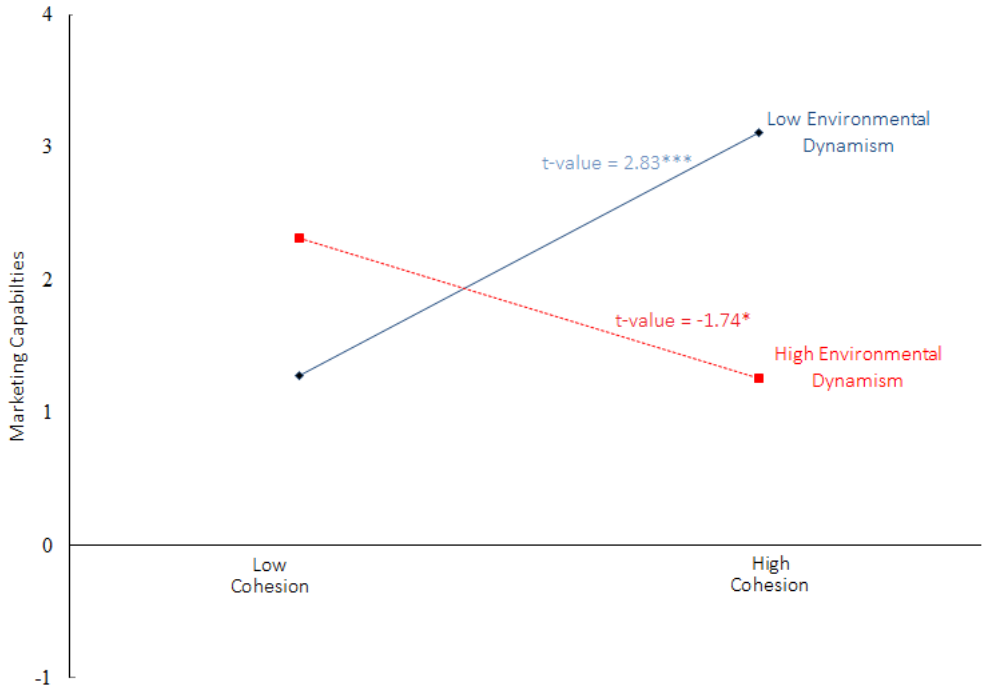
A. Firm–Firm Network Cohesion × Knowledge Tacitness



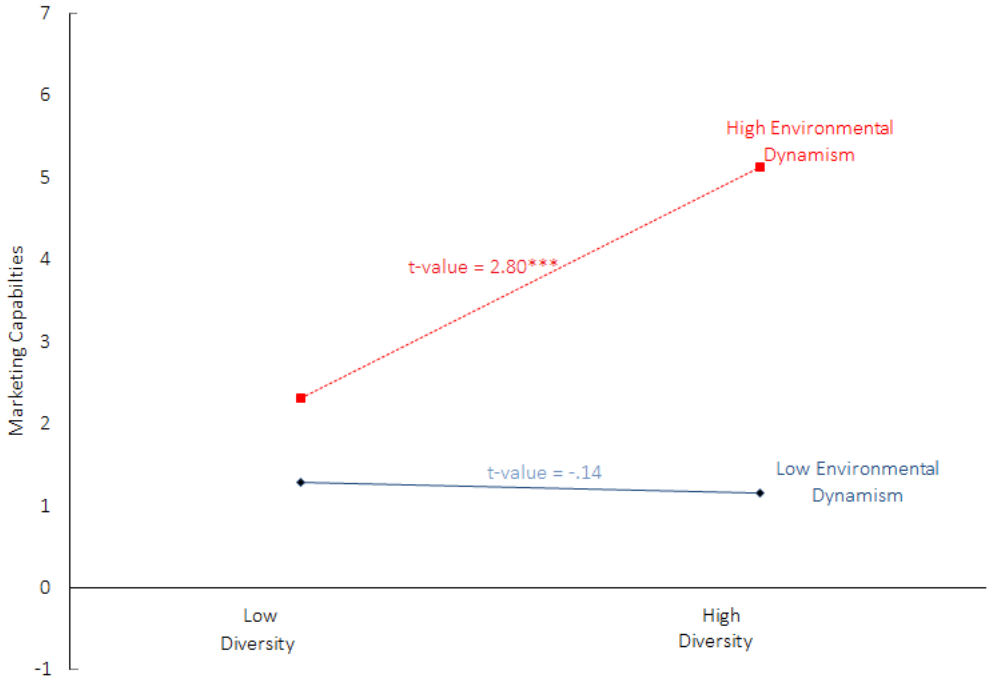
B. Firm–Government Network Cohesion × Knowledge Tacitness



C. Firm–Firm Network Cohesion × Environmental Dynamism



D. Firm–Firm Network Diversity × Environmental Dynamism



Note. $*p < 0.01$; $**p < 0.05$; $***p < 0.01$.

The second plot (i.e., Figure 5.1B) shows the moderating effect of knowledge tacitness in the relationship between firm–government network cohesion and marketing capabilities. Figure 5.1B shows that under the condition of a high level of knowledge tacitness, there was a strong positive effect of firm–government network cohesion on marketing capabilities. However, an increase in cohesion did not affect marketing capabilities under low knowledge tacitness.

Figures 5.1C and 5.1D depict the moderating effect of environmental dynamism. In a low dynamic environment, having a cohesive firm–firm network was positively associated with marketing capabilities; however, for firms with high environmental dynamism, having cohesion in the firm–firm network was not positively associated with marketing capabilities. Moreover, Figure 5.1D shows that the effect of firm–firm network diversity on marketing capabilities was significant only when the environment is highly dynamic. An increase in diversity did not have any marginal effect on marketing capabilities under low environmental dynamism.

Table 5.8. Results from Each Dimension of Marketing Capabilities

	OMC		SMC		DMC		AMC	
	β	*t*-value	β	*t*-value	β	*t*-value	β	t-value
BCC → MC	0.21	2.88**	0.23	3.12**	0.08	1.27	0.24	3.35**
GCC → MC	−0.09	−1.18	0.00	0.00	0.04	0.48	−0.06	−0.83
BDIV → MC	0.15	1.97*	0.11	1.41	0.23	2.98**	0.16	2.17*
GDIV → MC	0.14	1.92†	0.20	2.73**	0.17	2.24*	0.11	1.40
MC → Sales Growth	0.31	4.42**	0.12	1.68	0.30	4.06**	0.26	3.65**
MC → NMD	0.23	2.98**	0.27	3.54**	0.24	2.98**	0.36	4.92**
Control Variables								
NC → MC	0.07	0.93	0.01	0.08	−0.04	−0.48	−0.01	−0.05
Firm Age → MC	0.03	0.31	0.02	0.16	0.08	0.75	0.06	0.71
Firm Size → MC	0.02	0.33	−0.06	−0.82	0.04	0.46	−0.02	−0.30
NC → Sales Growth	−0.04	−0.64	−0.02	−0.30	−0.03	−0.38	−0.02	−0.33
Firm Age → Sales Growth	−0.10	−1.23	−0.08	−0.94	−0.13	−1.46	−0.11	−1.55
Firm Size → Sales Growth	0.01	0.12	0.02	0.31	0.01	0.09	0.02	0.30
ING → Sales Growth	0.10	1.55	0.09	1.36	0.07	1.03	0.09	1.25
NC → NMD	0.07	0.91	0.07	1.00	0.08	1.12	0.08	1.05

Firm Age → NMD	0.04	0.49	0.04	0.43	0.02	0.26	0.02	0.22
Firm Size → NMD	0.05	0.69	0.08	1.08	0.05	0.69	0.06	0.87
ING → NMD	-0.05	-0.71	-0.06	-0.90	-0.08	-1.03	-0.06	-0.85
R^2 (MC)	0.12		0.12		0.12		0.12	
R^2 (NMD)	0.07		0.09		0.08		0.14	
R^2 (Sales Growth)	0.11		0.03		0.10		0.08	
Model Fit Indices								
χ^2	127.23 (0.01)		121.51 (0.00)		98.63 (0.05)		121.87 (0.02)	
RMSEA	0.05		0.05		0.04		0.04	
CFI	0.96		0.95		0.97		0.97	
TLI	0.93		0.91		0.94		0.95	
SRMR	0.05		0.06		0.05		0.05	

N = 186. $^{t}p < 0.1$; $*p < 0.05$; $**p < 0.01$.

Note. OMC – Operational marketing capabilities; SMC – Strategic marketing capabilities; DMC – Dynamic marketing capabilities; AMC – Adaptive marketing capabilities; BCC – Firm–firm network cohesion; GCC – Firm–government network cohesion; BDIV – Firm–firm network diversity; GDIV – Firm–government network diversity; MC – Marketing capabilities; NMD – New market development; NC – Network centrality

5.14 Additional Analysis of the Single vs Second-order Constructs

An additional analysis was conducted to show whether the results associated with marketing capabilities played out differently across the four dimensions of marketing capabilities. The findings showed a slight difference in the effect of network variables on marketing capabilities (i.e., Table 5.8). It was revealed that firm–firm network cohesion had a significantly positive effect on operational marketing capabilities (β = 0.24, p < 0.01), strategic marketing capabilities (β = 0.25, p < 0.01), dynamic marketing capabilities (β = 0.12, p < 0.10), and adaptive marketing capabilities (β = 0.27, p < 0.01). These findings indicated that the cohesion in the firm–firm network is more important to developing operational and strategic marketing capabilities than dynamic marketing capabilities. The relationship between firm–government network cohesion and all dimensions of marketing capabilities was insignificant.

The findings indicated that firm–firm network diversity had a significant and positive effect on operational marketing capabilities (β = 0.14, p > 0.10), strategic marketing capabilities (β = 0.13, p > 0.10), dynamic marketing capabilities (β = 0.25, p < 0.10), and adaptive marketing capabilities (β = 0.17, p < 0.05). Firm–government network diversity also had a significant and positive effect on operational marketing capabilities (β = 0.12, p > 0.10), strategic marketing capabilities (β = 0.19, p < 0.05), dynamic marketing capabilities (β = 0.14, p < 0.10), and adaptive marketing capabilities (β = 0.13, p < 0.10). Thus, the effects of diversity in firm–firm and firm–government networks were stronger for dynamic and adaptive marketing capabilities than for operational and strategic marketing capabilities.

There are relatively consistent findings with regard to the effect of the four dimensions of marketing capabilities on firm performance outcomes. Despite the comparatively weak effect of strategic marketing capabilities on sales growth, all other relationships revealed a relatively comparable positive relationship between the dimensions of marketing capabilities with sales growth and new market development. With regard to performance measures, the effect of the dimensions of marketing

capabilities was stronger for sales growth and new market development. The model fit indices for each dimension declined compared to the hypothesized research model. Despite this, all of the model fit indices remained within the acceptable threshold level.

Furthermore, I conducted further analyses to test whether a quadratic relationship existed between network cohesion and diversity and marketing capabilities. Research on networks has found that extremely cohesive and diverse networks have some drawbacks (Jiang et al., 2018; Parida et al., 2016). This suggests that network cohesion and diversity might have an inverted U-shape effect. For example, network cohesion has been found to have a U-shape effect on product success (Giuliani, 2013), the addition of alliance partners (Jiang et al., 2018), and return on assets (Carnovale et al., 2019). Hagedoorn et al. (2018) have also demonstrated an inverted U-shaped effect in relation to network partner diversity. I investigated this empirically by adding the squared values of the network cohesion and network diversity measures. The results showed that the parameters of the relevant squared variables were not statistically significant.

Summary

This chapter covered the examination of the collected data and the assessment of the measurement model. Before evaluating the measurement model, outliers, missing data, and normality were assessed. CFA was used to assess the overall measurement model. The assessment of the measurement model revealed that the model fit the data well. The reliability and validity of the final measurement model were assessed, and the model showed satisfactory results in terms of reliability and validity. In addition, this chapter presented the model estimation and testing of the hypotheses. The results produced mixed findings. I found full support for H1, H3, H4, and H5, but H3 was not supported. H6, H7, and H8 produced mixed results, providing partial evidence for mediating and moderating effects. The next part covers the discussion, theoretical and managerial implications, limitations, and future research avenues.

Table 5.9. Summary of the Testing of Hypotheses

	Relationship	Supported
H1	An increase in the cohesion of a firm–firm network will positively influence the focal firm's marketing capabilities.	Yes
H2	An increase in the diversity of a firm–firm network will positively influence the focal firm's marketing capabilities.	Yes
H3	An increase in the cohesion of a firm–government network will positively influence the focal firm's marketing capabilities.	No
H4	An increase in the diversity of a firm–government network will positively influence the focal firm's marketing capabilities.	Yes
$H5_{ab}$	Marketing capabilities positively affect new market development (H5a) and sales growth (H5b).	Yes
H6	Marketing capabilities partially mediate the effect of firm–firm networks and firm–government networks (i.e., diversity and cohesion) on sales growth and new market development.	Mixed (not supported for firm–government cohesion)
$H7_{ab}$	An increase in knowledge tacitness strengthens the effect of firm–firm network cohesion ($H7_a$) and firm–government network cohesion ($H7_b$) on marketing capabilities.	Yes
$H7_{cd}$	An increase in knowledge tacitness weakens the effect of firm–firm network diversity ($H7_c$) and firm–government network diversity ($H7_d$) on marketing capabilities.	No

$H8_{ab}$	An increase in environmental dynamism weakens the effect of firm–firm network cohesion on marketing capabilities.	Yes
$H8_{b}$	An increase in environmental dynamism weakens the effect of firm–government network cohesion on marketing capabilities.	No
$H8_{c}$	An increase in environmental dynamism strengthens the effect of firm–firm network diversity on marketing capabilities.	Yes
$H8_{d}$	An increase in environmental dynamism strengthens the effect of firm–government network diversity on marketing capabilities.	No

6 Discussion and Implications of the Study

6.1 Introduction

Marketing capabilities are critical drivers of firm performance. There has been increased interest in understanding how firms develop marketing capabilities. However, little is known about how interorganizational networks contribute to improving firm marketing capabilities. Previous studies have emphasized internal knowledge resources as the basis for developing marketing capabilities, whereas this study focused on external knowledge resources. This dissertation thus extends the marketing capabilities literature via an outside-in perspective. It goes beyond intraorganizational factors and integrates marketing capabilities with social network theory to explain the context in which external networks contribute to marketing capabilities. In sum, the findings highlight the importance of interorganizational networks in enhancing marketing capabilities.

This chapter presents the discussion and implications of the findings of this dissertation. First, it discusses the results of the hypothesis testing conducted in the preceding chapter. The discussion covers the main effect results (H1–H5), the mediating effect of marketing capabilities (H6), and the moderating effect of knowledge tacitness (H7) and environmental dynamism (H8). It then discusses the theoretical contribution of the findings in advancing social network theory and the marketing capabilities literature. Besides, it discusses the practical implications for managers and practitioners on how to foster the development of marketing capabilities. Finally, the chapter concludes by discussing the limitations and avenues for future research.

6.2 Discussion of the Findings

This study sought to explore the contribution of network connections to the development of marketing capabilities and firm performance. I argued that collaboration with network partners provides firms with access to market knowledge, which is very important to the development of marketing capabilities and can be a sustainable source of competitive advantage. The empirical findings indicated that both firm–firm networks and firm–

government networks provide marketing resources and knowledge important to developing marketing capabilities. In addition, marketing capabilities enhance firm performance by translating these external knowledge resources into a performance advantage. The findings also indicated that the contribution of interorganizational networks to marketing capabilities is not clear-cut and varies with the structure of the firm network and the nature of network actors. Moreover, the contribution of interorganizational networks is contingent upon the knowledge tacitness and environmental dynamism.

Table 5.9 presents a summary of the findings of the testing of the hypotheses. The findings demonstrated that three of the four network variables had a direct positive effect on firm marketing capabilities. However, the strength of these effects varied between firm–firm networks and firm–government networks. I found different effects of cohesion in firm–firm networks and firm–government networks; however, diversity in both firm–firm and firm–government networks produced a comparable effect on marketing capabilities.

Cohesion in a firm–firm network exhibited a positive main effect on marketing capabilities (H1), but its relative advantage varied depending on knowledge tacitness and environmental dynamism (H7a, H8a). This result is in line with the recent findings by Hernández-Carrión et al. (2020) that showed the differential effect of network cohesion on relational quality and marketing resources. Similarly, diversity in a firm–firm network had a positive main effect on marketing capabilities (H2), but it appeared to vary due to changes in environmental conditions (H8b). Despite the widespread curvilinear performance effect of network diversity in the extant literature, I found a direct positive effect similar to the findings of Ma et al. (2009), who showed the positive effect of interorganizational network with diverse partners on firm adaptive capability.

Cohesion in the firm–government network did not have a significant main effect but contributed to marketing capabilities under higher levels of knowledge tacitness (H3, H7b, and H8b). The difference in the results between firm–firm cohesion and firm–government cohesion can be explained by the variation in the level of cohesion exhibited by the two networks. Studies have shown that highly cohesive networks can lead to lock-

in effects, which can impede the flow of knowledge (Eklinder-Frick et al., 2012; Zaheer & Soda, 2009). As shown in Table 5.5, the average cohesion of the firm–government network (M = 0.51) was much higher than that of the firm–firm network (M = 0.11). As such, the insignificant result might be due to the inertia and lock-in effect associated with the high level of cohesion in the firm–government network, which hindered the flow of new knowledge and impaired the development of marketing capabilities.

The other reason could pertain to context-specific effects associated with government ties (Zhang, Tan, et al., 2015; Zheng et al., 2015). Market knowledge obtained from business network partners is usually different from that obtained from governments (Guo et al., 2020). Firm–firm networks provide insights into product- and segment-specific markets, whereas government relationships provide insight into policy, regulations, and industry trends (Yeniaras et al., 2020). Some studies have also shown that ties with the government have little effect on firm capabilities and performance (Sheng et al., 2011a; Wang et al., 2021; Zhang et al., 2020).

Consistent with the direct effect result of firm–firm network diversity, firm–government diversity had a direct effect on marketing capabilities. Diversity in the firm–government network exhibited a positive main effect, but the moderating effects of knowledge tacitness and environmental dynamism failed to get support (H4, H7d, and H8d). The results of this research indicated that diversity within the firm–government network influences marketing capabilities, regardless of the levels of environmental dynamism and knowledge tacitness. Overall, these findings demonstrate the importance of taking diversity and cohesion into account in the operationalization of firm–government relationships.

The results obtained from the main effect hypothesis tests indicate that it is relevant to consider the nature of actors in the network when studying interorganizational networks. The positive effect of cohesion in the firm–firm network and the insignificant effect of cohesion in the firm–government network could explain the opposing and mixed findings shown in previous studies. Some empirical findings showed that cohesion in a firm network facilitates firm capability development and organizational outcomes (Lyu et al., 2019; Zhang & Guan, 2019). On the other hand, other

studies have showed that network cohesion could hamper the development of capability and organizational outcomes (Lin et al., 2020; Sharma et al., 2019). Hence, the inclusion of the nature of actors in the operationalization of network cohesion might be a possible explanation for these inconsistent findings.

Knowledge tacitness presents an interesting contingency in the relationship between interorganizational networks and marketing capabilities. The findings demonstrated that the nature of knowledge determines the situation in which external networks contribute to the development of marketing capabilities. Transferring tacit knowledge requires trust and intensive communication between the network actors (Nonaka, 1994). The shared understanding built-in in firm–firm and firm–government cohesive networks make it conducive for firms to extract tacit knowledge from external partners (H7a, H7b). This finding is in line with prior empirical studies where knowledge tacitness had been found to positively moderate the effect of trust and communication on firm performance outcomes (Zhao & Lavin, 2012). The trust embedded in cohesive networks facilitates sharing of tacit knowledge between partners (Yu et al., 2011). In a network with high cohesion, the partners tend to collaborate and cooperate, making it conducive to sharing tacit knowledge important to develop marketing capabilities (Haugland et al., 2021; Reagans & McEvily, 2003).

H7c and H7d suggested that, in a diverse network, it is difficult to extract tacit knowledge from external network partners, and it adds little to the development of marketing capabilities. The findings indicate that the moderating effect of knowledge tacitness on the relationship between network diversity and marketing capabilities is negative but not significant. The hypotheses were not supported. In other words, diverse networks contribute to marketing capabilities regardless of how tacit the knowledge acquired from external partners may be. This can be explained by the fact that diverse partners can sometimes provide highly specialized and partially tacit knowledge for the focal firm (Leeuw et al., 2014; Meyer-Krahmer & Reger, 1999). However, the effective transfer of this tacit knowledge becomes more difficult when firms expand the diversity of their network contact (McGill & Santoro, 2009). As a result, knowledge tacitness may

not significantly impact the relationship between network diversity and marketing capabilities.

The nature of the environment is another situational variable that needs to be taken into consideration when establishing a network relationship. This dissertation found mixed results regarding the moderating effect of environmental dynamism on the relationship between network diversity and marketing capability. Diversity in a firm–firm network contributes to the development of marketing capabilities under dynamic environmental conditions (H8c). To develop marketing capabilities in a dynamic environment, it is of paramount importance to have a diverse set of business connections. When the environmental conditions are relatively stable, collaborating with diverse partners across industry boundaries provides no marginal benefit.

The positive moderating effect of environmental dynamism on the effect of firm–firm network diversity on marketing capabilities echoes the findings of Wang and Quan (2017) and Huang et al. (2018). Wang and Quan (2017) found that firms that face competition may have high incentives to collaborate with diverse external partners to acquire unique knowledge. Similarly, Huang et al. (2018) demonstrated that partnership with diverse knowledge partners generates more opportunities for firms to acquire frontier knowledge when the environment rapidly changes. A dynamic environment requires that firms gain new skills and knowledge and refine their existing skills and capabilities (Lee, Kim, et al., 2017; Teece et al., 1997). Diverse networks allow firms to access a novel and wide variety of knowledge necessary to cope with rapidly changing environments (Gao et al., 2015).

The findings indicate that environmental dynamism did not moderate the positive effect of firm–government network diversity on marketing capabilities, suggesting that the contribution of collaborating with a diverse set of government partners on marketing capabilities does not vary with the change in environmental dynamism (H8d). A possible explanation could be to do with the suitability of market knowledge obtained from government ties irrespective of environmental dynamism. This result is consistent with Zhang et al. (2020), who reported insignificance moderating effect of environmental dynamism in the relationship between connection with governmental institutions and

innovation performance. In some cases, environmental changes may not involve significant structural changes, preserving the value of government-controlled knowledge resources (Sheng et al., 2011a).

The findings also revealed mixed results on the moderating effect of environmental dynamism in the relationship between network cohesion and marketing capabilities. The positive effect of firm–firm network cohesion on marketing capabilities gradually diminishes and turns negative as the environment becomes increasingly dynamic (H8a). The findings support the hypothesis that being in a cohesive network under a highly dynamic environment weakens the benefits firms obtain from a network connection. Similarly, Rodrigo-Alarcón et al. (2017) have found that the interaction between network density and technological dynamism adversely affects the tendency to pursue new products and processes. A cohesive network binds actors to particular relationships, making it challenging to gain access to new knowledge needed to develop marketing capabilities that are responsive to environmental change. However, the moderating effect of environmental dynamism in the relationship between firm–government network cohesion and marketing capabilities was not supported (H8b). The lack of support for the moderating effect of environmental dynamism in the firm–government network indicates that government networks work consistently regardless of the environmental conditions.

This study examined the relationship marketing capabilities have with new market development and sales growth. The findings clearly indicate that marketing capabilities enable firms to expand their market coverage. In addition, marketing capabilities can explain significant variance in sales growth. The findings complement extant marketing literature that studies the direct effect of marketing capabilities on sales growth (Morgan, Slotegraaf, et al., 2009a). The findings are also in line with the RBT and dynamic capabilities perspective, explaining how marketing capabilities create competitive advantage.

The findings also provide partial support for the mediating effect of marketing capabilities. Previous studies documented evidence on the mediating effect of marketing capabilities, e.g., in the relationship between strategic orientations and firm performance

(O'Cass & Ngo, 2011b; Sok et al., 2017) and the relationship between customer capital and customer response speed (Jahanshahi et al., 2019). The results of this study extended the mediating effect of marketing capabilities by showing that firms' marketing capabilities mediate the effect of network diversity on new market development and sales growth.

This study showed that marketing capabilities indirectly mediate the relationship between firm–firm network cohesion, new market development, and sales growth. This finding aligns with prior studies that showed the indirect effect of business networks on marketing performance; the relationship is mediated by marketing management competencies (Wang & Lestari, 2013). From the findings, we can infer that firms in a cohesive firm–firm network gain quality and rich knowledge resources that enhance marketing capabilities, which improves sales and market development. However, the mediation test did not support marketing capabilities as a mechanism by which firm–government network cohesion contributes to new market development and sales growth.

I found support for the partial mediation of marketing capabilities: both in terms of the effect of firm–firm network diversity on new market development and sales growth and the effect of firm–government network diversity on new market development and sales growth. These results indicate that marketing capabilities translate into performance advantage, primarily marketing resources and knowledge obtained from diverse network partners and cohesive firm–firm networks. The results are consistent with those of Parra-Requena et al. (2011), which demonstrated the partial mediation effect of marketing capabilities in the relationship between structural social capital and pioneering. The existence of the partial mediating effect shows that other variables can mediate the effect of network diversity on new market development and sales growth.

Overall, the findings produced mixed results on the relationships that firm–firm network and firm–government network have with marketing capabilities and firm performance. I found some relevant differences between firm–firm and firm–government networks. On the one hand, firm–government cohesion mainly contributes to developing marketing capabilities when knowledge is tacit. On the other hand, firm–

firm network cohesion directly contributes to the development of marketing capabilities, and its effect is contingent upon environmental dynamism and knowledge tacitness. A diverse firm–firm network also contributes directly to marketing capabilities, and its benefit rises as the environment becomes dynamic. However, firm–government network diversity contributes to marketing capabilities but is not subject to any of the contingent variables covered in this study.

6.3 Theoretical Contributions

This dissertation applies a social network theory to examine the effect networks have on firm marketing capabilities, which enhances new markets and sales outcomes. I decompose the focal firm collaboration network into two categories, firm–firm network and firm–government network, to distinguish the distinct effects of these network actors. I define firm–firm networks as one-mode and firm–government networks as two-mode and study how their cohesion and diversity contribute to marketing capabilities. Furthermore, I investigate the contribution of marketing capabilities to new market development and sales growth.

There have been few studies considering the role of interorganizational networks in developing marketing capabilities. This dissertation extends this research stream. In addition to marketing outsourcing (Florea & Munteanu, 2020), buyer-supplier relational strength (Yang et al., 2019), and structural social capital (Parra-Requena et al., 2011), I add to this limited literature in marketing by examining the effect of the cohesion and diversity of network relationships on marketing capabilities. Based on the contingency perspective, l also demonstrate that the effects of cohesive and diversified networks are contingent on the tacitness of external knowledge and environmental dynamism. This dissertation contributes to marketing capabilities literature in the following ways.

First, this study contributes to marketing capabilities literature by introducing a network theory, wherein firms and government networks are viewed as an outside-in perspective with direct and contingent effects on marketing capabilities. Extant research in marketing capabilities has adopted an intraorganizational perspective that focuses on

internal resources as a source of marketing capabilities. This study responds to the call for research from the outside-in perspective by revealing firm–firm and firm–government connections as an antecedent of marketing capabilities (Day, 2011; Mu et al., 2018b). The findings provide support to the outside-in perspective and show that network connections play an important part in developing marketing capabilities.

Second, this study goes beyond studying network partners as a whole and examined distinct network characteristics, in which certain characteristics such as firm–firm–firm and firm–government networks represent relationships, i.e., the nature of actors in the network relationship. In contrast, others, such as network cohesion, represent structural aspects of the network relationship. Prior network conceptualizations did not take into account the variety of market knowledge obtained from external sources. Thus, this study extends network research by conceptualizing network connections based on the structure and nature of relationships to depict the complementarity of marketing knowledge and resources obtained from various actors in the firm network.

The structural aspects have been studied frequently; however, the nature of the network actor aspect has usually been ignored in the extant interorganizational network literature. Despite the benefit of government networks, extant research has given little attention to the firm–government network and its contribution to marketing actions and outcomes (Josephson et al., 2019). Focusing on one aspect of the interaction or a single type of network does not properly reflect reality and may fail to represent a complete picture of network relationships. However, this study explored interorganizational networks using richer models of network relationships that reflect the true picture of interaction by studying the structure, diversity, and nature of relationships in the network.

Third, this dissertation contributes to a growing body of empirical network research that takes a contingency approach to examine the contexts under which network cohesion and network diversity affect firm capabilities and performance. This approach argues that the value of the network is context-dependent, and a structure that is successful in one context might not work well in another context (Carnabuci & Diószegi,

2015; Kraft & Bausch, 2018). Extant network research that adopted contingency perspective showed that network cohesion and network diversity provide different benefits; hence, the effectiveness of network cohesion and network diversity are contingent on organizational and environmental factors (Ahearne et al., 2013; Gupta et al., 2019b; Rauch et al., 2016; Tan et al., 2015).

This dissertation expands the existing literature by incorporating contingency frameworks to study the effectiveness of cohesive and diverse networks. It provides empirical evidence for the differential effects of network cohesion and diversity. The findings showed that the effects of cohesive and diversified networks are heterogeneous and contingent upon knowledge tacitness and environmental dynamism. Cohesive networks are particularly effective in building marketing capabilities when the knowledge to be obtained from network connections is difficult to transfer and imitate. Diversified networks contribute to the development of marketing capabilities in a dynamic environment. This is consistent with the previous arguments associated with the contingent effect of network characteristics on firm outcomes (Kraft & Bausch, 2018; Rauch et al., 2016).

The findings of this study further revealed that there is a distinction between cohesion and diversity in firm–firm networks and firm–government networks. This is consistent with past evidence that has shown that these two networks produce different knowledge and information advantages (Sheng et al., 2011a; Wu, 2011). Firm–firm networks surrounded by mutual third-party connections contribute directly to marketing capabilities. In contrast, cohesion in government networks has little to contribute apart from acquiring the tacit market knowledge necessary to build marketing capabilities. Unlike a diverse government connection, having diverse business connections is beneficial to building marketing capabilities in a dynamic environment. This study adds to the existing literature by showing that the benefits generated from firm–firm and firm–government connections are not always the same; as a result, each should be conceptualized, managed, and treated differently.

Fourth, there have been various limitations concerning the conceptualization of marketing capabilities. This dissertation contributes to marketing capabilities in a way

that addresses the various facets of marketing capabilities. The study introduced a new perspective and a new way to operationalize marketing capabilities. By conceptualizing marketing capabilities as a second-order construct created from four first-order constructs, this study offers a more comprehensive approach to measuring marketing capabilities. The notion of operationalizing marketing capabilities as a second-order construct enables future research with a basis for overarching marketing capabilities construct that includes different dimensions of marketing capabilities.

Furthermore, this study shows the contribution of interorganizational networks to marketing capabilities and explains how network connections enhance firm performance. Previous network research studied the direct effect of interorganizational networks on firm performance without empirically showing the mechanism by which the relationship operates. Marketing capabilities play crucial roles in resource utilization by formulating actions to leverage external resources and directing those actions to realize performance gains. Overall, the empirical results support the growing stream of research in marketing about interorganizational networks and yield opportunities to advance social network theory and the marketing capabilities literature.

6.4 Managerial Implications

Much of the discussion of marketing capabilities has centered on the intraorganizational endeavors that contribute to marketing capabilities. This dissertation sheds light on a relatively overlooked antecedent of marketing capabilities, interorganizational network relationships. The findings of this dissertation have several helpful, practical implications for managers and practitioners on how to foster the development of marketing capabilities.

It is clear from the findings that interorganizational networks profoundly influence the development of a firm's marketing capabilities. For this reason, firms and their managers should invest as much energy as possible in building and managing interorganizational relationships. The findings can help managers learn about building marketing capabilities by developing knowledge networks with external contacts. This

study provides a direction for managers on the route to follow in designing proper networking strategies that provide access to much-needed knowledge resources.

Managers must understand the increasing importance of external networks and collaboration in capability development (Najafi-Tavani et al., 2018). They should also ensure that boundary spanners allocate adequate time and energy to navigate and build relationships with actors outside of the organization. These networking activities can be accomplished by participating in trade shows, professional associations, public-private partnership projects, or assigning boundary spanners that deal with the government and other actors in the business community (Adomako et al., 2021; Gilmore, 2020; Wilkinson, 2009). In that way, firms can expand their network reach, giving them greater access to external knowledge sources.

Firms can benefit from networking with external contacts by getting accurate, useful, and reliable knowledge that compensates for limited internal resource constraints (Nikiforou et al., 2020). It is particularly important for those firms that lack internal resources and skills to access external sources to develop their marketing capabilities. In addition, firms should acknowledge that they can realize the full potential of their networks by developing collaboration with the government and other firms.

Most recently, firms such as Heineken and Unilever have started to pioneer a marketing capabilities manager position. A brief exploration of their job description indicates that these managers are responsible for identifying training needs, designing marketing training content, and marketing expertise development. However, marketing capabilities managers' roles should go beyond internal capacity-building initiatives. It should include initiatives such as knowledge and experience sharing with actors outside of the department and firm boundaries that contribute to improving the overall marketing capabilities of the firm. Marketing capabilities managers should take the initiative to make the most out of external sources of knowledge, experiences, and analytics that cannot be generated internally.

Managers should be careful in building networks because initiating and sustaining network relationships involves substantial effort and cost (Scott & Thomas, 2015). They should invest their limited time, energy, and resources wisely in the right type of partners.

This study provides managers direction on when to work with diverse network partners or tie into a cohesive network. First and foremost, managers should know that not all relationships with network actors produce a value that benefits the firm (Watson, 2012). There are times where networks could bring about insignificant benefits, at worst, hurting internal capability development processes. By identifying the conditions under which each type of network is important, managers can minimize the costs and maximize the gains by allocating resources to the most appropriate form of relationships.

This study identified the two distinct types of networks that provide different benefits. Managers should distinguish between their firm and government relationships and understand their distinct contribution to marketing capabilities. For example, government agencies in most countries provide access to market analysis reports, market commentaries, and industry intelligence reports. Firms should exploit these diverse government partners without being over-embedded and locked into cohesive relationships. For example, firms can benefit from collaborating with organizations such as Alliance for Coffee Excellence (ACE), facilitating networking opportunities with suppliers, buyers, and competitors (Marin et al., 2019). These connections provide access to customers, suppliers, and competitors' insights needed to develop marketing capabilities. Firms can gain full benefit from their collaboration network by maintaining relationships with business and public sector partners.

The findings also indicate that firms acquire knowledge with a different level of tacitness from partners and utilize them internally to develop marketing capabilities. Tacit market knowledge, such as marketing tactics and marketing expertise, is difficult to acquire or transfer successfully from external partners. Firms must rely on a relationship built on trust and cooperation to access this type of knowledge. Knowledge with a low level of tacitness, such as market reports, intelligence reports, and policy documents, is important for developing marketing capabilities. It does not require a large effort to access such information, but firms could maintain contact with actors who possess these resources and information.

The market environment is also important for a manager to closely examine when deciding how they interact with their network partners. Firms need to use various

networking approaches depending on the environment in which they operate. It is vital to scrutinize and understand the extent of uncertainties about customer demand, technological advancements, and customer preferences. Firms are not commended for relying on knowledge acquired from government connections when firms experience dramatic uncertainties in demand, customer preferences, and technology. They should opt for the diverse firm–firm partners that provide a novel and diverse perspective to build a capability that helps them to cope with a fast-changing market environment. In addition, firms operating in a dynamic environment should avoid being locked into a network surrounded by close third-party partners.

In addition, this study provides essential suggestions for linking marketing capabilities with firm growth. I found marketing capabilities as the key determinant of sales growth and new market development. This research provides firms with valuable insight into the importance of investing in marketing capabilities. For example, firms that aim to expand into new markets and increase sales revenue should invest more into marketing capabilities. Firms with superior marketing capabilities are better positioned to garner the economic benefit associated with increased market demand. Therefore, firms should invest in developing and enhancing their marketing capabilities to improve performance.

Furthermore, firms need to continue to invest in developing their marketing knowledge base (CMO Survey, 2018). Marketing capabilities provide the means through which resources obtained from external sources are well deployed in the marketplace in a way that drives performance. Firms should provide capability building geared towards enhancing marketing capabilities managers' competence in initiating, maintaining, exploiting, and managing networking relationships. These skills enable managers to obtain the accurate insights necessary to make smart marketing decisions (Mitrega & Pfajfar, 2015).

6.5 Limitations and Future Research Directions

The contributions of this dissertation should be viewed in light of the following limitations. First, the sociocentric data were collected from a firm operating on a single platform (i.e., ECX). Collecting data from a single context could limit the generalization of the findings across industries. However, the measures associated with the whole network work well in a situation where network boundaries are clearly defined with fully enumerated populations (Gonzalez et al., 2014). In addition, a single context method has been proven suitable for exploring complex firm–firm phenomena and building and testing new theories (Gonzalez & Claro, 2019). Despite all of this, future studies in other contexts are needed to confirm such conclusions.

Second, this study used a single informant approach to measure theoretical constructs. Even though informants reported sufficient knowledge about firm interaction with their network partners, relying on a single informant poses common method concerns. The researcher tried to mitigate this by collecting performance data from archival sources. Future researchers might gather firsthand archival network data and use multiple informants from a single firm to increase the reliability of the findings. In addition, this study focuses on firm–firm and firm–government networks, but another type of network also exists. Incorporating intraorganizational networks could provide a complete view of the development of the marketing capabilities. Future studies should study how and in what conditions intraorganizational cohesion and diversity contribute to the development of marketing capabilities. Moreover, future research should also explore firm–government networks in various institutional and national contexts. Although few studies have been conducted on this topic from the United States and China, it would be interesting to examine how this topic relates to different national and cultural contexts. With more research, better marketing practices can be stimulated.

Third, this study primarily used cross-sectional data, even though the sales growth data were lagged by a quarter, which could limit our capacity to draw causal inferences between network characteristics and marketing capabilities. This makes it difficult to rule out the possibility of marketing capabilities leading to network positions. In addition, the cross-sectional design is a limitation because it takes a static approach to investigate

firms' network partners. Despite being the most common way of studying the firm–firm network, it does not capture the dynamic nature of network interactions (van den Bulte & Wuyts, 2007). To tackle this, efforts were made to frame the questionnaire in such a way that the network interaction to be explored was based on the previous two fiscal years' contact while marketing capabilities were assessed in the current state. Future research should adopt longitudinal data that reveal changes in the firm's network and its marketing capabilities over time, leading to stronger causal inferences.

Fourth, the findings failed to support the argument that cohesion in a firm–government network contributes to the development of marketing capabilities except in a high tacit knowledge context. In addition, marketing capabilities failed to mediate the effect of the firm–government network cohesion on firm performance. Future studies should look into other capabilities through which firm–government network cohesion contribute to firm performance outcomes. In addition, researchers should explore other contingent factors, such as intraorganizational factors and external knowledge specificity, that could explain the conditions under which networks contribute to marketing capabilities and firm performance. For example, knowledge specificity plays an important role in knowledge integration, and it could assist in providing more understanding of the effects interorganizational relationships have on marketing capabilities (Luca & Atuahene-Gima, 2007). In addition, researchers could consider what conditions firm–firm networks are more effective than firm–government networks.

Network cohesion and diversity are the key focus of this dissertation. Besides these ego network characteristics, future researchers may wish to investigate how ego-network measures such as network homophily and whole network measures such as betweenness and closeness centrality contribute to marketing capabilities. For instance, Durmuşoğlu (2013) contended that betweenness and closeness centralities influence the quality and depth of knowledge acquired from other actors that may explain firm capability development. Other interesting variables to look at include ego network-level characteristics such as ties strength and frequency of interaction which might add more nuance to our understanding of the contribution of network relationships to marketing capabilities. Further research is also needed to examine how network relationships relate

to other related but distinct constructs, such as marketing agility (Kalaignanam et al., 2021; Zhou, Mavondo, et al., 2019).

Fifth, the dissertation considered marketing capabilities a second-order construct with four first-order factors. However, it should be noted that some past studies have examined each dimension separately. For example, Sanzo et al. (2012) focused on operational marketing capabilities, while Buccieri et al. (2020) focused on dynamic marketing capabilities. It is apparent from the additional analysis carried out in this dissertation that there isn't that much difference in the impact of diversity and cohesion on each component of marketing capabilities. For instance, diverse network partners may contribute more to dynamic and adaptive marketing than operational and strategic marketing capabilities. In future research, however, it would be beneficial to look in greater detail at whether the effect of network cohesion and network diversity could influence the dimension of marketing capabilities differently.

Finally, this study measured firm performance in terms of sales growth and new market development. These are the most common performance indicators that depict firms' past success and future growth. Future research can consider other financial and strategic performance measures, such as marketing innovation, profitability, market value, and competitive position. This study indicated that marketing capabilities are a mechanism that translates market knowledge and resources into performance outcomes. Because it has a partial mediation effect, future research should look into other mechanisms that explain the relationship between interorganizational networks and performance outcomes. In addition, future studies should consider the role of networks in improving the effectiveness of marketing department power and activities.

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Appendices

Appendix 1. Questionnaire.

Part One: Questions Related To Network

Name of your firm: _____

Firm – Firm Network	
State the name of firms within the ECX market that your organization collaborated and interacted with on matters related to the commodity market in the previous two fiscal years. On average, how often do you interact with these firms (daily, weekly, monthly, quarterly, yearly…..).	
Name of the firm	Frequency

State the name of firms outside ECX exchange that your organization collaborated and interacted with on matters related to the commodity market in the previous two fiscal years. Please mention the category in which the partner is associated with (i.e. customer (1), supplier (2), competitor (3), commercial laboratory (4), research institutes (5), business consultant (6), subsidiary firms (7), and others (8)).

Name of the firm	Partner Category

Firm – Government Network

Please indicate the interaction and collaboration your firm had with government and government-funded institutions such as … in the last two fiscal years.

Educational institutions and research centers	Trade and industry offices
Agricultural and natural offices	Business Associations
State banks and commercial administration bureaus.	Government Trade Enterprises

Please mention the category in which the partner is associated with

Name	Partner Category

Part Two: Questions Related to Marketing Capability

Please evaluate your current firm marketing capability as compared to other competing firms operating in ECX platform.							
	Far Below Competitors			Equal to Competitors			Far Above Competitors
We develop and execute effective marketing communication messages	-3	-2	-1	0	1	2	3
We provide products and services with superior quality and value.	-3	-2	-1	0	1	2	3
We have efficient sales planning, management, and control system	-3	-2	-1	0	1	2	3
We have extensive distribution channel coverage to make the products widely available.	-3	-2	-1	0	1	2	3
We monitor competitor price and use pricing skills to set competitive price.	-3	-2	-1	0	1	2	3
We have clear marketing goals and allocated marketing resources effectively	-3	-2	-1	0	1	2	3
We are able to segment and target the market effectively	-3	-2	-1	0	1	2	3
We develop and execute marketing strategies and programs effectively	-3	-2	-1	0	1	2	3
We continuously renew marketing method and strategies to respond to the changes in the market.	-3	-2	-1	0	1	2	3
Our firm coordinates various departments and functions to	-3	-2	-1	0	1	2	3

respond to the changes in the market							
We reconfigure marketing resources and capabilities to align with the market conditions	-3	-2	-1	0	1	2	3
We are able to detect market signals timely and accurately.	-3	-2	-1	0	1	2	3
We proactively anticipate market trends and opportunities and respond accordingly	-3	-2	-1	0	1	2	3
We actively seek collaboration to achieve synergy and quickly responding to market signals	-3	-2	-1	0	1	2	3
Our firm is actively conduct market experiments based on our own market forecast	-3	-2	-1	0	1	2	3
We use emerging technologies to track market changes and opportunities	-3	-2	-1	0	1	2	3

Part Three: Questions Related to Firm Performance

How do you rate/evaluate the future profit potential of your firm?						
Greatly Decreases			Remains the same			Greatly Increases
-3	-2	-1	0	1	2	3

Please evaluate your firm performance in the following areas as compared to other competing firms operating in ECX platform. Our firm:							
	Far Below Competitors			Equal to Competitors			Far Above Competitors
… served new customer segments and markets	-3	-2	-1	0	1	2	3
… utilized new distribution channels to reach the market	-3	-2	-1	0	1	2	3
… developed new ways to build and improve customer relationship	-3	-2	-1	0	1	2	3
… attracted a significant number of new customers	-3	-2	-1	0	1	2	3

Part Four: Questions Related to the Nature of Knowledge

Refer to the network partners you listed in the first part of this questionnaire. You have received information, knowledge and resources about products, services, and processes related to the commodity marketing during your interaction with these network partners. To what extent do the following statements represent the nature of information and knowledge resources your firm acquired from these partners?

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
The knowledge acquired was difficult to document and sufficiently explain in written words	1	2	3	4	5	6	7
The knowledge was highly practical and can only be gained through firsthand experiences and engagement.	1	2	3	4	5	6	7
The knowledge was mainly reports, manuals, and written documents	1	2	3	4	5	6	7
The knowledge acquired was difficult to capture and communicate in written words	1	2	3	4	5	6	7

Part Five: Environmental Conditions

To what extent do the following statements characterize the external environment in which your firm operates?

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
Customer needs and preferences are changing rapidly	1	2	3	4	5	6	7
Product demands and preferences are uncertain	1	2	3	4	5	6	7
Frequent and major changes in the number of competitors	1	2	3	4	5	6	7
Production or service technologies are changing rapidly	1	2	3	4	5	6	7
Government regulation in the industry	1	2	3	4	5	6	7

Please indicate the extent to you believe in the following statement

How satisfied are you with your life as a whole	Very Dissatisfied 1	Dissatisfied 2	Slightly Dissatisfied 3	Neutral 4	Slightly Satisfied 5	Satisfied 6	Very Satisfied 7
To what extent the questions in this questionnaire are difficult to answer.	Very Difficult 1	Difficult 2	Slightly Difficult 3	Neutral 4	Slightly Easy 5	Easy 6	Very Easy 7

1. In what year was your business established? _____
2. How many full-time employees does your firm currently have? _____
3. What is the primary commodity of your firm (You can select more than one)?

   Coffee ☐ Sesame ☐

   Beans ☐ Wheat ☐

   Maize ☐ Other: _____

4. Indicate the region where the main office of your firm is located: _____

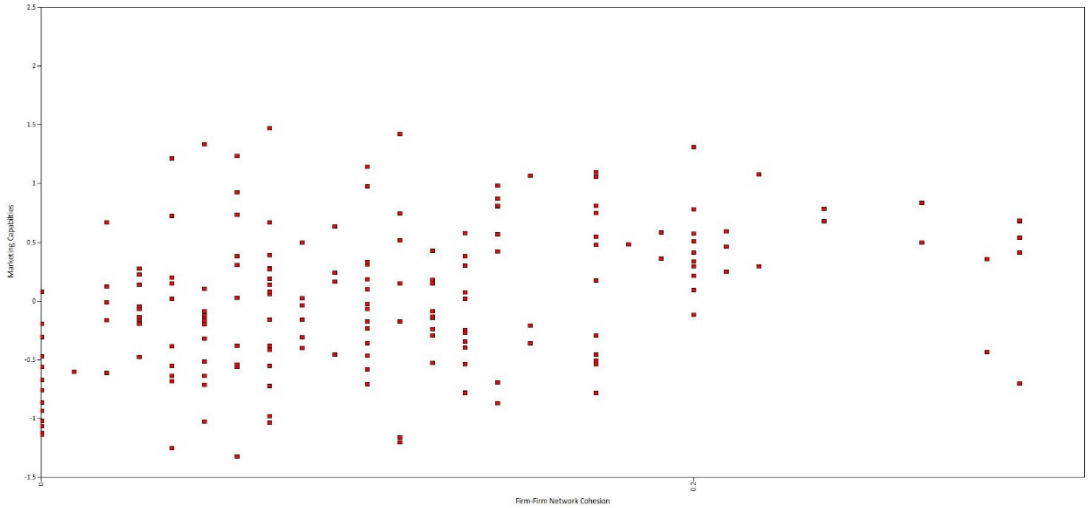
5. Indicate the ownership structure of your firm

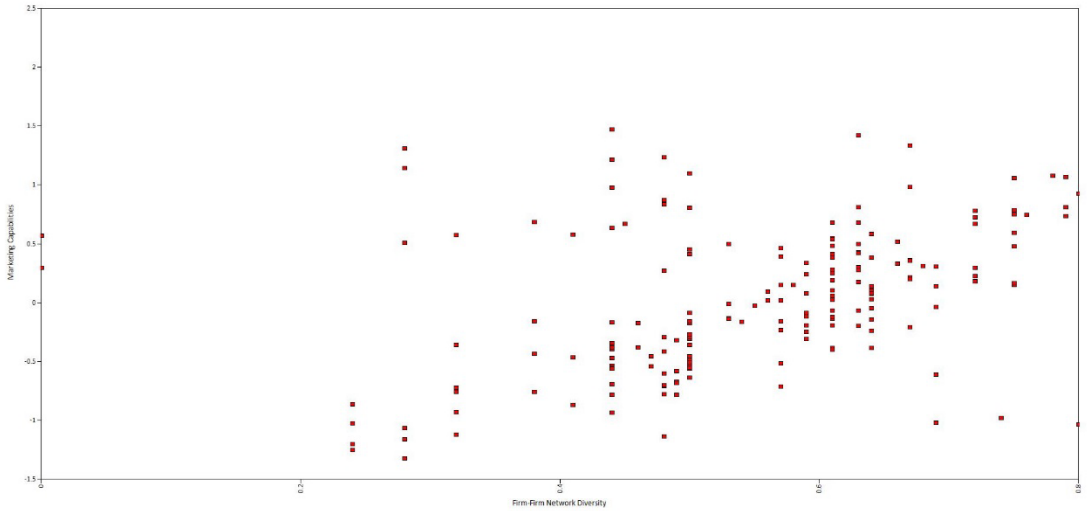
   Private ☐ Public ☐

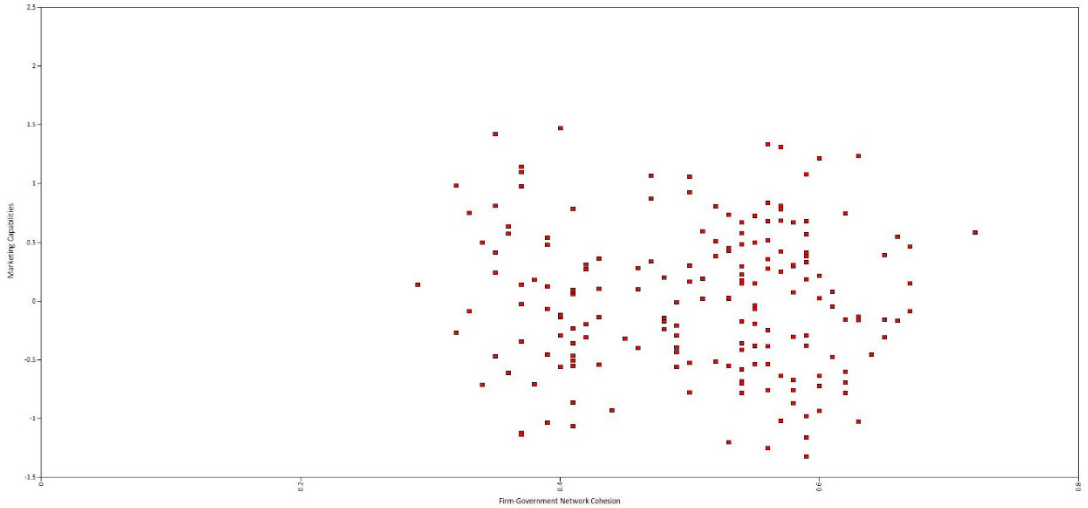
   Cooperative ☐ Other: _____

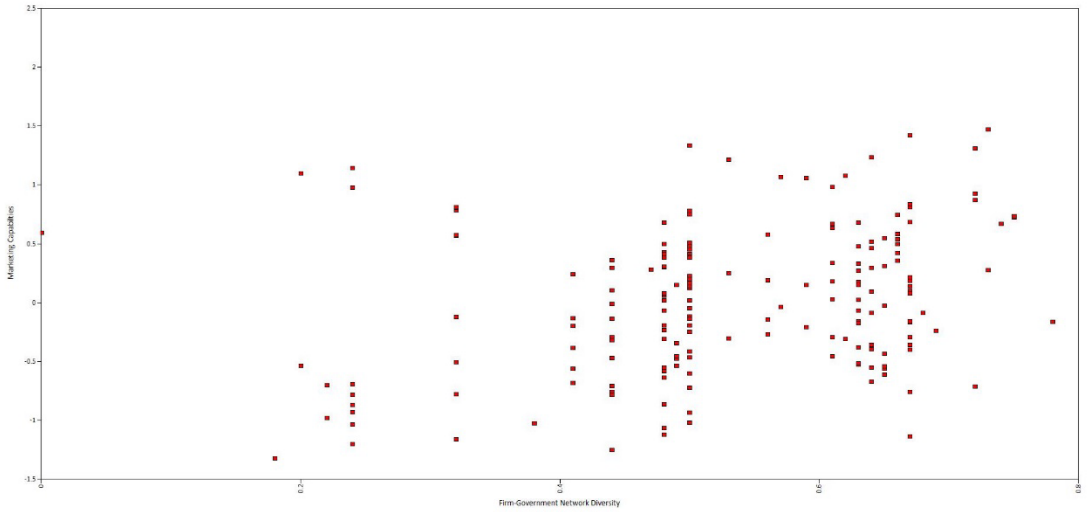
Thank You for the Participation!

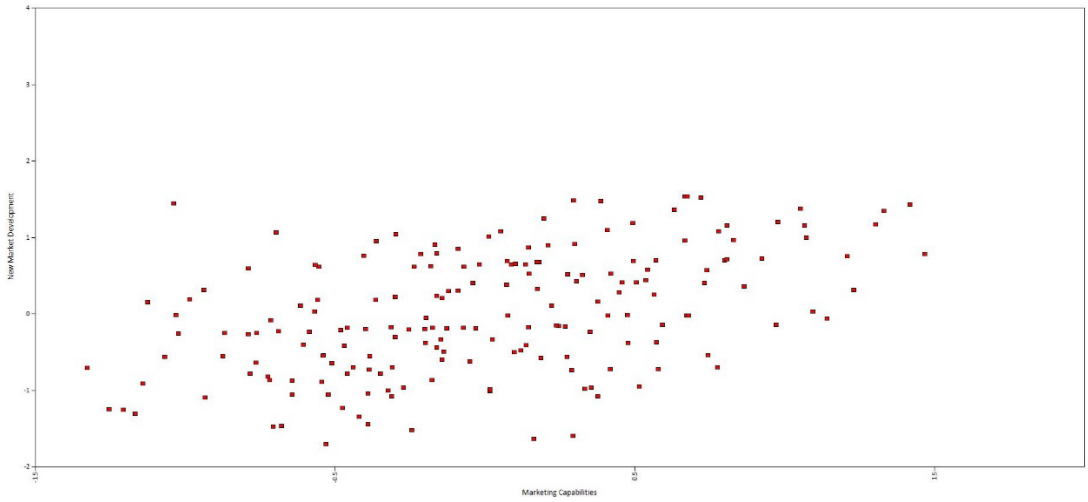
Appendix 2A. Scatterplots

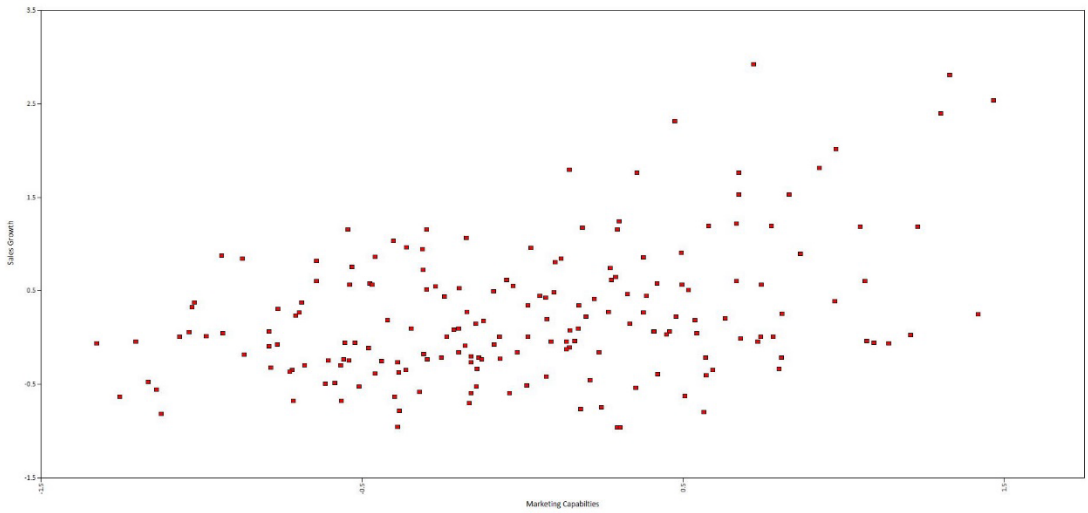


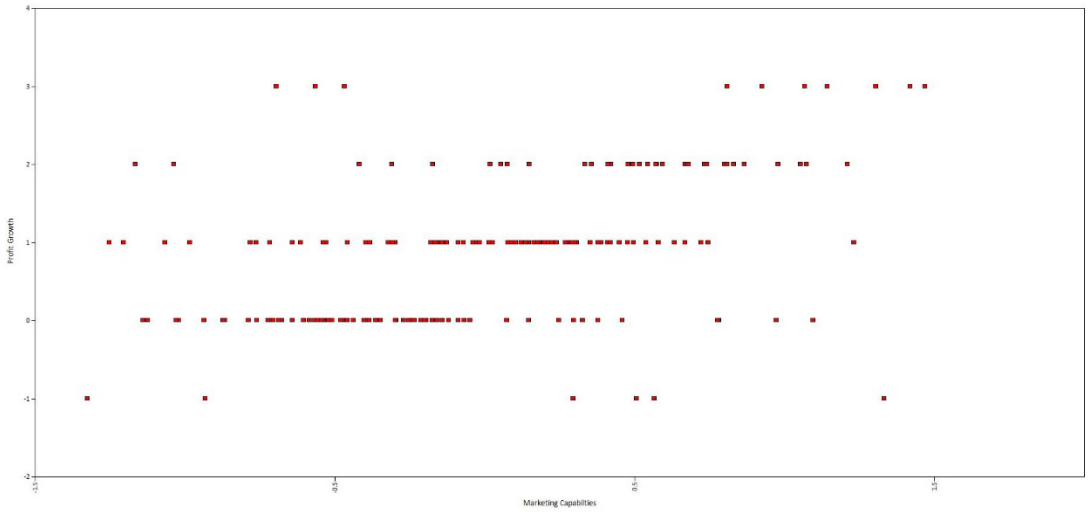





Marketing Capabilities
Firm-Government Network Diversity


New Market Development
Marketing Capabilities


Sales Growth
Marketing Capabilities

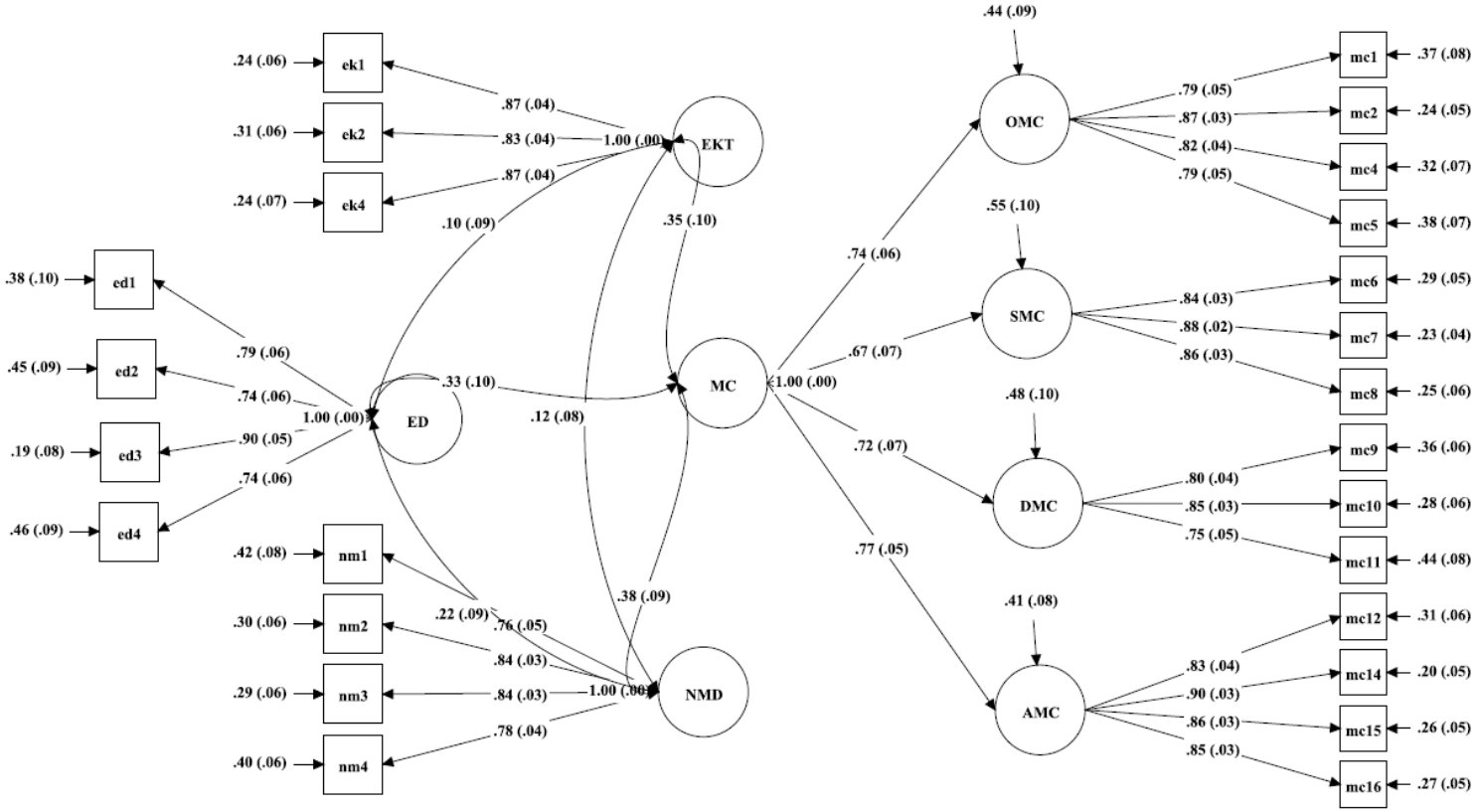


Appendix 2B. Descriptive Statistics of Measures Used in this Study

Item	Min.	Max.	Mean	SD	Skewness		Kurtosis	
BCC	0.00	0.33	0.11	0.08	0.87	0.18	0.38	0.36
GCC	0.29	0.72	0.51	0.09	−0.30	0.18	−0.93	0.36
BDIV	0.00	0.80	0.55	0.14	−0.80	0.18	1.42	0.36
GDIV	0.00	0.78	0.53	0.14	−0.83	0.18	0.62	0.36
MC1	−3	3	1.05	1.16	−0.20	0.18	−0.14	0.36
MC2	−3	3	1.05	1.12	−0.27	0.18	0.26	0.36
MC3	−2	3	1.31	1.06	−0.20	0.18	−0.36	0.36
MC4	−2	3	1.19	1.12	−0.25	0.18	−0.06	0.36
MC5	−3	3	1.13	1.15	−40	0.18	0.12	0.36
MC6	−2	3	0.99	1.19	−0.06	0.18	−0.49	0.36
MC7	−3	3	1.02	1.25	−0.16	0.18	−0.38	0.36
MC8	−3	3	1.03	1.32	−0.49	0.18	0.07	0.36
MC9	−3	3	0.92	1.15	−0.17	0.18	−0.08	0.36
MC10	−2	3	1.04	1.14	0.03	0.18	−0.71	0.36
MC11	−2	3	0.89	1.12	−0.01	0.18	−0.38	0.36
MC12	−3	3	0.95	1.32	−0.29	0.18	−0.31	0.36
MC13	−3	3	0.87	1.26	−0.18	0.18	−0.39	0.36
MC14	−2	3	0.99	1.28	−0.29	0.18	−0.45	0.36

MC15	−3	3	0.97	1.27	−0.32	0.18	−0.10	0.36
MC16	−2	3	1.00	1.23	0.00	0.18	−0.52	0.36
EK1	1	7	3.80	2.23	0.20	0.18	−1.43	0.36
EK2	1	7	3.66	2.17	0.21	0.18	−1.34	0.36
EK3	1	7	3.73	2.12	0.21	0.18	−1.31	0.36
EK4	1	7	3.96	2.16	0.03	0.18	−1.43	0.36
ED1	1	7	4.55	1.63	−0.07	0.18	−1.01	0.36
ED2	1	7	4.18	1.62	0.04	0.18	−0.79	0.36
ED3	1	7	4.48	1.59	0.03	0.18	−1.07	0.36
ED4	1	7	4.17	1.64	−0.09	0.18	−0.85	0.36
NM1	−1	3	1.17	1.09	−1.72	0.18	−0.79	0.36
NM2	−1	3	1.17	1.05	−0.11	0.18	−0.68	0.36
NM3	−2	3	1.33	1.07	−0.13	0.18	−0.41	0.36
NM4	−3	3	1.19	1.09	−0.46	0.18	−0.56	0.36
Profit	−1	3	0.88	0.93	0.41	0.18	−0.32	0.18
NC	2	47	12.6	9.05	1.65	0.18	2.93	0.36
Firm Age	5	64	27.7	1.7	0.81	0.18	1.53	0.36
Firm Size	7	124	33.69	18.98	1.24	0.18	3.71	0.36
Industry Growth	−0.03	0.21	0.15	0.07	−0.89	0.18	0.22	0.36
Sales Growth	−0.97	2.92	0.24	0.72	1.17	0.18	1.89	0.36

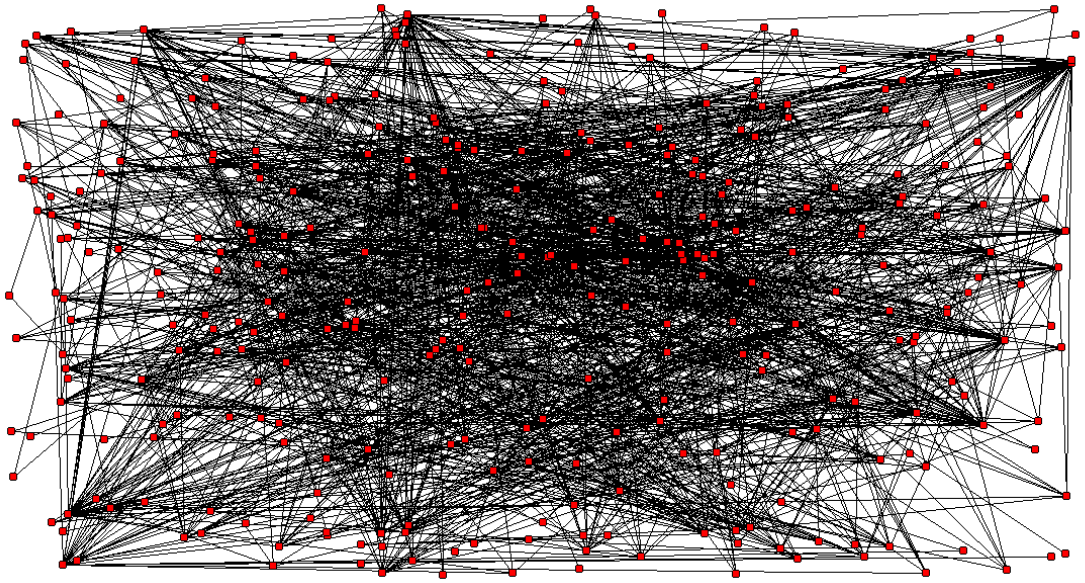
Appendix 3C. Diagrammatic Presentation of the Measurement Model for Latent Variables



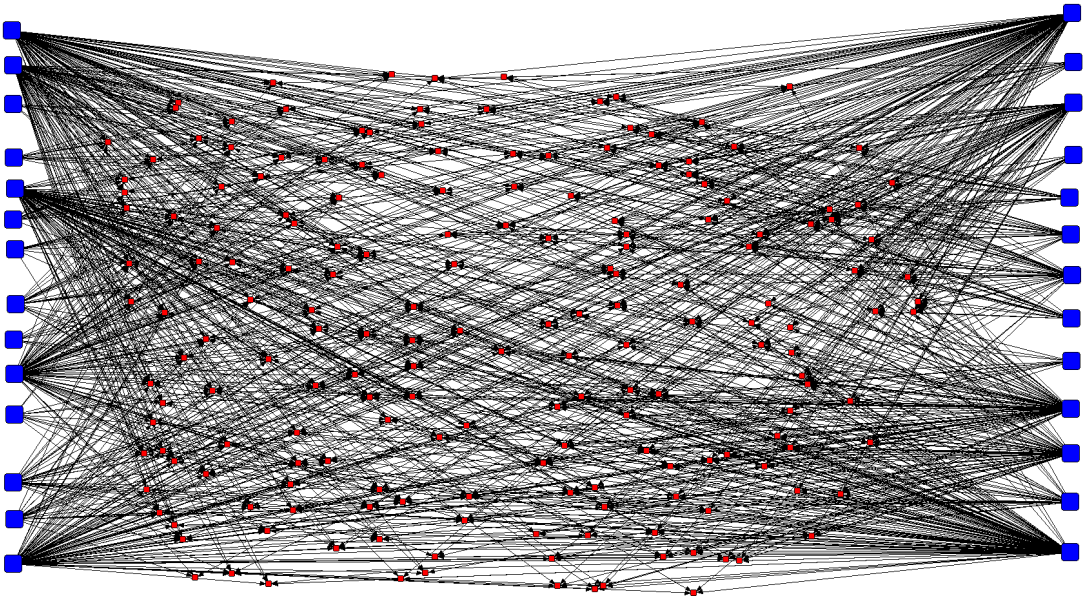
Note. New Market Development (NM); Environmental Dynamism (ED); Knowledge Tacitness (EKT); Operational Marketing Capabilities (OMC); Strategic Marketing Capabilities (SMC); Dynamic Marketing Capabilities (DMC); Adaptive Marketing Capabilities (AMC); Marketing Capabilities (MC)

Appendix 3D. Schematic Diagram of the Networks

Firm–Firm Network



Firm–Government Network



NB: Blue nodes indicates government institutions and red nodes represents firms

Appendix 4D: Curvilinear (Inverted U-shaped) Effects

	Marketing Capabilities		New Market Development		Sales Growth	
Main Effects	β	*t*-values	β	*t*-values	β	*t*-values
Firm–Firm Cohesion	0.65	2.35*				
Firm–Government Cohesion	−0.70	−1.02				
Firm–Firm Diversity	−0.18	−0.39				
Firm–Government Diversity	0.00	0.00				
Marketing Capabilities			0.41	4.77**	0.36	3.99**
Inverted U-shaped Effects						
Firm–Firm Cohesion × Firm–Firm Cohesion	−0.43	−1.62				
Firm–Government Cohesion × Firm–Government Cohesion	0.65	0.98				
Firm–Firm Diversity × Firm–Firm Diversity	0.36	0.79				
Firm–Government Diversity × Firm–Government Diversity	0.22	0.49				
Control Variables						
Firm Age	0.10	1.02	0.00	−0.07	−0.14	−1.56
Firm Size	0.02	0.19	0.06	0.85	0.02	0.25
Degree of Centrality	0.04	0.51	−0.08	−0.91	−0.05	−0.63
Industry Growth			0.05	0.75	0.08	1.17
R-Square (R^2)	0.24		0.18		0.14	

N = 186. ∗ $p < 0.05$; ∗∗$p < 0.01$.

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