Dynamic Capabilities and SME Performance: The Moderating Effect of Market Orientation

Abstract

We investigate how the four dimensions of the dynamic capabilities (DC) construct (sensing, learning, integrating, and coordinating) individually affect firm performance and the moderating role of market orientation (MO) in the process. Our findings, based on a sample of 509 Spanish small- and medium-sized enterprises (SMEs), suggest that not all DC dimensions are equally important for SME performance. We further found MO to significantly moderate the relationships between both the sensing capability and the learning capability and firm performance. The implications for research and practice are discussed.

Introduction

The dynamic capabilities (DC) perspective (Teece, Pisano, and Shuen 1990), which enhances the resource-based view (RBV), whereby the firm is conceived of as a collection of resources (Barney 1991; Penrose 1959), builds on the idea that organizations must develop a process of learning to adapt to environmental changes. Representing a "firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, and Shuen 1997, p. 516), DC are based on distinctive organizational processes derived from a firm's specific asset positions and molded by its paths (Teece et al. 1997). They allow firms to renew and make better use of their resources (Eisenhardt and Martin 2000; Hou 2008; Teece et al. 1997) and have the potential to enhance organizational performance outcomes (Schilke 2014a). Although studies exploring DC have attracted increased scholarly attention, contributions have been mainly conceptual (Vogel and Güttel 2013). There are central issues in which empirical evidence remains equivocal due to the complexity of the construct's multi-dimensional nature, such as the effects of DC on firm performance and the existence of moderators of these relationships (Fainshmidt et al. 2016).

The existence of a positive and direct link between DC and firm performance, proposed in earlier conceptual studies (e.g., Teece et al. 1997), has received scant empirical support (Fainshmidt et al. 2016). Some studies have even found insignificant

or negative effects of DC on firm performance (e.g., Wilden, Gudergan, Nielsen, and Lings 2013), supporting the idea that the possession of DC, per se, does not necessarily lead to superior performance (Eisenhardt and Martin 2000). These inconsistencies may stem from the focus of the empirical literature that has mostly considered DC as a second-order construct, neglecting the possible individual influence of each dimension (e.g., Ettlie and Pavlou 2006; Pavlou and El Sawy 2011) and the possible counteracting effects of each sub-dimension. Thus, conceptualizing DC as higher-order generic capabilities may render it a less meaningful concept (Helfat and Winter 2011). Indeed, research that considers individual DC dimensions shows different impacts on a firm's competitive advantage (Huang, Wu, Dyerson, and Chen 2012), innovation (Nieves, Quintana, and Osorio 2016), and firm performance (Singh and Rao 2017). Furthermore, these inconsistencies suggest that the DC-performance relationship could be moderated by a variety of variables, such as environmental dynamism (Pavlou and El Sawy 2006), environmental turbulence (Pavlou and El Sawy 2011), market turbulence (Wang, Dou, Zhou, and Zhou 2015), or firm age and firm size (Arend 2014).

While the moderating role of environment has been in the core of the DC literature (Fainshmidt et al. 2016; Karna, Richter and Riesenkampff 2016) "substantial variability in terms of moderators remains to be explained" (Fainshmidt et al. 2016, p. 1371) pointing to the necessary exploration of other factors. To address this necessity, we specifically focus on market orientation (MO), defined as "the set of cross functional processes and activities directed at creating and satisfying customers through continuous needs-assessments" (Deshpandé and Farley 1998, p. 226), as it allows for us to link an internal focus on resources with an external focus on customers. We expect that MO will have an enhancing role on the DC-performance link given that previous research has confirmed the positive moderator effect of MO on the marketing capabilities-performance link

(Cacciolatti and Lee 2016; Morgan, Vorhies, and Mason 2009) pointing to the presence of complementarity between MO and other capabilities. Indeed, Morgan et al. (2009) suggest that organizational capabilities must be complemented with MO to improve their effect on performance. Accordingly, we expect to find a positive moderating effect of MO on the relationship between DC and performance, since higher levels of MO will enhance the ability of DC to facilitate more "timely and market-oriented decisions" (Barreto 2010, p. 271), thus leading to a higher performance.

Our study, which first considers that not all dimensions of DC are equally important for firm performance (Huang et al. 2012; Park and Kim 2013; Tseng and Lee 2014), adopts the DC typology proposed by Pavlou and El Sawy (2011), which focuses on the four DC dimensions of sensing, learning, integrating, and coordinating. In a field that has been considered a black box and criticized for lack of precise measurements (Williamson 1999), this typology offers a parsimonious model with a limited set of specific and measurable DC (Pavlou and El Sawy 2011). We then address the role of MO as a possible moderator of the relationships between the four DC dimensions and firm performance using a sample of 509 Spanish private small- and medium-sized enterprises (SMEs). Given their significant share of the business landscape (Ayyagari, Beck, and Demirguc-Kunt 2007) and representing the majority of Spanish firms (Dirección General de la Pequeña y Mediana Empresa 2016), SMEs, although knowledge generators, are poor at knowledge exploitation (Levy, Loebbecke, and Powell 2003). Furthermore, SMEs face special challenges because they have fewer options in terms of resources, capabilities, and market power (Drnevich and Kriaciunas 2011; Sawers, Pretorious, and Oerlemans 2008); hence, they are more vulnerable to competition (Wang and Shi 2011) and environmental changes (Wade and Hulland 2004), making DC especially important for SMEs (Wang and Shi 2011).

We make at least three contributions to the literature. We first add to the limited research in this area by empirically exploring the multi-dimensional nature of DC and its effect on performance, stressing that these capabilities need to be leveraged properly in order to enhance competitive advantage and superior performance (Eddleston, Kellermanns, and Sarathy 2008). In addition, we explore the moderating effect of MO on the relationships between a firm's individual DC dimensions and performance, answering recent calls (Eriksson 2014; Fainshmidt et al. 2016) for in-depth examination of the mechanisms through which DC influence performance. Our results show that MO can both enhance and mitigate the association between individual DC and SME performance, revealing a darker side of MO previously not acknowledged. Finally, we extend research on DC in the SME setting, which represents a theoretical contribution to the DC perspective due to the unique nature of SMEs and enhances our understanding of the direct and conditional effects of this view across institutional and cultural settings.

Theory and Hypotheses

Dynamic Capabilities

The RBV considers firms to possess a heterogeneous, firm-specific bundle of resources, not perfectly mobile, that are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney 1991). A firm enjoys superior performance over its competitors when it possesses VRIN, leading to efficiency advantages and entrepreneurial rents (Barney 1991; Wang and Ahmed 2007). According to the more recent evolutionary perspective of DC, however, simply considering superior resources is not sufficient to explain enhanced firm performance (Eisenhardt and Martin 2000). Firms also require DC to make better use of their resources (Eisenhardt and Martin 2000; Teece et al. 1997). Consequently, interest in DC stems from their potential for enhancing organizational performance outcomes (Schilke 2014a).

Studies exploring DC, which have enriched the original RBV with contributions (Vogel and Güttel 2013) from behavioral theory (Cyert and March 1963) and evolutionary economics (Nelson and Winter 1982), have attracted increased scholarly attention. Contributions, however, have been mainly conceptual, either literature reviews (Ambrosini and Bowman 2009; Barreto 2010; Vogel and Güttel 2013; Wang and Ahmed 2007), focused on explaining the general nature of DC (Eisenhardt and Martin 2000; Kurtmollaiev 2017; Teece 2007), or on developing a multi-level theory of DC (Salvato and Vassolo 2018). Empirical evidence is equivocal on central issues, such as the effects of DC on firm performance and the existence of possible moderator effects on this relationship (Fainshmidt et al. 2016). In addition, among the empirical contributions, according to Eriksson's review (2014), there are two different approaches. The first focuses on specific processes, mostly related to products and technology, as well as the (inter) organizational process. The second and more common approach (which we follow here) focuses on generic knowledge-related processes. This approach allows for us to enhance our understanding of the mechanisms through which DC operate (Eriksson 2014) and provides more generalizable findings than a focus on idiosyncratic processes. In particular, we follow Pavlou and El Sawy (2011), who attempted to reconcile the various construct labels and meanings of DC and proposed the investigation of the four DC dimensions.

Dynamic Capabilities and Performance

The value of DC for businesses lies in their ability to alter the resource base, that is, to create, integrate, recombine, and release resources (Eisenhardt and Martin 2000). While the ability to alter the resource configuration is supported by the RBV (Barney 1991; Wernerfelt 1984), the focus on change and learning is rooted in evolutionary theory (Helfat and Peteraf 2009; Teece 2014; Zollo and Winter 2002). Early theoretical research

(e.g., Makadok 2001; Teece et al. 1997) clearly assumed a direct relationship between DC and firm performance. Empirical contributions to the DC field, however, are scant and have mostly considered DC as a second-order construct (e.g., Ettlie and Pavlou 2006; Pavlou and El Sawy 2011), neglecting the analysis of the behavior and individual influence of each dimension. In line with Helfat and Winter (2011), we consider that this approach is too narrow for understanding the complexities of DC and focus on DC as a multi-dimensional construct, a view supported by recent studies (Nieves et al. 2016; Singh and Rao 2017).

Although all four dimensions may be present when a company alters its resource base in order to increase its competitive advantage and performance, we believe that each dimension may not be equally valuable for improving firm performance, particularly in an SME context, which tends to be more resource starved. Indeed, DC are an asset that cannot be easily established by SMEs compared to larger enterprises with more abundant resources (Palmié, Lingens, and Gassmann 2016a; Park and Kim 2013). With weaker market power and high vulnerability to external pressures and environmental changes, the most critical factors for SME success are to maintain flexibility and adapt to a changing environment (Wade and Hulland 2004; Wang and Shi 2011). Therefore, DC are especially critical for SME competition and success because, unlike their larger peers, SMEs may find it challenging to regularly renew their resource base to respond to a changing environment (Wang and Shi 2011).

Figure 1 shows the hypothesized relationships between the four DC dimensions and SME performance, as well as the moderating effect of MO on these relationships. We first outline the main effects' relationships of the four DC dimensions and then discuss the moderation effect of MO on these relationships.

Insert Figure 1 about here

Sensing Capability. In today's dynamic and globally competitive environments (Teece 2007), for the potential benefits of resources to be transformed into realized outcomes, it is necessary to possess a distinctive sensing capability (Zhang and Wu 2013), this being defined as the ability to spot, interpret, and pursue opportunities in the environment (Pavlou and El Sawy 2011). This capability requires searching and exploring markets and technologies, both local and distant from the organization (Hodgkinson and Healey 2011; Teece 2014), and has a positive influence on achieving more innovative products and faster speed to market (Zhang and Wu 2013) or on improving new venture performance (Jiao, Alon, Koo, and Cui 2013). In the particular case of SMEs, Tseng and Lee (2014) report that a firm's sensing capability has a positive correlation with the performance of SMEs that have applied knowledge management. In line with this view and considering that SMEs tend to have more personal contact with their customers (Coviello, Brodie, and Munro 2000), making it relatively easier to access relevant information (Coviello et al. 2000; Hisrich 1992), we suggest that the sensing capability enables the detection of changing opportunities in the external environment and thus offers SMEs a way to enhance their performance. Accordingly, we hypothesize the following:

> **Hypothesis 1a:** An SME's sensing capability is positively associated with its performance.

Learning Capability. Learning capability is required to acquire and assimilate knowledge (Kim 1998) and to use adequate knowledge to facilitate the creation and modification of firm's capabilities and resource base (Zahra and George 2002; Zollo and Winter 2002). Learning enables new production opportunities to be identified as well as tasks to be performed better, more quickly, and more efficiently (Ambrosini and Bowman 2009; Lin and Wu 2014; Teece et al. 1997). Given that learning is a strategic capability that is difficult for competitors to imitate (Prusak 1997), a high absorptive or learning capability

leads to superior firm performance (Tsai 2001). Specifically, for SMEs, Liao, Welsch, and Stoica (2003) argue that smaller firms with a developed absorptive capacity are more efficient in overcoming the competence traps that lead to a firm's lack of responsiveness. Accordingly, a learning capability may be particularly valuable, as higher flexibility to act should enable SMEs to take advantage of changes to their resource base and facilitate the reaping of resource-related benefits generated through such change. This hypothesis is formally stated as follows:

> **Hypothesis 1b:** An SME's learning capability is positively associated with its performance.

Integrating Capability. The integration and coordination of knowledge-related assets create value that cannot be replicated in the market (Teece 2007). Although some have viewed integration and coordination as unitary capabilities (e.g., Teece et al. 1997), we follow more recent literature (e.g., Ettlei and Pavlou 2006; Nieves and Haller 2014; Pavlou and El Sawy 2011) and consider them to be distinct. Thus, we consider the integrating capability as "the ability to embed new knowledge into the new operational capabilities by creating a shared understanding and collective sense-making" (Paulov and El Sawy, 2011, p. 247). Seeing an organization as a repository of knowledge, the capability to integrate this knowledge effectively suggests a source of competitive advantage (Tsai 2001) because "the value of a firm's knowledge and learning can only be realized by effectively integrating that knowledge into business process" (Hung et al. 2010, p. 288). This idea was corroborated by Iansiti and Clark (1994), who reported that a firm's knowledge integration capability is positively correlated with firm performance and with performance improvements over time. In a similar view, a recent study, performed with SMEs that have implemented knowledge management practices, has found a strong and positive correlation between integrating capability and organizational performance (Tseng and Lee 2014). Thus, we formally propose the following:

Hypothesis 1c: An SME's integrating capability is positively associated with its performance.

Coordinating Capability. An effective deployment of DC requires a coherent resource mix, which, in turn, necessitates coordinating resource deployment (Eriksson 2014; Kor and Mahoney 2005; Verona and Ravasi 2003). The coordinating capability is defined as "the ability to orchestrate and deploy tasks, resources, and activities in the new operational capabilities" (Pavlou and El Sawy 2011, p. 246). Where the integrating capability is based on building collective understanding, the coordinating capability focuses on orchestrating individual tasks and activities (Pavlou and El Sawy 2011). Thus, the coordination capability enables organizations to access and allocate resources at lower cost as well as respond to changes with greater flexibility (Huang et al. 2012), which tend to yield superior returns (Miller and Shamsie 1996). This is especially important for SMEs, which, due to their resource limitations (Lu and Beamish 2001), face more stringent requirements for the successful and efficient orchestration of people, resources, and capabilities (Palmié et al. 2016b). Limited managerial cognition and resources, typical of SMEs, can limit their ability to pursue other activities (McDermott, Corredoira, and Kruse 2009; Palmié et al. 2016a), such as learning (Corredoira and McDerott 2014; McDermott and Corredoira 2010). Due to these circumstances, SMEs learning efforts are likely to benefit substantially from purposeful coordination. Since key coordination mechanisms, such as centralization, are anchored in a firm's organizational structures (Gulati, Puranam, and Tushman 2009; Persaud 2005), the effects of coordination mechanisms may differ between SMEs and large established firms (Palmié et al. 2016b). Consequently, we propose the following:

Hypothesis 1d: An SME's coordinating capability is positively associated with its performance.

The Moderating Effect of MO

MO, a key factor in effectively meeting existing customer needs, constitutes one of the cornerstones of marketing literature (Hakala 2011). Traditionally defined as a set of basic processes (Kohli and Jaworski 1990, p. 6) or as an organizational culture (Narver and Slater 1990), the literature has viewed mechanisms by which market knowledge is deployed (e.g., DC) as complementary with a firm's MO (Day 1994; Morgan et al. 2009). Indeed, MO should work in combination with other firm capabilities in order to extract superior firm performance (Morgan et al. 2009; Zhou, Yim, and Tse 2005). Accordingly, studies have begun to focus on the moderating role of MO on the relationship between marketing capabilities (Cacciolatti and Lee 2016; Morgan et al. 2009) or innovativeness (Menguc and Auh 2008) and performance. DC's role of allowing the firm to make "timely and market-oriented decisions" (Barreto 2010, p. 271) has been noted in the literature and we expect that MO can further improve the connection of a firm's resources and capabilities with the needs of customers (Deshpandé and Farley 1998). Moreover, the importance of gaining a better understanding of the role of MO in the SME context has been highlighted as a needed extension to the literature (e.g., Raju, Lonial, and Crum 2011).

MO focuses on cultural norms to acquire information about customers and competitors, whereas DC, according to Pavlou and El Sawy (2011), are conceptualized as generic knowledge-related processes (Eriksson 2014); accordingly, we consider them as distinct constructs (e.g., Rowley 2007). MO can facilitate the cross-fertilization of diverse ideas and, in turn, enhance knowledge-related processes (e.g., Menguc and Auh 2008). That is, given that in market-driven organizations the processes for gathering, interpreting, and using market information are more systematic, thoughtful, and anticipatory than in other firms (Day 1994), we expect an interaction effect between

different DC dimensions and MO that promotes superior performance. This interaction effect may be especially important in SMEs, since the internal assets of smaller firms are very limited (Døving and Gooderham 2008; Lu and Beamish 2001), and their resources need to be managed with great care.

Sensing Capability and Market Orientation. As an aspect of corporate culture, MO is defined by both the degree to which the firm obtains and uses information from customers as well as the degree to which the firm develops a strategy that meets customer needs (Ruekert 1992). Consequently, a market-oriented firm has a better understanding of its environment and customers, leading to higher customer satisfaction. The literature suggests that "the focus of sensing capability is to align internal organizational factors with external environmental factors" (Hou 2008, p. 1258) and that SMEs are often highly market-oriented (Raju et al. 2011), with greater personal contact with their customers (Coviello et al. 2000). The latter seems to contribute both to the generation of market information as well as to meeting clients' needs with added value. When the presence of a sensing capability is reinforced with MO, the firm should benefit from an enriched understanding of customer needs, both expressed and latent. This, in turn, should lead to greater ability in recognizing industry trends and competitor actions (Slater and Narver 1999), thus creating superior SME performance. Following these arguments, we propose the following:

> **Hypothesis 2a:** MO moderates the relationship between sensing capability and SME performance. Specifically, the strength of the positive relationship between sensing and performance is greater when MO is high.

Learning Capability and Market Orientation. Organizational learning theorists (Argyris and Schon 1978; Cyert and March 1963) proposed that learning serves as a framework for the analysis of strategic processes in organizations (Burgelman 1996; Mintzberg and Lampel 1999; Priem and Butler 2001). In this sense, every discussion of MO emphasizes

the ability of the firm to learn about customers, competitors, and channel members (Day 1994). MO focuses on and encourages the gathering of information about customers and competitors. Resorting to external sources for generating knowledge allows for an SME to better utilize their scarce resources. Indeed, Calantone, Cavusgil, and Zhao (2002) consider competitive advantage to arise from a full understanding of customer needs, competitors' actions, and technological developments, which is possible only if an organization combines its learning capability and MO. However, as not all types of learning are beneficial (Walter, Lechner, and Kellermanns 2016), focusing on superior external information through high levels of MO seems important for SMEs, which are characterized by resource constraints. Therefore, MO has the potential to facilitate effective learning (Slater and Narver 1995) by boosting the link between learning capability and performance. Accordingly, we propose:

> **Hypothesis 2b:** MO moderates the relationship between the learning capability and SME performance. Specifically, the strength of the positive relationship between learning and performance is greater when MO is high.

Integrating Capability and Market Orientation. MO serves as "a strategy-driven mechanism responsible for balancing the outside and inside environments of an organization" (Liao, Chang, Wu, and Katrichis 2011, p. 307). Consequently, MO favors integration of the information and knowledge that firms need to carry on their activities successfully (Monferrer, Blesa, and Ripollés 2015) and enables firms to anticipate market requirements ahead of competitors, thus contributing to the competitive advantage of the firm (Eriksson 2014). In addition, the capability to integrate external resources in recognizing new opportunities constitutes an essential element of a smaller firm's survival strategy (Battisti and Deakins 2017). Indeed, the interaction should be particularly prevalent in SMEs, as trust and heightened social interaction among employees facilitate the exchange of knowledge (Bresman, Birkinshaw, and Nobel 1999;

Zander and Zander 2010) and the integration of the externally generated knowledge with internal capabilities. Accordingly, we propose:

> **Hypothesis 2c:** MO moderates the relationship between integrating capability and SME performance. Specifically, the strength of the positive relationship between integrating and performance is greater when MO is high.

Coordinating Capability and Market Orientation. MO promotes a culture that facilitates different functional areas to work collectively and in harmony, using valuable resources to satisfy customer needs and to reinforce competitive advantage in the marketplace (Jaworski and Kohli 1993; Ruekert 1992). In SMEs with shorter "distances" between individuals, higher levels of MO will likely facilitate productivity improvements as well as greater communication, collaboration, and coordination between inter-functional areas to provide superior customer value (Liao et al. 2011; Menguc and Auh 2008; Narver and Slater 1990; Siguaw, Brown, and Widing 1994), resulting in an enhanced association between the coordinating capability and performance. Accordingly, we formally hypothesize the following:

> **Hypothesis 2d:** MO moderates the relationship between the coordinating capability and SME performance. Specifically, the strength of the positive relationship between coordinating and performance is greater when MO is high.

Method

Sample

Data were collected as part of a wider research project using a survey instrument, consistent with recent research on DC in SMEs (Arend 2013, 2014; Lin and Wu 2014). We define SMEs as non-listed private companies ranging from 10-249 employees (Alegre, Sengupta, and Lapiedra 2013). Our target firms came from the SABI database (*Sistema de Análisis de Balances Ibéricos*-System of Iberian Balance Sheets), which incorporates information on 1,366,768 Spanish firms (March 2015), enabling us to

supplement our survey data with additional objective variables, such as age and activity sector. Overall, the study comprises 91,880 firms fitting the SME criteria.

Our questionnaire was first generated in English, then translated into Spanish, and then translated back into English to check for consistency. The Spanish version was pre-tested and personalized invitations to complete a questionnaire (either on-line, in writing, or by telephone), including an offer to share the summary reports, were sent to 4,410 companies randomly selected from the SABI database. Overall, 603 surveys were returned, resulting in an initial response rate of 13.67%. Only 509 were usable, resulting in a final response rate of 11.54%, which is comparable to similar studies aimed at top management teams in Spain (e.g., Casillas and Moreno 2010; Casillas, Moreno, and Barbero 2011; Cruz, Gomez-Mejia, and Becerra 2010). Firms included in the sample are active across the country's provinces and represent all sectors of the Spanish economy. The sampling error is 4.33% with 95% confidence limits ($z = 1.96$; $p = q = .5$), which is lower than that suggested by previous studies on DC (e.g., a sampling error of 8.4% by Nieves and Haller 2014). As a final step, we assessed potential bias by utilizing the Kruskall-Wallis test to determine potential differences between the different types of responses. No statistically significant differences were discovered (p-value > .05).

Measures

All constructs were measured using established Likert-type scales with a 5-point response format ranging from “strongly disagree” to “strongly agree,” unless otherwise noted. All items and Cronbach’s alpha values are reported in Appendix 1. All showed acceptable values ($\alpha \geq .80$), surpassing the threshold point of .7 (Nunnally 1978).

Dependent Variable. Perceptual judgments were used to assess SME performance. Subjective measures of performance are common (e.g., Real, Roldán, and Real 2014) since they yield more holistic evaluations and capture more than a single performance

element (Rodríguez, Carrillat, and Jaramillo 2004). There is also a strong correlation between objective and subjective performance measures (Dawes 1999; Dess and Robinson 1984, Ling and Kellermanns 2010). Specifically, performance (α = .842) was measured using an 8-item scale (Arend 2013) with a 5-point response format ranging from "much worse" to "much better." As a test for robustness, we performed a more fine-grained analysis by splitting the dependent variable into two factors (for details see Appendix 2).

Independent Variables. Since we wanted to analyze the independent effects of DC dimensions on SME performance, we deliberately treated DC as a disaggregated set of constructs rather than a linear sum of its four dimensions (Pavlou and El Sawy 2011). Specifically, DC were measured by adapting the accepted 19-item scale from Pavlou and El Sawy that has been applied by others (e.g., Albort-Morant, Leal-Millán, and Cepeda-Carrión 2016; Nieves and Haller 2014; Nieves et al. 2016). This scale comprises the capabilities of sensing (4 items, α = .802), learning (5 items, α = .916), integrating (5 items, α = .807), and coordinating (5 items, α = .902).

Moderating Variable*.* Despite the range of conceptualizations of MO terminology in the literature, the two main approaches continue to be the behavioral approach (Kohli and Jaworski 1990) and the cultural approach (Narver and Slater 1990). In both approaches, the MO construct is conceptualized as a single construct composed of several dimensions. Kohli and Jaworski (1990), who viewed MO as consisting of intelligence generation, intelligence dissemination, and organization-wide responsiveness, operationalized the construct through the MARKOR scale (Kohli, Jaworski, and Kumar 1993). Narver and Slater (1990), who inferred from the literature that MO consists of customer orientation, competitor orientation, and inter-functional coordination, operationalized MO through the MKTOR scale (Narver and Slater 1990). Later, Deshpandé et al. (1993), who consider

customer and market orientations as synonymous (and hence distinguishable from a competitor orientation), developed a new MO scale, consistent with the MARKOR and the MKTOR scales. Deshpandé and Farley (1998) examined the inter-scale and intra-scale characteristics of all three scales and concluded that while developed more or less independently, they appear to be interchangeable and that substantive conclusions reached with each scale can be applied generally to the others. Additionally, Deshpandé and Farley, based on a factor analysis of the 44 individual items from the three original scales (15 from MKATOR, 20 from MARKOR and 9 from the scale proposed by Deshpandé et al.), created a final 10-item scale, referred to as the MORTN summary scale. This scale is considered highly reliable and has been used by numerous later studies (e.g., Baker and Sinkula 2009; Deshpandé and Farley 1999). Accordingly, we measured MO ($\alpha = .836$) by using the MORTN scale.

Control Variables. We utilized seven different control variables. We first controlled for firm size because larger firms might dedicate more resources to develop their change routines (Schilke 2014b) and have access to more or better capabilities than smaller firms, while smaller firms may have more flexibility and ability to develop capabilities more quickly (Drnevich and Kriaciunas 2011). To measure firm size, we adopted the natural logarithm of the number of employees (Menguc and Auh 2006, 2008). Consistent with previous studies (Cai, Liu, Zhu, and Deng 2015; Monferrer et al. 2015), we also controlled for industry type because certain industries may demand faster, more flexible learning and transformation (Teece et al. 1997; Teece 2014). Following NACE coding (statistical classification of economic activities in the European Community), we introduced three dummy variables (manufacturing, construction, and service sectors), with agricultural sector being used as the default. Additionally, the DC-firm performance relationship can be contingent on firm age (Arend 2013, 2014) and age may influence the extent of

patterned forms of behavior that underpin DC (Helfat and Peteraf 2003). Thus, we controlled for firm age, measured as the number of years between the firm's establishment and the survey application (2015). Then, in line with other studies (e.g., Koropp, Grichnik, and Kellermanns 2013), we controlled for the existence of a board of directors by including a dichotomous variable, where the number 1 was assigned in this case. Finally, and consistent with previous studies (e.g., Menguc and Auh 2008), we controlled for environmental dynamism (α = .808), given that "the concept of DC is intrinsically linked to market dynamism" (Wang and Ahmed 2007, p. 34) and that the higher the degree of environmental dynamism, the higher the contribution of DC to firm performance (Drnevich and Kriaciunas 2011). Environmental dynamism was measured using a 3-item scale taken from Jansen, Van den Bosch, and Volberda (2005), which has been employed in previous studies (e.g., Chirico, Sirmon, Sciascia, and Mazzola 2011).

Results

Table 1 summarizes the values of the means, standard deviations, and correlations for the unstandardized variables. The correlations between the learning and the sensing capabilities and those between the integrating and the coordinating capabilities were .743 and .703, respectively. Accordingly, we calculated the variance inflation factors of these four variables, which ranged from 2.054 to 2.641. Condition indices ranged from 2.412 to 7.954, suggesting that multi-collinearity was not a concern (Hair, Anderson, Tatham, and Black 1998). To further mitigate multi-collinearity concerns, the variables were converted to *Z*-scores before creating the interaction terms, similar to other authors (Aiken and West 1991). In line with Harman's (1967) single-factor test, we addressed common method bias by using the procedure suggested by Podsakoff and Organ (1986), which has been applied in recent studies (e.g., Walter, Kellermanns, and Lechner 2012). All items of the independent, dependent, and control variables were entered into a factor analysis;

eight factors with eigenvalues > 1.0 were identified, accounting for 64.75% of the variance. The first factor explains 32.86% of the variance. Because no single factor emerged, common method bias does not seem to be a significant concern.

Insert Table 1 about here

The hypotheses were tested using multiple regression analysis; the results appear in Table 2. In Model 1, four of the seven control variables were significantly related to SME performance: size (β = .059, $p < .05$), firm age (β = -.086, $p < .01$), board (β = .057, $p < .05$) and environmental dynamism (β = .139, $p < .001$). Additionally, the manufacturing sector was partially significantly related to SME performance (β = .141, $p < .1$).

Insert Table 2 about here

To test Hypotheses 1a through 1d, we entered the four DC dimensions into Model 2. A significant change in R^2 was observed ($\Delta R^2 = .201$, $p < .001$). Both the learning capability (β = .167, $p < .001$) and the integrating capability (β = .144, $p < .001$) had a significant positive effect on SME performance, thereby supporting Hypotheses 1b and 1c. However, the sensing and coordinating capabilities did not show any significant influence on company performance; thus, Hypotheses 1a and 1d were not supported.

To test the hypothesized moderation effects, we first entered the moderator (MO) in Model 3 and then entered the four interaction terms in Model 4. A significant change in R^2 was observed in both Model 3 ($\Delta R^2 = .018$, $p < .001$) and Model 4 ($\Delta R^2 = .014$, $p < .05$). Hypothesis 2a, which proposed that MO would moderate the relationship between sensing and SME performance, was supported (β = .085, $p < .01$). Hypothesis 2b, which postulated that MO would moderate the relationship between learning and SME

performance, was supported; the moderating effect of MO on the learning capability-performance link, however, was negative (β = - .084, $p < .01$). Hypothesis 2c, which argued that MO would moderate the relationship between integrating and firm performance, was not supported (β = - .028, n.s.). Finally, Hypothesis 2d, which argued that MO would moderate the relationship between coordinating and SME performance, was not supported (β = .012, n.s.).

The magnitude of interactive effects of sensing capability and MO, on the one hand, and of learning capability and MO, on the other, are small but statistically significant. Therefore, to facilitate interpretation of the moderation effects, the significant interactions were plotted in Figures 2 and 3. The interaction between sensing and MO (Figure 2) shows that in SMEs with low levels of MO, the sensing capability has little effect on performance, confirming that although sensing is a necessary condition, it is not enough for improving performance. For firms with high levels of MO, the higher the level of sensing capability, the stronger the performance of SMEs. Thus, our work confirms that only when a clear MO is present, the ability to sense change and to identify opportunities may be transformed into enhanced SME performance. When testing the effects of the gradients, our findings suggest that both SMEs with low MO (t = -2.397, $p < .05$) and high MO (t = 2.573, $p < .010$) have interactions significant enough with the sensing capability to affect performance. The second significant interaction effect (Figure 3) shows that for firms with low levels of MO, the relationship between learning and performance is more intense than for firms with high levels of MO. The positive slope between the learning capability and organizational performance was significant for SMEs scoring low on MO (t = 3.803, $p < .001$), whereas the slope for SMEs with high MO was not significant (t = 0.232, n.s.), indicating that the learning capability may act as a substitute for a strong MO. That is, even with low levels of MO, a firm can improve

performance if it has a high learning capability. The effect of learning, however, is almost neutral when a strong MO is present.

Lastly, we need to comment on the overall R^2 and the difference between the models. The difference in R^2 between our models in Table 2 were all significant, but a closer look at the distribution of the variance explained seems warranted. The initial control model explained 9.5% of variance (Model 1 in Table 2). The second model added the four DC dimensions and contributed an additional 20.1% to the variance explained. In model 3, MO was added which contributed 1.8%. Finally, the interactive effects (Model 4) added an additional 1.4%.

Insert Figures 2 & 3 about here

Lastly, we need to mention that we conducted numerous post hoc tests, which are discussed in detail and whose additional regression results are shown in Appendix 2.

Discussion and Conclusions

This study examined the moderating effects of MO on the relationships between SME performance and the four independent dimensions of DC proposed by Pavlou and El Sawy (2011). Our findings show that not all DC dimensions equally contribute to improved performance in SMEs (see also Singh and Rao 2017), confirming that scholars need to differentiate between different DC dimensions to study their impact (Helfat and Winter 2011). Specifically, we hypothesized that sensing, learning, integrating, and coordinating capabilities would be positively associated with SME performance. The relationship between sensing and performance, however, was not significant. Given that SMEs tend to have high personal contact with their customers (Coviello et al. 2000), sensing may not constitute a rare or scarce capability, but one developed by SMEs that will lead to better performance only when accompanied by other elements. Our results

support Hypotheses 1b and 1c. For the learning capability, the results corroborate the theoretical proposals advanced by earlier scholarship (Ambrosini and Bowman 2009; Lin and Wu 2014; Teece et al. 1997), indicating that learning enables better, quicker, and more efficient performance.

Our results regarding the integrating capability confirm Tseng and Lee's (2014) findings on SMEs that have implemented knowledge management and suggest that the capability to integrate knowledge-based assets within the firm may be a source of competitive advantage (Teece 2007; Tsai 2001). Finally, we did not find support for Hypothesis 1d, which predicted a positive relationship between the coordination capability and performance. Similar to the sensing capability, it is possible that the ability to correctly allocate scarce resources and improve the compatibility and synchronization of people and work was a distinctive and common reality in most SMEs; therefore, this is not a relevant source of performance, confirming the differences in coordination between SMEs and large firms (Palmié et al. 2016b).

These findings are important not only for the future operationalization of DC but also for research in the wider SME context. Facing fierce pressure from changing business environments, an increasing number of SMEs have to compete with powerful rivals, shifting customer demands, and rapid technological advancements. Therefore, it is even more important for SMEs, which tend to be resource constrained, to focus on investment in resources that promise the largest return on their investment. This is not to say that the non-significant DC dimensions do not provide benefits; they are likely to be necessary at certain thresholds but not sufficient to generate performance benefits.

Regarding the moderating influence of MO on relationships between DC and SME performance, we proposed that MO would enhance the positive relationship between sensing and performance, which was supported by our empirical results (see

Figure 2). This confirms that the sensing capability, although a necessary condition, is not enough to improve performance by itself. A strong MO helps firms balance internal organizational factors with customers' needs (both expressed and latent) and detect opportunities in the environment (Hou 2008; Slater and Narver 1999), thus enhancing performance. We also proposed a positive moderating effect of MO on the relationship between learning and SME performance. The effect, however, was negative (see Figure 3), which shows that MO also may have negative effects (a dark side), in contrast with previous studies that found that market-oriented behavior facilitates optimal learning (Baker and Sinkula 1999; Slater and Narver 1995). However, more recent research has called the benefits of pursuing learning for the sake of learning into question (Walter et al. 2016) and suggested that at higher levels of exploration (comparable to high MO), the benefits of learning diminish. Indeed, our findings also show that performance is high at higher levels of MO regardless of the level of learning capabilities, but that the same performance levels are achieved when lower MO is paired with higher level learning capabilities, suggesting a substitution effect. However, two of our interaction effects were not significant. In SMEs, which are characterized by resource constraints (Døving and Gooderham 2008; Lu and Beamish 2001), MO may not work through all the DC dimensions. Indeed, it suggests for SMEs that resources need to be put to their best use and additive relationships (both the integrating capability and MO have significant main effects, but not their interaction).

In summary, our study contributes to research on DC, an area of scholarship lacking examination of the direct and independent effects of individual dimensions of DC on firm performance (for exceptions see Huang et al. 2012; Park and Kim 2013; Singh and Rao 2017). We add to the emerging body of literature connecting DC and MO (e.g., Foley and Fahy 2009; Hou 2008; Morgan et al. 2009) and answer the call for in-depth

examination of the mechanisms through which DC influence performance (Eriksson 2014; Fainshmidt et al. 2016) by studying the moderating effects of MO on the relationships between the four DC dimensions and SME performance; this will also help provide managers with more specific and actionable guidelines to make high-quality decisions. We highlight the unique role of DC in SMEs by studying the singular contextual effects of the link between the DC dimensions and performance with MO as a moderator. We also show a darker side of MO that has not been previously discussed or acknowledged in the literature. Further studies will be needed to validate these relationships. Overall, our results reinforce previous research (Eddleston et al. 2008; Fainshmidt et al. 2016) and demonstrate that resources must be leveraged properly in order to lead to competitive advantage and superior performance.

Practical Implications, Limitations, and Future Research

Our work reveals that the impact of the learning and integrating capabilities on SME performance is positive, with learning as the DC dimension that seems to have the highest impact. Conversely, sensing and coordinating capabilities were not found to influence firm performance in the SME context. This suggests that SME managers should focus on promoting those capabilities that contribute to superior firm performance, that is, learning and integrating. Learning, for instance, can be developed by promoting informal communication in order to make the transmission of tacit knowledge easier or by promoting "learning by doing." Similarly, establishing an organizational culture that facilitates information exchange among different departments or levels within the firm can help strengthen the integrating capability.

However, certain limitations, must be taken into account when interpreting our results. First, our data were gathered at one point in time and are cross-sectional in nature. Despite cross-sectional designs being common in the strategic literature (e.g., Engelen,

Kube, Schmidt, and Flatten 2014), they restrict our ability to infer causality from findings. Our tests for common method bias did not show any concerns (Harman 1967; Podsakoff and Organ 1986; Podsakoff, MacKenzie, Lee, and Podsakoff 2003) and potential existing effects should not significantly affect the results (Doty and Glick 1998). Similarly, we did not show experience any multi-collinearity concerns between the DC dimensions and MO and the respondents were able to distinguish the different constructs (see also Appendix 2). Yet, high correlations between the constructs were observed, suggesting that future research may want to enhance the design. Future studies could employ a longitudinal design, which would be particularly useful in determining whether the effects of different dimensions of DC change over time, or at the very least capture DC, MO and performance at different points in time. Furthermore, given that our work is quantitative, a case study approach could contribute to our understanding of DC in SMEs.

While we utilized some objective archival data, our survey gathered self-assessment data of perceived measures for both DC and performance. Although this is in line with previous studies (e.g., Engelen et al. 2014; Pavlou and El Sawy 2011), and objective and subjective performance measures are often found to be highly correlated (Ling and Kellermanns 2010), it would have been more desirable to use objective performance measures. Future researchers could use archival data or other sources of information to examine the influence of dimensions of higher-order DC on performance, which would also facilitate a longitudinal approach.

The empirical context of our study consists of SMEs located in the Iberian Peninsula that were undergoing an economic crisis at the time the survey was applied (the beginning of 2015); therefore, caution should be exercised in generalizing these findings to non-comparable populations. However, considering the general economic climate, these findings highlight the importance of DC, even in times of economic crisis.

Researchers are encouraged to compare the effects of DC in various types of environments.

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Figure 1
Model and Hypothesis

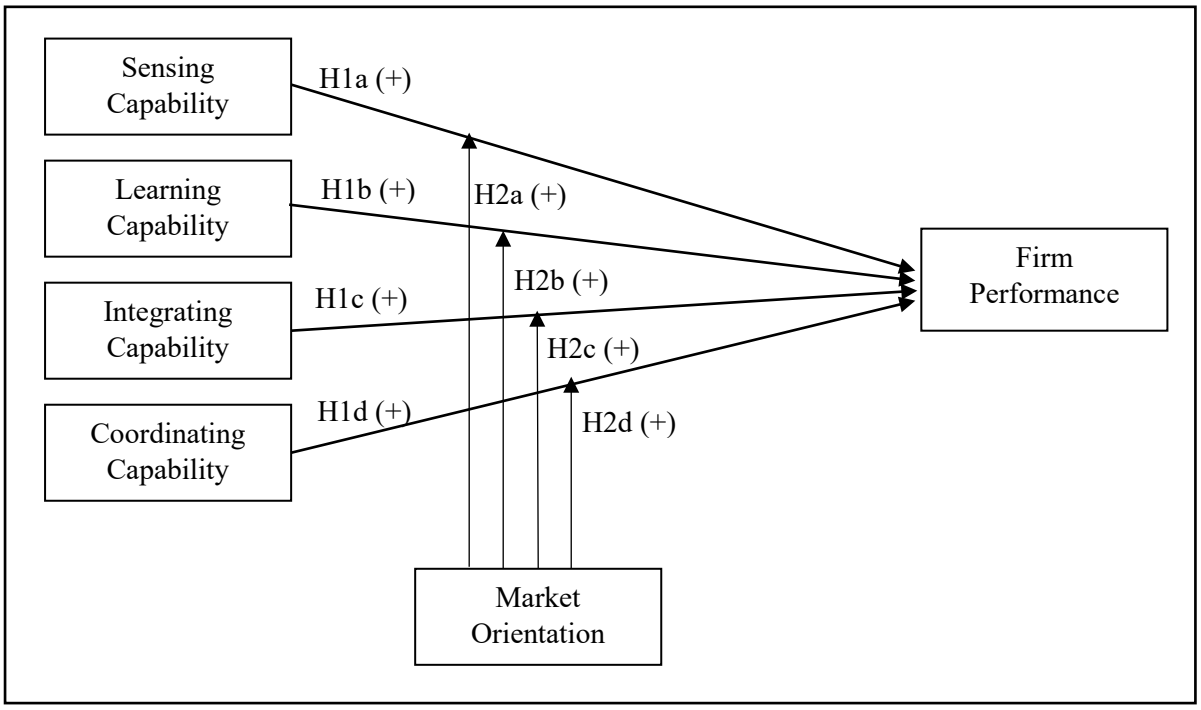

Figure 2
Interaction: Sensing Capability and MO

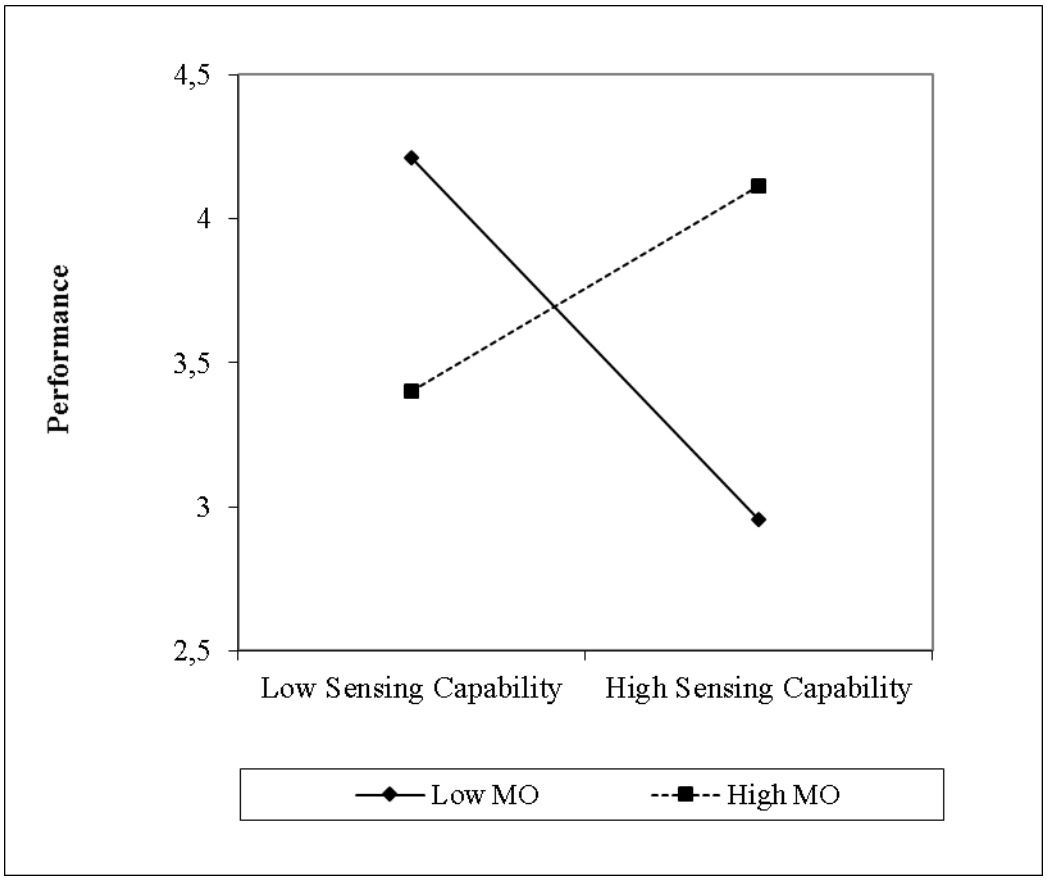

Figure 3
Interaction: Learning Capability and MO

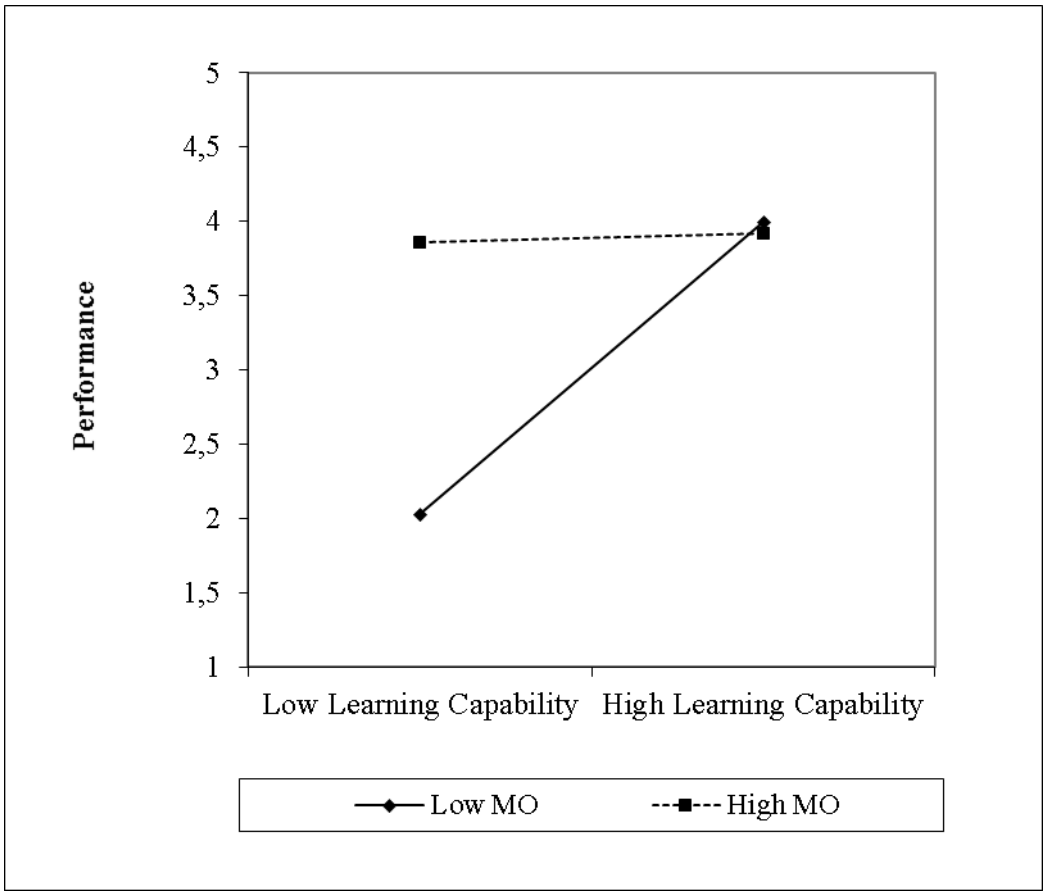

Table 1
Descriptive Statistics and Correlations

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Performance	3.719	.615												
2. Sensing capability	3.778	.830	.409***											
3. Learning capability	3.669	.848	.478***	.743***										
4. Integrating capability	4.217	.577	.445***	.542***	.589***									
5. Coordinating capability	4.203	.645	.362***	.468***	.516***	.703***								
6. Market orientation	4.026	.646	.422***	.564***	.502***	.535***	.547***							
7. Firm size[1]	3.213	7.645	.099*	.058	.034	-.022	-.025	-.104**						
8. Manufacturing sector	.224	.417	.047	-.071	-.078*	-.100*	-.067	-.051	.073					
9. Construction sector	.094	.293	-.070	-.092*	-.093*	-.012	-.018	-.026	–-.054	-.173***				
10. Services sector	.656	.475	.029*	.144***	.164***	.104**	.089*	.096*	-.025	-.742***	-.446***			
11. Firm age	21.990	11.594	-.084*	-.070	-.073	-.136***	-.126**	-.037	.196***	.242***	-.020	-.180***		
12. Board	.049	.050	.094*	.108**	.123**	.054	.056	.123**	.153***	.044	.010	-.025	.180***	
13. Environmental dynamism	3.614	.977	.238***	.440***	.420***	.268***	.239***	.253***	.037	-.056*	-.083*	.130**	-.006	.029

n = 509; [1]Logarithmezed variable; *p<.05; **p< .01; ***p< .001

Table 2

Results of Linear Regression Analysis: Four Models[1]

Variables	Models			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Controls:				
Firm size	.059*	.058*	.048*	.048*
Manufacturing sector	.141†	.114†	.099	.100
Construction sector	.044	.026	.014	.014
Services sector	.112	.058	.039	.035
Firm age	-.086**	-.048†	-.050*	-.053*
Board	.057*	.021	.017	.023
Environmental dynamism	.139***	.020	.022	.020
Independent variables:				
Sensing capability		.026	-.011	.019
Learning capability		.167***	.166***	.140***
Integrating capability		.144***	.127***	.111**
Coordinating capability		.015	-.015	-.008
Moderator:				
Market Orientation (MO)			.110***	.116***
Interaction effects:				
Sensing capability*MO				.085**
Learning capability*MO				-.084**
Integrating capability*MO				-.028
Coordinating capability*MO				.012
ΔR^2	.095***	.201***	.018***	.014*
R^2	.095	.296	.314	.328
Adjusted R^2	.082	.280	.297	.306
F	7.485***	18.988***	18.881***	14.997***

*† p < .10; * p < .05; ** p < .01; *** p < .001; [1]Standardized regression weights*

Appendix 1.
Scale Items and Reliabilities

Construct	Items	Alpha
Dependent Variable		
Performance		**.842**
	Relative to rivals, how would you compare the firm's current performance in terms of: ▪ Return on Assets. ▪ Growth in Sales. ▪ Market Share. ▪ Quality of products, services or programs. ▪ Development of new products, services or programs. ▪ Ability to attract and retain essential employees. ▪ Satisfaction of customers or clients. ▪ Increase in competitive position.	
Independent Variables		
Sensing Capability		**.802**
	Please indicate the degree to which you agree or disagree with the following statements: ▪ We frequently scan the environment to identify new business opportunities. ▪ We periodically review the likely effect of changes in our business environment on customers. ▪ We often review our product development efforts to ensure they are in line with what the customers want. ▪ We devote a lot of time implementing ideas for new products and improving our existing products.	
Learning Capability		**.916**
	Please indicate the degree to which you agree or disagree with the following statements: ▪ We have effective routines to identify, value, and import new information and knowledge. ▪ We have adequate routines to assimilate new information and knowledge. ▪ We are effective in transforming existing information into new knowledge. ▪ We are effective in utilizing knowledge into new products. ▪ We are effective in developing new knowledge that has the potential to influence product development.	
Integrating Capability		**.807**
	Please indicate the degree to which you agree or disagree with the following statements: ▪ We are forthcoming in contributing our individual input to the group. ▪ We have a global understanding of each other's tasks and responsibilities. ▪ We are fully aware who in the group has specialized skills and knowledge relevant to our work. ▪ We carefully interrelate our actions to each other to meet changing conditions.	

	▪ Group members manage to successfully interconnect their activities.	
Coordinating Capability		**.902**
	Please indicate the degree to which you agree or disagree with the following statements: ▪ We ensure that the output of our work is synchronized with the work of others. ▪ We ensure an appropriate allocation of resources (e.g., information, time, reports) within our group. ▪ Group members are assigned to tasks commensurate with their task-relevant knowledge and skills. ▪ We ensure that there is compatibility between group members expertise and work processes. ▪ Overall, our group is well coordinated.	
Moderator		
Market Orientation		**.836**
	Please indicate your extent of agreement about how well the statements describe the actual norms in your business: ▪ Our business objectives are driven primarily by customer satisfaction. ▪ We constantly monitor our level of commitment and orientation to serving customer needs. ▪ We freely communicate information about our successful and unsuccessful customer experiences across all business functions. ▪ Our strategy for competitive advantage is based on our understanding of customers' needs. ▪ We measure customer satisfaction systematically and frequently. ▪ We have routine or regular measures of customer service. ▪ We are more customer focused than our competitors. ▪ I believe this business exists primarily to serve customers. ▪ We poll end users at least once a year to assess the quality of our products and services. ▪ Data on customer satisfaction are disseminated at all levels in this business unit on a regular basis.	
Controls		
Environmental Dynamism		**.807**
	Please indicate the degree to which you agree or disagree with the following statements: ▪ Environmental changes in our local market are intense. ▪ Customers regularly ask for complete new products and services. ▪ In our market, changes are taking place continuously.	

Appendix 2. Robustness Tests

We conducted multiple robustness tests. First, to assess the empirical robustness of our results, we first conducted a confirmatory factor analysis (CFA) on our five multi-item constructs (sensing capability, learning capability, integrating capability, coordinating capability, and MO). While allowing for the same within-construct error term correlations, CFA for our hypothesized five-factor model shows acceptable fit (χ^2 = 1206.194[360], CFI = .902, IFI = .900, TLI = .889, AGFI = .826, and RMSEA = .068) and overall good standardized factor loadings (Hair, Black, Babin, Anderson, and Tatham 2006). Accordingly, our results suggest convergent validity (Kohli, Shervani, and Challagalla 1998). We further confirmed our choice to consider the different DC separately by showing that a two-factor model of second-order DC and MO exhibits significantly worse fit (χ^2 = 2355.437[369], CFI = .769, IFI = .770, TLI = .746, AGFI = .629, and RMSEA = .103; χ^2 difference = 1149.243[9], p = .000).

Second, we performed a multiple regression analysis by employing the same control variables while considering the DC construct as a second-order construct. Thus, we first introduced the seven control variables and then entered the DC second-order construct by observing a significant change in R^2 (ΔR^2 = .187, p < .001). DC (β = .301, p < .001) show a significant positive effect on SME performance, supporting the existence of a positive direct relationship between both variables, which is supported by previous works (Fainshmidt et al. 2016). To test the moderation effects of MO on the DC-performance link, we entered MO in the model, where a significant change in R^2 was observed (ΔR^2 = .013, p < .01). Finally, we entered the interaction term in the model; the change in R^2, however, was not significant (ΔR^2 = .001, p = .486), despite our consideration of DC individually. Our results, which support the moderating effect of MO on the relationships between the sensing and the learning capabilities and SME

performance, seem to support the idea that conceptualizing DC as higher-order generic capabilities may not fully capture the complexity of the construct (Helfat and Winter 2011).

Third, to see whether the respondents could distinguish between MO and individual DC dimensions, we also tested a two-factor solution between each dimension of DC and MO and compared them with a single-factor model. We found that our hypothesized two-factor models always fit the data better. Specifically, comprising sensing capability and MO showed better fit (χ^2 = 362.618[71], CFI = .899, IFI = .900, TLI = .871, AGFI = .864, and RMSEA = .090) than a combined one-factor model (χ^2 = 614.323[72], CFI = .812, IFI = .814, TLI = .763, AGFI = .781, and RMSEA = .122; χ^2 difference = 251.705[1], p = .000). In the case of learning capability, our hypothesized two-factor model showed better fit (χ^2=237.883[82], CFI = .960, IFI = .960, TLI = .948, AGFI = .911, and RMSEA = .061) than a combined one-factor model (χ^2= 653.332[83], CFI = .853, IFI = .854, TLI = .814, AGFI = .721, and RMSEA = .116, χ^2 difference = 251.705[1], p =.000). Our hypothesized two-factor model of integrating capability and MO showed better fit (χ^2 = 317.093[84], CFI = .917, IFI = .918, TLI = .897, AGFI = .887, and RMSEA = .074) than a combined one-factor model (χ^2 = 515.221[85], CFI = .847, IFI = .848, TLI = .811, AGFI = .810, and RMSEA = .100; χ^2 difference = 198.128[1], p =.000). Our hypothesized two-factor model of coordinating capability and MO showed better fit (χ^2 = 293.466[84], CFI = .941, IFI = .942, TLI = .927, AGFI = .896, and RMSEA = .070) than a combined one-factor model (χ^2 = 639.922[85], CFI = .845, IFI = .846, TLI = .809, AGFI = .752, and RMSEA = .113, χ^2 difference = 346.456[1], p = .000). Last, we investigated correlations to further assess discriminant validity. For example, there is no significant relationship of firm age with MO, but there is a significant relationship with two DC dimensions. Similarly, MO and two dimensions of DC are significantly related

to board membership. The DC dimensions in question do not co-vary but are different for the two variables mentioned, suggesting discriminant validity.

Last, while we performed our analysis with an overall performance variable, and given the multidimensional nature of performance (Combs, Crook, and Shook 2005; Miller, Washburn, and Glick 2013), we replicated our analysis with a more fine-grained approach to our dependent variable. We carried out a factor analysis on the eight items comprising Arend's (2013) performance scale using principal component analysis (varimax method) in order to extract the main factors from the considered set of items. While generally used as a single overall performance construct in studies, the factor analysis, following the percentage of variance and the scree test criteria (Hair et al. 2006) generated two factors, accounting for 64.03% of the variance (Kaiser-Meyer-Olkin statistic = .855; Bartlett's statistic = 1584.361; significance .000). The first factor, comprising items 1 to 5 of the scale (α = .822), refers to more objective outcomes, here, each item could be objectively assessed or approximated. The second factor, comprising items 6 to 8 (α = .759), is related to more subjective performance assessments. Here, individual self-assessments of the performance outcomes were necessary. We believe that the distinction between the more general and personal assessment items likely guided the factor structure. We repeated the multiple regression analysis performed to contrast our models tested above, employing dependent variables derived from factors one and two found in the factor analysis described above. The results of these analyses are shown in Table A2 and are qualitatively similar to the findings reported in the Results section.

Table A2

Post-Hoc Linear Regression Analyses[1]

Variables	***Dependent variable: Performance 1st Factor***				***Dependent variable: Performance 2nd Factor***			
Controls:	**Model 1a**	**Model 2a**	**Model 3a**	**Model 4a**	**Model 1b**	**Model 2b**	**Model 3b**	**Model 4b**
Firm size	.093**	.090**	.082**	.082**	.00*	.003	-.008	-.008
Manufacturing sector	.162†	.132†	.118	.114	.108	.085	.067	.077
Construction sector	.008	-.009	-.021	-.025	.104†	.086	.071	.077
Services sector	.113	.056	.040	.029	.110	.061	.039	.043
Firm age	-.115***	-.081**	-.083**	-.085**	-.037	.008	.005	.000
Board	.065*	.030	.025	.032	.043	.008	.002	.007
Environmental dynamism	.134***	.016	.017	.015	.147***	.028	.030	.028
Independent variables:								
Sensing capability		.032	-.001	.027		.017	-.027	.006
Learning capability		.193***	.192***	.167***		.125**	.124**	.096*
Integrating capability		.121**	.106*	.089*		.183***	.163***	.149***
Coordinating capability		-.012	-.039	-.032		.060	.024	.033
Moderator:								
Market Orientation (MO)			.098**	.102**			.130***	.140***
Interaction effects:								
Sensing capability*MO				.078*				.098***
Learning capability*MO				-.085*				-.081**
Integrating capability*MO				-.034				-.018
Coordinating capability*MO				.007				.020
ΔR^2	.099***	.138***	.010**	.012†	.061***	.204***	.021***	.013†
R^2	.099	.236	.247	.259	.061	.265	.286	.299
Adjusted R^2	.086	.220	.229	.235	.047	.249	.268	.276
F	7.851***	13.990***	13.541***	10.735***	4.613***	16.275***	16.532***	13.090***

*† p < .10; * p < .05; ** p < .01; *** p < .001; [1]Standardized regression weights*