Is more capability always beneficial for firm performance? Market orientation, core business process capabilities, and business environment

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Abstract

This study examines the role of capabilities in core marketing-related business processes – product development management (PDM), supply chain management (SCM) and customer relationship management (CRM) – in translating a firm's market orientation (MO) into firm performance. The study is the first to examine the interplay of all three business process capabilities simultaneously, while investigating how environmental conditions moderate their performance effects. A moderated mediation analysis of 468 product-focused firms finds that PDM and CRM process capabilities play important mediating roles, whereas SCM process capability does not mediate the relationship between MO and performance. However, the relative importance of the capabilities as mediators varies along the degree of environmental turbulence, and under certain conditions, an increase in the level of business process capability may even turn detrimental.

Keywords: Business process capability; firm performance; market orientation; environmental turbulence; moderated mediation analysis

Introduction

According to resource-based theory in marketing (Kozlenkova, Samaha, & Palmatier, 2014), market-based resources such as a market orientation (MO) (Narver & Slater, 1990) and marketing-related capabilities (e.g., Day, 1994; 2011) represent key sources of competitive advantage and firm performance (e.g., Han, Kim, & Srivastava, 1998; McNaughton, Osborne, Morgan, & Kutwaroo, 2001; Wernerfelt, 1984). The performance implications of MO and marketing-related capabilities are closely intertwined, as, on the one hand, these capabilities provide firms mechanisms that facilitate the implementation of MO (Hult, Ketchen, & Slater, 2005; Ngo & O'Cass, 2012b; Slater & Narver, 1994). On the other hand, firms that have a good understanding of their markets are considered better at exploiting their marketing-related capabilities to create superior value for their customers (Cravens, Piercy, & Baldauf, 2009; Srivastava, Shervani, & Fahey, 1999).

Given the generally accepted positive performance implications of marketing-related capabilities, less is known about whether a market-oriented firm can place *too much focus* on developing one or more of the capabilities. An overemphasis on product development, for example, could lead to providing products with features that exceed customer requirements (Lukas, Whitwell, & Heide, 2013) or spending too much time on product development when rapid changes in customer needs call for rapid commercialisation and focus on managing customer relationships. In turn, placing excessive focus on operational efficiency (cf. Keith, 1960) or on a firm's current customers and their needs (Christensen & Bower, 1996) could inhibit innovation and adaptation to changes in the business environment (Grewal & Slotegraaf, 2007).

In the present study, we draw on Srivastava et al.'s (1999) conceptual initiative, which suggests that three marketing-related core business process capabilities – product development management (PDM), supply chain management (SCM), and customer

relationship management (CRM) – are critical to achieving organisational goals in value creation. As such, we expect these capabilities to play a crucial role in bridging MO and firm performance (Ramaswami, Srivastava, & Bhargava, 2009). In addition to investigating this mediated relationship, we examine how different environmental conditions (Jaworski & Kohli, 1993) moderate – even turn around – their performance impact. First, as our main contribution, we show how business process capabilities may, in fact, lose their mediating role and even become detrimental to firm performance under certain specific market conditions. Second, we identify the relative roles different business process capabilities play in mediating the influence of MO on firm performance, thereby complementing earlier research on their mediating impact (e.g., Lisboa, Skarmeas, & Lages, 2011; Mavondo, Chimhanzi, & Stewart, 2005). Since the vast majority of extant studies focus on only one business process capability at a time, understanding the relative roles of the three core business process capabilities (Ramaswami et al., 2009; Srivastava et al., 1999) as mediators in the MO–firm performance relationship has remained limited to date. As our third and final contribution, we provide a potential explanation for the somewhat conflicting findings in prior research (e.g., Chang, Park, & Chaiy, 2010; Hult et al., 2005; Rapp, Trainor, & Agnihotri, 2010) on the mediating role of individual business process capabilities on firm performance. For instance, previous studies have disagreed on the roles PDM (e.g., Murray, Gao, & Kotabe, 2011 vs. Mavondo et al., 2005; Noble, Sinha, & Kumar, 2002) and CRM (Rapp et al., 2010 vs. Hult et al., 2005) play. We shed additional light on these conflicting findings by demonstrating how environmental contingencies moderate and shape the mediating impact of business process capabilities on the MO–firm performance link (cf. Krasnikov & Jayachandran, 2008; Ramaswami et al., 2009). In sum, the present study is the first to test a comprehensive moderated mediation model of MO, business process capabilities, and firm performance under varying environmental conditions.

Drawing from a sample of 468 product-focused firms, we investigate the firms' MO; marketing-related capabilities in the core business processes of PDM, SCM, and CRM; the environmental conditions of market turbulence, technological turbulence, and competitive intensity; and firm performance. Our key findings demonstrate that PDM and CRM process capabilities are effective in translating MO into firm performance, whereas SCM process capability does not mediate the relationship. However, the importance of the business process capabilities as mediators varies significantly across different levels of environmental turbulence. Particularly, the mediating effect of CRM process capability strengthens when competitive intensity is high. In contrast, under high technological turbulence, the indirect performance implications of MO via SCM process capability may even turn negative. Similarly, the mediating effect of PDM process capability strengthens when market turbulence is high but diminishes under intense competition. Thus, the present study suggests that higher levels of capability in marketing-related core business processes do not always lead to better firm performance, and can even turn detrimental.

Theoretical background and hypotheses

Market orientation and business process capabilities

In line with the definition by Narver and Slater (1990), in this study we contend that MO comprises three components – customer orientation, competitor orientation and inter-functional coordination – which work together to enhance a firm's long-term business performance. The evidence of a positive relationship between MO and firm performance has been empirically established (e.g., Kirca, Jayachandran, & Bearden, 2005; Taghian, 2010), but evidence of *how* and *through what organisational processes* MO as an organisational resource (Hunt & Morgan, 1995) enhances firm performance remains inconclusive (Ketchen,

Hult, & Slater, 2007; Ngo & O'Cass, 2012b). In general, existing MO literature points to the need for mediating mechanisms such as innovative capabilities (Lisboa et al., 2011), the strength of the supplier relationship (Martin & Grbac, 2003), and organisational responsiveness (Hult et al., 2005) to fully realise the performance and customer value creation potential of MO (McNaughton et al., 2001; Ngo & O'Cass, 2012a).

Business process capabilities refer to the accumulation of knowledge, skills and routines that enable a firm to utilise and enhance the value of its marketing-related resources (Day, 1994; Ray, Barney, & Muhanna, 2004). Business process capabilities are particularly relevant in translating a firm's MO into business performance, as they capture the firm's outside-in, inside-out and spanning processes (Day, 1994) and thereby provide a mechanism for value creation and achieving organisation-level performance goals (Srivastava et al., 1999). More specifically, PDM process capability ensures that a firm's offering is constantly in line with customer needs, SCM process capability ensures that the offering reaches the customer in an efficient manner, whereas CRM process capability enables development of the customer base and, therefore, capitalising on its value potential (Ramaswami et al., 2009). Srivastava et al.'s (1999) categorisation of core business processes provides a useful framework for the study, since most of the marketing-related capabilities addressed in prior research as mediators to the MO–firm performance link fall under the broad categories of PDM, SCM and CRM.

Table 1 summarises the extant empirical studies on each of the core business process capabilities as potential mediators of the MO–firm performance relationship. Most of these studies concern PDM process-related mediators such as R&D proficiency (Langerak, Hultink, & Robben, 2007) and innovation capability (Lisboa et al., 2011; Ngo & O'Cass, 2012a), whereas mediators relating to CRM and SCM processes have received considerably less attention. Moreover, only Ngo and O'Cass (2012a), Murray et al. (2011), Olavarrieta and Friedmann (2008) and Hooley, Greenley, Cadogan, and Fahy (2005) focus on more than one

business process capability at a time. Therefore, a truly comprehensive view of the relative role of these three capabilities (cf. Krasnikov & Jayachandran, 2008) in mediating the MO–firm performance relationship is yet to be realised. In addition, none of the existing studies incorporates the possible complementary effects of the three business process capabilities, despite recent acknowledgement of the potential of such effects (e.g., Ngo & O'Cass, 2012a; Song, Droge, Hanvanich, & Calantone, 2005).

Table 1 A summary of empirical mediation studies on the relationship between market orientation and firm performance

Process	Author(s)	Mediator(s)	Outcome	Findings (positive mediation)
Various	Murray, Gao, and Kotabe (2011)	Marketing capabilities (pricing, NPD, marketing communication)	Performance (financial, strategic, product)	Pricing and NPD mediate; marketing communication does not mediate
	Olavarrieta and Friedmann (2008)	Knowledge-related resources (innovativeness, market-sensing capability, imitation capability)	New product performance, firm performance	Knowledge-related resources mediate; no explicit tests for each resource
	Hooley, Greenley, Cadogan, and Fahy (2005)	Customer linking capabilities, market innovation capabilities	Customer, market and financial performance	At least partial mediation; no proper mediation analysis
	Ngo and O'Cass (2012a)	Innovation capability, marketing capability	Innovation-related performance, customer-related performance	Partial mediation
PDM	Chang, Franke, Butler, Musgrove, and Ellinger (2014)	Innovation (radical, incremental)	Firm performance	Partial mediation
	Lisboa, Skarmeas, and Lages (2011)	Innovative capabilities (explorative and exploitative)	Current and future firm performance	At least partial mediation
	Langerak, Hultink, and Robben (2007)	Proficiency in predevelopment, development and commercialisation	New product, and organisational performance	Full mediation
	Mavondo, Chimhanzi, and Stewart (2005)	Innovation (process, product and administrative)	Operating efficiency, marketing effectiveness, financial performance	At least partial mediation, except for financial performance no mediation
	Hult, Hurley, and Knight (2004)	Innovativeness (capacity to introduce process, product or idea)	Business performance	Partial mediation
	Matear, Osborne, Garrett and Gray (2002)	Innovation (new service development)	Performance (market, financial)	At least partial mediation
	Noble, Sinha, and Kumar (2002)	Innovativeness	Firm performance	No mediation
	Han, Kim, and Srivastava (1998)	Organisational innovation (technical, administrative)	Organisational performance	Full mediation
SCM	Min, Mentzer, and Ladd (2007)	Supply chain orientation (SCO), supply chain management (SCM)	Firm performance	SCO mediates, SCM does not
	Martin and Grbac (2003)	Responsiveness to customers, strength of supplier relationship	Profit, sales growth	At least partial mediation for profit, but not for sales growth
CRM	Rapp, Trainor, and Agnihotri (2010)	Customer-linking capabilities	Organisational performance	No mediation
	Chang, Park, and Chaiy (2010)	CRM technology use, marketing capability	Organisational performance	Partial mediation
	Hult, Ketchen, and Slater (2005)	Organisational responsiveness	Objective performance (t+1)	Full mediation

The mediating role of PDM process capability

PDM process capability refers to a firm's ability to develop, commercialise and launch new products in an effective and efficient manner (Vorhies & Morgan, 2005; Chen, 2009). Slater and Narver (1994) propose that capability to innovate is one of the core capabilities that convert MO into firm performance in enabling the firm to consistently deliver value to its customers. In addition, a number of empirical studies (e.g., Atuahene-Gima, 2005; Chang, Franke, Butler, Musgrove, & Ellinger, 2014; Matear, Osborne, Garrett, & Gray, 2002) suggest MO is an important resource in developing innovative products and improving companies' implementation of product design and launch. Taken together, these studies suggest that a strong MO may, in fact, reinforce the performance implications of effectiveness in new product development and operations. The key contribution of MO in this context relates to its positive influence on designing and developing new offerings that meet customer needs in specific business contexts (Gatignon & Xuereb, 1997; Grinstein, 2008), which further results in superior firm performance (Baker & Sinkula, 2005; Hooley et al., 2005). Accordingly, our first hypothesis follows most extant studies in assuming PDM process capability is a positive mediator in the MO–firm performance relationship (e.g., Langerak et al., 2007; Lisboa et al., 2011; cf. Mavondo et al., 2005):

H1: PDM process capability mediates the effect of MO on firm performance.

The mediating role of SCM process capability

SCM process capability refers to the effectiveness and efficiency of a firm's operations that relate to internal and external logistics: the acquisition of all physical and informational inputs, the transformation of these inputs into customer solutions, and the delivery of these solutions to the customer (Srivastava et al., 1999; Tracey, Lim, & Vonderembse, 2005). In

the view of Esper, Ellinger, Stank, Flint, and Moon (2010), as superior value propositions emerge from a deep understanding of a market, firms should integrate demand and supply processes. Accordingly, studies examining the MO–SCM interplay (Green, McGaughey, & Casey, 2006; Martin & Grbac, 2003; Min, Mentzer, & Ladd, 2007) acknowledge the pivotal role MO plays in the process of building, maintaining and enhancing supply chain relationships and, thereby, in developing SCM process capability. Strong SCM process capability, in turn, can improve firm performance via building strong supplier relationships that enhance the firm's ability to respond to customers' changing needs more effectively, and via improving inventory management and logistics to reduce operating costs (Martin & Grbac, 2003; McNaughton et al., 2001; Ramaswami et al., 2009). Our second hypothesis builds on this reasoning:

H2: SCM process capability mediates the effect of MO on firm performance.

The mediating role of CRM process capability

CRM process capability refers to a firm's dynamic processes and activities that aim at constantly meeting the changing needs of current and potential customers (Ernst, Hoyer, Krafft, & Krieger, 2010; Reinartz, Krafft, & Hoyer, 2004). This capability enables the acquisition and retention of valuable customers, and enhances simultaneous value creation and capture from the customer relationships (Battor & Battor, 2010). In line with extant literature (Day, 1994; Olavarrieta & Friedmann, 2008), this study posits that a market-oriented culture is beneficial for establishing and nurturing customer relationships, developing an effective relationship management infrastructure (Jarratt, 2008; Jarratt & Katsikeas, 2009) and, thereby, developing relevant business process capabilities. MO importantly helps activate CRM process capability so that firms can learn from customers and adapt to their changing needs (Vargo & Lusch, 2004). Superior knowledge of customers

and markets in general is likely to result in effective targeting, appropriate responses to the needs of high-value customers and superior value creation (Hooley et al., 2005; Rapp et al., 2010), which in turn should positively influence firm performance (e.g., Battor & Battor, 2010; Reimann, Schilke, & Thomas, 2010). Our third hypothesis follows this rationale:

H3: CRM process capability mediates the effect of MO on firm performance.

The moderating role of environmental turbulence

To improve their performance in stable environments, firms need assets and capabilities that are different to those of their counterparts operating in more turbulent environments (Eisenhardt & Martin, 2000). Therefore, the relative role of the three business process capabilities in enhancing firm performance is likely to be contingent on the external environment (Amit & Schoemaker, 1993). For instance, a capability may be crucial in a stable business environment, but in highly turbulent environment the contribution of the same capability to performance may be insignificant or even detrimental. Consequently, firms may place excessive focus on developing business process capabilities that under certain specific conditions may be associated with lower or even negative performance outcomes.

Current evidence on the impact of individual business process capabilities as mediators of the MO–firm performance relationship is conflicting to some extent (see Table 1). Murray et al. (2011), for example, find a positive mediating effect for PDM process capability, whereas Mavondo et al. (2005) and Noble et al. (2002) report a non-significant effect. In the field of CRM, findings from previous studies range from showing no mediation (Rapp et al., 2010) to full mediation (Hult et al., 2005). In this study, we offer a potential explanation for these conflicting findings by introducing environmental turbulence as a key environmental contingency factor (cf. Amit & Schoemaker, 1993). Specifically, we concentrate on the three components of environmental turbulence: market turbulence (i.e., the frequency of changes in

customer composition and preferences), technological turbulence (i.e., the rate of technological change), and competitive intensity (i.e., the level of competition) (Jaworski & Kohli, 1993). We anticipate the moderating effect of turbulence to particularly influence the relationship between business process capabilities and firm performance.

In terms of PDM process capability, previous equivocal findings (e.g., Lisboa et al., 2011; Noble et al., 2002) may be explained by environmental turbulence playing a significant role in the capability–firm performance relationship. For instance, when changes in customer needs are frequent (high market turbulence) and/or the rate of technological change is high (high technological turbulence), the importance and value of PDM process capability for firm performance is likely to be higher. This is because changing customer needs and competitor offerings call for the development of new, value-enhanced products (Hult, Hurley, & Knight, 2004; Wind & Mahajan, 1997). Therefore, a high market and technological turbulence should positively moderate the PDM process capability-performance link. In contrast, in conditions of intensive competition, competitors are likely to imitate a focal firm's actions faster, causing problems of free-riding and lower returns on product development investments for a focal firm (Lieberman & Montgomery, 1988). This, in turn, is likely to decrease profit margins and weaken the positive effect of PDM process capability on performance. Thus:

$H4_{a,b,c}$: The mediated effect of MO on firm performance through PDM process capability is stronger with (a) higher market turbulence, (b) higher technological turbulence, and (c) lower competitive intensity.

Empirical studies on potential performance moderators of the link between SCM process capability and firm performance are essentially lacking. Strong SCM process capability nevertheless implies strong relationships with other actors in the firm's value network (Martin & Grbac, 2003), which is particularly important under high market and technological

turbulence. This is because strong network relationships increase the firm's alertness to changes in the marketplace. Thus, the performance implications of a strong SCM process capability, which facilitates quick responses to changes in customer preferences as well as technological advances, are likely to be clearer in conditions of high market and technological turbulence. In the case of intensive competition, in turn, strong SCM process capability provides the means for achieving superior firm performance through improvements in efficiency throughout the value chain, even when pricing is relatively rigid. Thus:

$H5_{a,b,c}$: The mediated effect of MO on firm performance through SCM process capability is stronger with (a) higher market turbulence, (b) higher technological turbulence, and (c) higher competitive intensity.

Although a strong CRM process capability is anticipated to lead to a relatively stable customer base resistant to turbulent market conditions, focusing too much on current customers and their needs might inhibit a firm from identifying emerging customer needs (Christensen & Bower, 1996). Thus, too much focus on CRM may even hinder a firm's holistic understanding of the market. Rapid technological advances also require concerted efforts to introduce new products and refine existing ones, which may sometimes require redefining the firm's target market and, therefore, renewing the firm's customer base. Thus, instead of over-focusing on managing relationships with existing customers and target markets, firms facing rapid technological changes should remain open to completely new business opportunities. Consequently, in environments characterised by high technological turbulence, firms should avoid over-spending on CRM processes, and focus rather on constantly refining their offering (Song et al., 2005). In a highly competitive environment, a strong CRM process capability and the resulting strong relationships with customers may, in turn, help protect the firm's market share and profits (Porter, 1985). This is because high

customer loyalty pays off particularly under intense competition, as customer acquisition generally requires more resources than customer retention (Reinartz, Thomas, & Kumar, 2005). Hence:

$H6_{a,b,c}$: The mediated effect of MO on firm performance through CRM process capability is stronger with (a) lower market turbulence, (b) lower technological turbulence, and (c) higher competitive intensity.

The complementary effects of the business process capabilities

Rather than solely emphasising the importance of independent capabilities, in line with Srivastava et al.'s (1999) conceptual initiative, the three marketing-related core business process capabilities may also interact to produce complementary performance effects (Kogut & Zander, 1992; Ramaswami et al., 2009). That is, the capabilities have potential to combine with each other so that higher level in one of the capabilities would also increase the returns of the others (Milgrom & Roberts, 1995; Wernerfelt, 1984).

For instance, a firm's ability to continuously develop new products is likely to enhance its ability to attract new customers and keep current ones (Kirca et al., 2005; Ramaswami et al., 2009). Furthermore, close relationships with customers enable the firm to acquire knowledge about changing customer needs and to better align its offerings with these needs (Battor & Battor, 2010; Ernst et al., 2010). Therefore, PDM and CRM process capabilities are suggested to reinforce each other's impact, in line with Song et al.'s (2005) study on complementarities between marketing-related capabilities and technology-related capabilities. In a similar vein, close relationships with other actors in the supply chain increase the firm's responsiveness to its customers and speed up the time-to-market for new customer solutions (Martin & Grbac, 2003). Thus, a strong SCM process capability could reinforce the performance implications of a strong PDM process capability. We hypothesise:

H7: The three business processes capabilities – PDM, SCM, and CRM – have complementary (i.e., positive interaction) effects on firm performance.

Figure 1 presents the research framework and hypotheses.

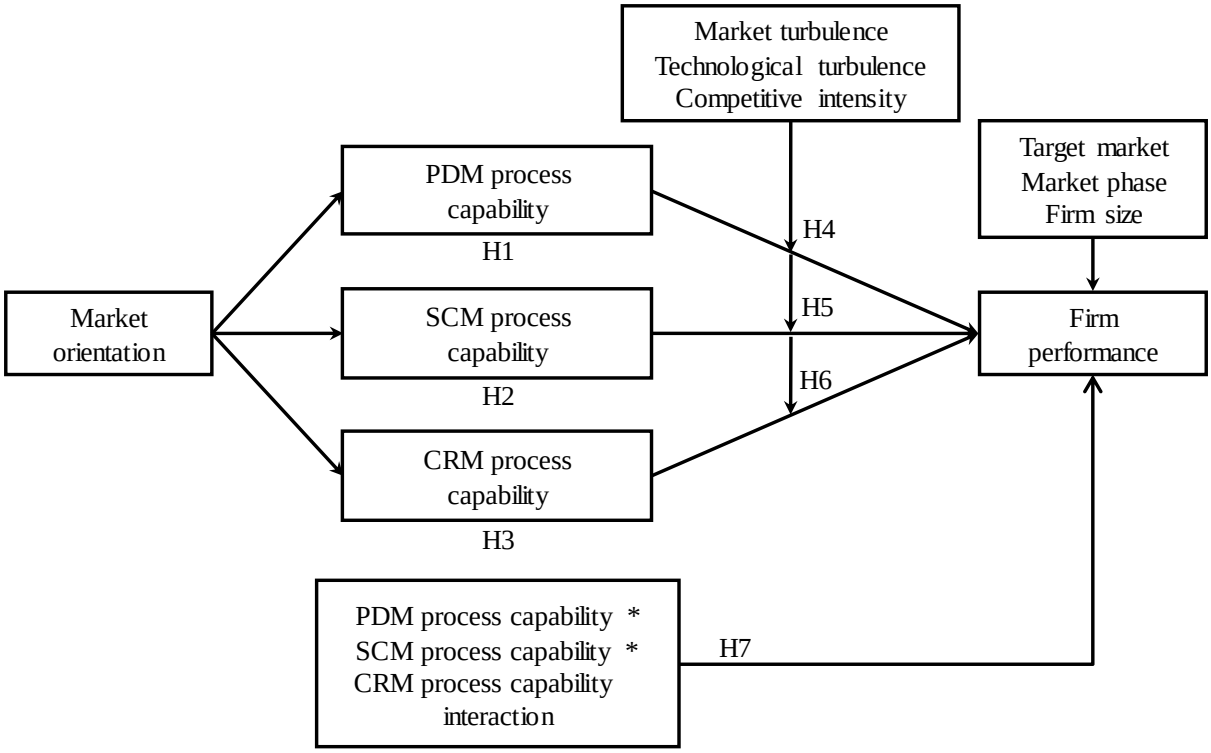

Figure 1 The research framework

Methodology

Research setting

Our survey data of product-focused companies tests the relationships between MO, business process capabilities, environmental turbulence and firm performance in accordance with the hypotheses developed. The choice of product-focused companies as the business context is appropriate for the purposes of the present study for two primary reasons. First, these firms tend to have more explicit management practices for all of the three processes of interest: PDM, SCM, and CRM. Second, as Kirca et al. (2005) suggest, MO plays a different role in service and manufacturing firms, leading to a need to study the relevant performance mechanisms in the two firm types separately. Therefore, our focus on product-focused firms enhances the internal validity and interpretability of the findings of the present study.

The data used in this study were collected via a Web-based survey conducted in Finland in 2010. The data comprises Finnish product-focused strategic business units (SBUs) with more than five employees, while the sampling frame for the study was derived from the database of a commercial provider (MicroMedia). The survey was targeted at the firms' top-management team members, assumed to have the most comprehensive knowledge regarding the issues under study (e.g., McKenna, 1991).

The data collection resulted in usable responses from 468 SBUs, corresponding to a response rate of 10.6 percent. In instances where we received more than one response from a SBU, we scrutinized the data and included only the responses of the informant with the highest position in the organisation in the final sample. The response rate is adequate, especially considering the high positions of the respondents (mostly CEOs or equivalent) (cf. Hooley et al., 2005). As Table 2 shows, the sample represents multiple industries, with a fairly even spread across business-to-business and business-to-consumer firms of different

sizes. Only product-focused companies – companies reporting that products (vis-à-vis services) constitute more than 50 % of their turnover – are included in our sample. Out of individual industry sectors, by far the largest proportion of companies is from manufacturing (57.1 %). In terms of firm size, as indicated by number of employees, our sample fairly well represents the Finnish firm population of small, medium-sized and large firms[2], while larger firms might be somewhat over-represented in our sample. According to the t-tests, there are no significant differences in the mean scores on the survey items for early versus late respondents at the .05 level, which suggests that non-response bias does not affect the findings of the study (Armstrong & Overton, 1977).

[2] Statistics Finland, "Finnish enterprises by industry and personnel size class," (accessed February 14, 2016), [available at http://pxnet2.stat.fi/PXWeb/pxweb/fi/StatFin/StatFin__yri__syr__010_yr_tol08/?tablelist=true].

Table 2 Sample description

Characteristic	Count	%	Characteristic	Count	%
Target market			Industry phase		
B-to-B	283	60.5	Emerging	38	8.1
B-to-C	185	39.5	Growth	150	32.1
Size (# of employees)			Mature	226	48.3
5-10	77	16.5	Declining	54	11.5
11-50	173	37.0	Market share (%)		
51-250	128	27.4	0–3	52	11.1
251-500	23	4.9	3.1–10	89	19.0
More than 500	67	14.3	10.1–20	102	21.8
Market position			20.1–35	106	22.6
Market leader	135	28.8	35.1–50	72	15.4
Market challenger	207	44.2	More than 50	47	10.0
Market follower	126	26.9			
Industry sector					
Manufacturing				267	57.1
Construction				16	3.4
Wholesale and retail trade; sale and repair of motor vehicles				102	21.8
Information and communication				6	1.3
Other				77	16.5

Note. Industry sectors which account for less than 1 % of the sample have been combined into category "Other".

Measures

The measures of MO, business process capabilities and firm performance predominantly derive from existing scales (for details, see Appendix). To measure MO, the classic MKTOR scale (Narver & Slater, 1990) was used. In the case of the three business process capabilities, we developed new items to supplement older scales in order to reflect the most recent developments in the literature, resulting in eight-item scales for each capability. With one exception, the items covering PDM process capability derive from Vorhies and Morgan (2005) and Chen (2009). The SCM process capability scale, in turn, reflects, for the most part, items from Tracey et al.'s (2005) study, whereas the CRM process capability items stem from those of Reimann et al. (2010), Reinartz et al. (2004), and Hult et al. (2005). All the new items reflect conceptual insights (e.g., Srivastava et al., 1999) emanating from the detailed literature review and expert interviews.

The items selected for the firm performance scale (return on investments, return on assets and profit margin) have previously been used in several studies (e.g., Hooley et al., 2005; Reimann et al., 2010). Subjective performance measures relative to competitors help to eliminate the effects of different industries and business settings that are characteristic in a national-level data set. Finally, to measure the dimensions of environmental turbulence (i.e., market turbulence, technological turbulence and competitive intensity) we used Jaworski and Kohli's (1993) scales. Target market (business-to-business vs. business-to-consumer), market phase (emerging or growing vs. mature or declining) and firm size (in terms of number of employees) serve as control variables in the models, being commonly used controls in strategic marketing literature (e.g., Kirca et al., 2005; Krasnikov & Jayachandran, 2008). Different types of capabilities are expected to lead to varying performance outcomes between target markets (cf. Krasnikov & Jayachandran, 2008) and market phases (cf. Sheth, 2011). Nevertheless, in this study we assume neither the target market nor market phase to have

significant performance implications because we concentrate on firm performance relative to the focal firm's main competition. Firm size, however, is likely to positively influence firm performance as a result of economies of scale.

Measurement validity

In order to evaluate the measurement properties of the constructs, we conducted a confirmatory factor analysis (CFA). The exclusion of items from the model when necessary ensured appropriate levels of unidimensionality (for the final list of items, see Appendix). Subsequently, the fit indices suggested that the data fits the measurement model well (χ^2 = 697.07(296), $p < .01$; RMSEA = .05; GFI = .90; CFI = .94; NNFI=.93). Additionally, all composite reliabilities (CR) and all but two average variances extracted (AVE) were above generally acceptable thresholds: 0.60 and 0.50, respectively. The two AVEs below the threshold of 0.50, relating to CRM process capability and competitive intensity, represent only minor violations (both reaching a value of 0.49; e.g., Zhou et al., 2005). We found support for convergent validity from high standardised factor loadings (threshold 0.60) and CRs. Support for discriminant validity is also evident: in line with the Fornell and Larcker's (1981) procedure, all the square roots of AVE for a specific construct were greater than the corresponding correlations of that construct with any other construct in the analysis. Table 3 gives the correlations and simple statistics for all the constructs.

Table 3 Means, standard deviations, construct reliability and validity and correlations

Construct	Mean	S.D.	CR	AVE	1	2	3	4	5	6	7	8
1. Market orientation	5.28	.95	.84	.52	**.72**							
2. PDM process capability	4.54	1.01	.75	.50	.44	**.71**						
3. SCM process capability	4.60	.86	.79	.55	.23	.22	**.74**					
4. CRM process capability	4.62	.77	.82	.49	.45	.50	.50	**.70**				
5. Firm performance	4.37	1.48	.97	.91	.17	.29	.25	.36	**.95**			
6. Market turbulence	4.18	1.43	.76	.61	.15	.12	.04	.10	.02	**.78**		
7.Technological turbulence	4.09	1.37	.86	.61	.07	.08	.04	.09	.02	.39	**.78**	
8. Competitive intensity	3.87	1.34	.66	.49	.04	.05	.04	.01	.04	.31	.13	**.70**

Square-root of average variance extracted (AVE) on the diagonal in bold; correlations off-diagonal

In order to control for common method bias, we first conducted Harman's one-factor analysis (Podsakoff & Organ, 1986). Unrotated principal components analysis identified eight factors that explain 70 percent of the total variance, and no single factor accounted for more than half. Second, acknowledging limitations of Harman's test, we also conducted marker-variable analysis (Malhotra, Kim, & Patil, 2006). Accordingly, two factors – a common latent factor, for which correlations between all of the measurement items was assumed constant, and a latent marker variable (market performance, which reflects low correlations with other factors in our data) – were added to the analysis. The magnitude of the standardised loadings of interest did not change substantively from the initial CFA when common and marker factors were included. The results of these two tests suggest that common method bias does not threaten the validity of our findings.

Results

In examining the potential mediating effects of the business process capabilities, we rely on the procedure Kenny, Kashy, and Bolger (1998) described. Accordingly, we analysed a series of structural equation models using maximum likelihood procedure in LISREL 9.20 (see Table 4). As Kenny et al. (1998) suggest, the estimates concern three structural models, all of which fit the data sufficiently well (Table 4).

To show the presence of a mediating effect, the first step of the procedure was to establish that MO influences firm performance. The results (Model 1) suggest that this holds true (β = .22; $p < .001$). The second step involved demonstrating that MO has significant effects on the mediator variables, that is, on the business process capabilities. This step (Model 2) also holds; MO strongly influences the level of capabilities in PDM (β = .59; $p < .001$), SCM (β = .33; $p < .001$), and CRM (β = .56; $p < .001$) processes. Finally, our intention was to

demonstrate that the mediators also influence firm performance when controlling for the effect of MO. The results (Model 3) suggest that PDM capability ($\beta = .18$; $p < .05$) and CRM capability ($\beta = .23$; $p < .05$) affect firm performance, while SCM capability does not ($\beta = .09$; n.s.). Moreover, by estimating Model 3, we tested whether the business process capabilities completely mediate the effect of MO on firm performance. Our findings indicate that MO loses its significance for performance ($\beta = -.01$; n.s.) when the mediators come into the analysis so that, in aggregate, capabilities in the core business processes fully mediate the MO–firm performance relationship (Kenny et al., 1998).

However, notable differences arise in the role of individual business process capabilities when considered separately. Specifically, whereas PDM and CRM process capabilities mediate the MO–firm performance relationship, SCM process capability is not found to have a mediating role. In other words, we find that the process through which MO influences firm performance appears (total effect: $\beta = .25$; $p < .001$) to culminate in PDM and CRM process capabilities, thereby supporting hypotheses H1 and H3 but not hypothesis H2. The entire mediation model (with controls) results in the following explanatory power for the constructs: 35.7, 10.9, and 31.5 percent, for PDM, SCM, and CRM process capabilities, respectively, and 15.2 percent for firm performance. Regarding the control variables, only firm size significantly ($p < .05$) affects firm performance, as was expected.

Table 4 Results of the mediation analysis

Variable	Model 1: DV=Firm performance	Model 2: DV=Process capabilities			Model 3: DV=Firm performance
		PDM capability	SCM capability	CRM capability	
Market orientation	.22*** (4.39)	.59*** (9.76)	.33*** (5.96)	.56*** (8.84)	-.01 (-.17)
PDM process capability	-	-	-	-	.18** (2.23)
SCM process capability	-	-	-	-	.09 (1.29)
CRM process capability	-	-	-	-	.23** (2.43)
Target market	.02 (.37)	-	-	-	.04 (1.03)
Market phase	-.05 (-1.06)	-	-	-	-.06 (-1.44)
Firm size	.11** (2.37)	-	-	-	.10** (2.30)
R^2	5.6 %	35.3 %	10.8 %	31.0 %	17.8 %

Model fit

Model 1: χ^2 (37)=87.19, p=.00; GFI=.97; CFI=.98; NNFI=.97; RMSEA=.05
Model 2: χ^2 (101)=481.23, p=.00; GFI=.88; CFI=.87; NNFI=.85; RMSEA=.09
Model 3: χ^2 (184)=514.10, p=.00; GFI=.91; CFI=.94; NNFI=.92; RMSEA=.06

Standardised coefficients are reported with *t*-values in parentheses

* p < .10; ** p < .05; *** p < .01 (two-way tests of significance)

We then proceeded to a moderated mediation analysis in order to test the moderating effects of environmental turbulence and to thus determine whether the relative advantage of a particular business process capability changes according to environmental conditions. The analysis uses standardised composites for each of the latent variables and, subsequently, multiplies these scores to create the interaction terms (Mathieu, Tannenbaum, & Salas, 1992). Also this analysis, introduced by Muller, Judd, and Yzerbyt (2005), involves estimating three models (Models 4 through 6), as detailed in the following equations (Equations 1 through 3).

$$Y = \beta_{40} + \beta_{41}X + \beta_{42}Mo + \beta_{43}XMo + \varepsilon_4 \quad (1)$$

$$Me = \beta_{50} + \beta_{51}X + \beta_{52}Mo + \beta_{53}XMo + \varepsilon_5 \quad (2)$$

$$Y = \beta_{60} + \beta_{61}X + \beta_{62}Mo + \beta_{63}XMo + \beta_{64}Me\ \beta_{65}MeMo + \varepsilon_6 \quad (3)$$

In the above equations, *Y* refers to the outcome (i.e., firm performance), *X* refers to the antecedent (i.e., MO), *Me* refers to the mediators (i.e., PDM, SCM, and CRM process capabilities), while *Mo* refers to the moderators (i.e., market turbulence, competitive intensity and technological turbulence). We conducted the steps separately for the potential moderating effects of the three components of environmental turbulence. This allowed detailed examination of the moderating relationships, as well as helped avoiding the models under study becoming unnecessarily complex.

First, we assessed moderation of the overall effect between MO and firm performance (Model 4). If moderated mediation was to occur, MO would affect performance ($\beta_{41} \neq 0$), while this effect would not depend on the moderators ($\beta_{43} = 0$). As evident from Table 5, we find support for these pre-conditions for each of the moderators.

Table 5 Results of the moderated mediation analysis (Model 4)

Variable	**Model 4a: DV=Firm performance**	**Model 4b: DV=Firm performance**	**Model 4c: DV=Firm performance**
Market orientation (MO)	.23*** (4.55)	.23*** (4.44)	.23*** (4.44)
Market turbulence (MT)	-.05 (-.87)	-	-
Technol. turbulence (TT)	-	-.03 (-.51)	-
Competitive intensity (CI)	-	-	.03 (.57)
MO × MT	.06 (1.06)	-	-
MO × TT	-	.02 (.35)	-
MO × CI	-	-	-.04 (-.61)
Target market	.01 (.17)	.02 (.44)	.02 (.47)
Market phase	-.04 (-.78)	-.04 (-.81)	-.05 (-1.08)
Firm size	.10** (2.25)	.11** (2.39)	.11** (2.43)
R^2	7.8 %	8.0 %	7.1 %

Standardised coefficients are reported with *t*-values in parentheses

* p < .10; ** p < .05; *** p < .01 (two-way tests of significance)

Next, we checked whether the indirect effect between MO and firm performance depends on the moderators. As presented in Table 6, technological turbulence moderates ($p < .05$) the effect of MO on CRM process capability, and two marginally significant ($p < .10$) effects – market turbulence moderating the MO–CRM process capability relationship and technological turbulence moderating the MO–PDM process capability relationship – are also identified. However, our findings in Table 7 suggest that the partial effects of the business process capabilities on firm performance depend on the components of environmental turbulence ($\beta_{65} \neq 0$), along with the overall effect of MO on the mediators being non-zero ($\beta_{51} \neq 0$). Taken together, these findings suggest that market turbulence, competitive intensity and technological turbulence moderate the mediated relationship between MO and firm performance (Muller et al., 2005).

Table 6 Results of the moderated mediation analysis (Model 5)

	Variable	DV = PDM process capability	DV = SCM process capability	DV = CRM process capability
Model 5a	Market orientation (MO)	.59*** (9.93)	.33*** (6.12)	.56*** (9.09)
	Market turbulence (MT)	.07 (1.28)	.01 (.20)	.04 (.79)
	MO × MT	-.08 (-1.29)	-.07 (-1.18)	-.09* (-1.67)
Model 5b	Market orientation (MO)	.60*** (10.10)	.34*** (6.32)	.56*** (9.18)
	Technol. Turbulence (TT)	.06 (1.11)	-.07 (-1.37)	.04 (.93)
	MO × TT	-.10* (-1.80)	-.04 (-.76)	-.11** (-2.05)
Model 5c	Market orientation (MO)	.60*** (10.18)	.34*** (6.18)	.57*** (9.17)
	Competitive intensity (CI)	-.10* (-1.76)	.04 (.70)	.00 (.02)
	MO × CI	-.05 (-.78)	-.03 (-.51)	.01 (.10)

Standardised coefficients are reported with *t*-values in parentheses

* p < .10; ** p < .05; *** p < .01 (two-way tests of significance)

Table 7 Results of the moderated mediation analysis (Model 6)

Variable	Model 6a: DV=Firm performance	Model 6b: DV=Firm performance	Model 6c: DV=Firm performance
Market orientation (MO)	.02 (.38)	-.00 (-.03)	.01 (.18)
Market turbulence (MT)	-.06 (-1.14)	-	-
Technol. Turbulence (TT)	-	-.04 (-.73)	-
Competitive intensity (CI)	-	-	.06 (1.10)
MO × MT	.04 (.71)	-	-
MO × TT	-	.07 (1.32)	-
MO × CI	-	-	-.04 (-.65)
PDM process capability (PDM)	.20*** (3.92)	.19*** (3.82)	.17*** (3.28)
SCM process capability (SCM)	.11** (2.24)	.11** (2.19)	.12** (2.38)
CRM process capability (CRM)	.26*** (5.19)	.28*** (5.69)	.28*** (5.653)
PDM × MT	.12** (2.04)	-	-
PDM × TT	-	.06 (1.06)	-
PDM × CI	-	-	-.15** (-2.43)
SCM × MT	-.09 (-1.53)	-	-
SCM × TT	-	-.11** (-2.02)	-
SCM × CI	-	-	-.05 (-.83)
CRM × MT	.03 (.45)	-	-
CRM × TT	-	-.05 (-.97)	-
CRM × CI	-	-	.16*** (2.72)
Target market	.01 (.16)	.02 (.45)	.05 (1.10)
Market phase	-.06 (-1.25)	-.05 (-1.15)	-.08* (-1.80)
Firm size	.11** (2.41)	.10** (2.26)	.10** (2.24)
R^2	18.5 %	26.1 %	18.2 %
ΔR^2 (vis-à-vis Model 4)	10.7 %	18.0 %	11.1 %

Standardised coefficients are reported with *t*-values in parentheses

* p < .10; ** p < .05; *** p < .01 (two-way tests of significance)

Specifically, our results reveal four statistically significant ($p < .05$) moderating effects. First, market turbulence strengthens ($\beta = .12$, $p < .05$) the role of PDM process capability as a mediator in the MO–firm performance relationship. This finding, in line with Hypothesis 4a, suggests that an environment characterised by rapidly changing customer needs provides lucrative opportunities for firms with high PDM process capability. Second, we find that competitive intensity diminishes ($\beta = -.15$, $p < .05$) the role of PDM process capability as a mediator. This suggests that in a highly competitive marketplace, high PDM process capability does not help in gaining differentiation advantage, and imitative behaviour of competitors is likely to drag relative performance of the focal firm down. This finding is in line with Hypothesis 4c. In terms of SCM process capability, our findings suggest that technological turbulence ($\beta = -.11$, $p < .05$) diminishes its mediating effect on firm performance. The finding is the opposite of what was expected in Hypothesis 5b. A potential explanation is that while rapid technological developments provide tools for improving operational efficiency, network inertia (Kim, Oh, & Swaminathan, 2006) might inhibit renewing the supplier base, with new market entrants offering the latest technology. The results also support Hypothesis 6c, since intense competition increases ($\beta = .16$, $p < .01$) the value of CRM process capability. This finding highlights the importance of customer loyalty especially when competition is intense, and stresses the fact that customer retention is typically less costly than customer acquisition (Reinartz et al., 2005).

To give further insight into the moderated mediation, we evaluated the statistical significance of the conditional indirect relationship between MO and firm performance, as translated by the business process capabilities; in doing so, we followed the procedure discussed in Preacher, Rucker, and Hayes (2007) by employing the PROCESS macro in SPSS[3]. The PROCESS procedure tests for mediation and moderation effects simultaneously

[3] We thank an anonymous reviewer for this insightful suggestion.

and provides confidence intervals for statistical inferences on conditional indirect relationships. We used the bootstrap procedure (using 20,000 bootstrapped samples) in the analyses, since it does not make assumptions about the shape of the sampling distribution of the indirect relation, thus producing more robust results (Preacher et al., 2007). In line with our structural equation modelling analysis, each component of environmental turbulence was considered separately.

The results of this analysis (in Table 8) suggest that the four statistically significant interactions between the business process capabilities and firm performance also result in two statistically significant ($p < .05$) and two marginally significant ($p < .10$) moderating effects of the conditional indirect relationships, since the confidence intervals of the corresponding indices of moderated mediation exclude zero (Hayes, 2015).

Moreover, via probing the indirect effects (Preacher et al., 2007; Hayes, 2015), we analysed the moderated mediation effects at three levels of moderators (one standard deviation above the mean, the mean, and one standard deviation below the mean). The conditional indirect effects and the related confidence intervals presented in Table 8 suggest that the indirect effect of MO on firm performance via PDM process capability is stronger with higher market turbulence and becomes statistically not significant ($p < .10$) when market turbulence is one standard deviation below its mean. Similar results (at $p < .05$ level) are identified for the indirect effect via CRM process capability when competitive intensity is considered. The indirect effect via SCM process capability, in turn, is strengthened under lower technological turbulence, whereas at one standard deviation above mean it becomes statistically not significant ($p < .05$). The same pattern applies to indirect effect via PDM process capability ($p < .10$), when competitive intensity is considered. Overall, in certain contexts the indirect performance effects of MO may even turn negative, as indicated by the confidence intervals (Table 8).

Table 8 Conditional indirect effects of MO on firm performance (only statistically significant moderating effects are reported)

Panel A: PDM process capability; moderating effect of market turbulence (p < .10)

Market turbulence	Effect	Boot SE	LLCI	ULCI
-1 SD (-1.43)	.070	.053	-.016	.161
0	.129	.040	.066	.198
+1 SD (1.43)	.187	.056	.101	.285
Index of moderated mediation	*.041*	*.026*	*.001*	*.086*

Panel B: SCM process capability; moderating effect of technological turbulence (p < .05)

Technological turbulence	Effect	Boot SE	LLCI	ULCI
-1 SD (-1.37)	.065	.026	.023	.126
0	.036	.020	.003	.083
+1 SD (1.37)	.008	.027	-.044	.062
Index of moderated mediation	*-.021*	*.012*	*-.050*	*-.001*

Panel C: CRM process capability; moderating effect of competitive intensity (p < .05)

Competitive intensity	Effect	Boot SE	LLCI	ULCI
-1 SD (-1.34)	.093	.059	-.014	.220
0	.168	.045	.088	.267
+1 SD (1.34)	.244	.060	.140	.378
Index of moderated mediation	*.056*	*.029*	*.002*	*.116*

Panel D: PDM process capability; moderating effect of competitive intensity (p < .10)

Competitive intensity	Effect	Boot SE	LLCI	ULCI
-1 SD (-1.34)	.182	.058	.092	.281
0	.110	.040	.051	.180
+1 SD (1.34)	.039	.053	-.045	.130
Index of moderated mediation	*-.053*	*.029*	*-.099*	*-.005*

Note. PDM, SCM and CRM process capabilities, and dimensions of environmental turbulence were mean-centred prior to analysis. Firm size, target market and market phase are used as controls. SD = standard deviation; Boot SE = Standard error (bootstrapped sample); LLCI = lower limit of bootstrap confidence interval; ULCI = upper limit of bootstrap confidence interval. Bootstrap n=20,000.

With regard to Hypothesis H7, we further tested whether the three core business process capabilities interact with one another so that in combination they would improve firm performance in a complementary manner (cf. Krasnikov & Jayachandran, 2008). Surprisingly, the findings of this analysis show no synergies between business process capabilities, providing no empirical support for Hypothesis H7. Instead, a negative interaction ($\beta = -.21$, $p < .01$) was found between SCM and CRM process capabilities. This finding suggests that the two business process capabilities are supplementary, rather than complementary.

In summary, we find support for Hypotheses H1, H3, H4a, H4c and H6c, while the findings for Hypotheses H5b and H7 are contrary to what was expected. The rest of the findings, related to Hypotheses H2, H4b, H5a, H5c, H6a and H6b, are not significant.

Discussion and conclusions

Theoretical implications

The results of our study indicate that a firm's marketing-related capabilities in its core business processes – PDM, SCM, and CRM (Srivastava et al., 1999) – together fully mediate the MO–firm performance relationship, and thus help firms to realise the potential value of MO (e.g., Day, 1994; Ketchen et al., 2007). Our findings also point to the relative importance of these business process capabilities and to key environmental contingencies (i.e., degree of environmental turbulence) in affecting the performance outcomes of MO in product-focused firms. Overall, we contribute to the literature on the relationship between MO, marketing-related business process capabilities and firm performance in three main ways.

First, we find that the indirect effect of MO on firm performance via business process capabilities is contingent on level of environmental turbulence. Under certain conditions,

more capability in marketing-related business processes may even be associated with negative performance outcomes. Specifically, our findings suggest that under high technological turbulence, excessive focus on SCM process capability may deteriorate firm performance. This counterintuitive finding may stem from close supplier relationships causing inertia in developing a firm's offering, especially in times of radical changes in the technological landscape. This is because close relationships with suppliers may lead to myopia and inflexibility in switching to new technologies (and suppliers) as they become available (Kim et al., 2006). Additionally, when technological changes are frequent, the competitive position of the firm's offering in the distributors' portfolios may become increasingly difficult to hold, and the costs incurred in developing such a position may not be justified.

Similarly, under intense competition, excessive focus on PDM process capability may have negative performance effects. This is not surprising, since more intense competition typically leads to increasing imitative behaviour (Lieberman & Montgomery, 1988), which further reduces differentiation advantage and diminishes profit margins. Intense competition may also lead to reactive competitive actions (Steenkamp, Nijs, Hanssens, & Dekimpe, 2005) and encourage sub-optimal behaviour, therefore deteriorating performance, particularly in the long term.

Second, because we simultaneously consider all core business process capabilities, our findings allow us to draw conclusions about their relative importance as potential mediators of the MO–firm performance relationship. In support of Krasnikov and Jayachandran's (2008) recent evidence, our findings essentially suggest that performance gains from MO are more likely to emerge through PDM and CRM process capabilities than through SCM process capability. This partly contradicts Ramaswami et al. (2009), who argue that PDM

process capability is relatively unimportant and identify CRM process capability as the most critical of the three in explaining superior firm performance.

The differences in findings between the studies may be attributed partly to our focus on product-focused firms with clear PDM processes, which emphasises the role of related capabilities. The relatively minor role of SCM process capability in the present study may be attributable to most product-focused firms already operating efficiently and effectively in processes related to, for instance, logistics and inventory management (cf. Nath, Nachiappan, & Ramanathan, 2010). Thus, due to diminishing marginal utility, even superior SCM process capability does not suffice to produce competitive advantage and related performance gains. Under certain conditions, the indirect performance effect of MO via SCM process capability may even turn detrimental due to increased network inertia, for instance (Kim et al., 2006).

Our findings indicate no complementary effects among the business process capabilities, in contrast to Ramaswami et al. (2009), who find partial support for Srivastava et al.'s (1999) proposition of positive interactions between business process capabilities. In particular, we find a negative interaction between SCM and CRM process capabilities. A potential explanation for this finding is that the costs of simultaneously developing several business process capabilities to a high level exceed the synergistic benefits (Winter, 2003). Furthermore, these capabilities may be supplementary, not complementary, in nature. In particular, considering the down-stream SCM related to managing channels (Srivastava et al., 1999), strong relationships with channel members may at least partially replace the firm's direct relationships with its end customers. Developing both SCM and CRM process capabilities simultaneously may therefore diminish the unique value created by each capability. More generally, the lack of synergy between business process capabilities might relate to capabilities having partly divergent goals (Grewal & Slotegraaf, 2007; Ramaswami et al., 2009).

Third, in considering environmental turbulence as a key contingency factor, we find that the mediating roles of business process capabilities vary significantly across different degrees of market turbulence, technological turbulence and competitive intensity. Thus, in line with the service-dominant logic (Vargo & Lusch, 2004), operant resources (such as business process capabilities) are at the heart of performance, but their performance implications vary considerably across different business environments. Our findings also provide a potential explanation for the conflicting findings relating to the mediating role of business process capabilities between MO and firm performance (e.g., Chang et al., 2010; Murray et al., 2011; Rapp et al., 2010).

Specifically, our findings suggest that the more turbulent the market, the more crucial the firm's ability to react quickly to emerging needs and opportunities via a solid PDM process capability (e.g., Han et al., 1998). Conversely, high competitive intensity is often associated with smaller profit margins, reducing returns on PDM process capability. In some instances, this may even lead to negative performance impact. Our findings also suggest that SCM process capability is a particularly poor mediator in the MO–firm performance relationship when technological changes are frequent (cf. Krasnikov & Jayachandran, 2008), even turning the indirect performance effect of MO negative. Finally, under intense competition, CRM process capability leads to particularly good performance outcomes, contrary to PDM process capability. The likely explanation relates to the importance of customer retention, especially when competition is fierce (Reimann et al., 2010).

Managerial implications

From a practitioner's perspective, this study carries four primary implications. The first relates to clarifying the relative mediating roles of business process capabilities under different environmental conditions, thereby helping to create a better functioning set of

capabilities. In general, based on our findings, PDM and CRM process capabilities play important roles in translating MO into firm performance. Thus, a focus on customer relationship management may provide a competitive edge for market-oriented product-focused firms, alongside effective development of new products (Avlonitis & Gounaris, 1997). At the same time, our findings suggest that developing performance advantage through investing in SCM process capability is difficult – potentially due to high overall standards in SCM across product-focused firms.

Second, the findings from our study justify investments to improve the firm's MO in implying that a market-oriented organisational culture remains an important resource and a basis for effective capability development, as is evident from the positive total effect of MO on firm performance. Nevertheless, as Srivastava et al. (1999) suggest, business process capabilities channel the positive performance impact of MO. Therefore, managers need to be aware of the role of these capabilities in capturing the potential benefits of MO (Ketchen et al., 2007), and the development of business process capabilities should form an integral part of strategic planning process within companies (Ngo & O'Cass, 2012b).

Third, our findings also further validate the postulate that no strategy (nor business process capability) is universally superior (cf. Venkatraman, 1989). Specifically, we find evidence for the contextuality of 'success recipes' in dynamic business environments; the relative mediating roles of each business process capability vary significantly across different levels and types of environmental turbulence. More specifically, under high market turbulence, characterised by rapidly changing customer needs, the role of PDM process capability increases in significance as new product introductions allow firms to remain competitive. Investments in PDM are less likely to result in high return under intense competition; in such a context, high levels of CRM process capability prove beneficial for the firm. These findings imply that firms cannot easily counter the effects of imitation and diminishing margins via

PDM, while attempts to increase customer loyalty via effective CRM appear more justified. In highly competitive markets, managers should therefore avoid placing too much emphasis on developing PDM process capability, and instead place more emphasis on CRM. Finally, under technologically turbulent conditions, the indirect effect of MO on firm performance via SCM process capability even turns negative.

Fourth, our study identifies no synergies between business process capabilities. This might be because of conflicting goals between developing different business process capabilities. For instance, bringing products to market faster may conflict with offering high-quality products and excellent service to customers. In fact, we find that the interplay between SCM and CRM process capabilities even diminishes the performance implications of each individual capability. As implied by the negative interaction, within product-focused firms, carefully aligning the different capabilities is critical for performance. At the same time, also careful alignment between organisational capabilities and external conditions is critical. Managers should thus devote organisational efforts to continuously track changes in their business environment to help the firm refine existing competences and develop requisite new ones to meet the needs of the new environment (Ngo & O'Cass, 2012b; Battor & Battor, 2010; Atuahene-Gima, 2005).

Limitations and avenues for future research

The limitations of the present study provide fertile grounds for future research. First, because of its cross-sectional nature, the study provides only a snapshot view, and drawing of cause-effect inferences requires caution. Future studies should use longitudinal data to better capture the dynamics inherent in a firm's business environment and capability development.

The second limitation concerns the sample in use, which comprises Finnish product-focused companies. Generalisations to other business types and countries require caution. For

instance, the prominent role of PDM process capability with respect to other business process capabilities could be partly attributable to the sample of product-focused firms. An interesting question for further research would be whether the identified MO–business process capability–firm performance mechanisms are in effect also in service firms (cf. Kirca et al., 2005).

Overall, the central role of environmental turbulence highlighted in our findings calls for the inclusion of this contingency factor in studies focusing on the performance implications of business process capabilities. This would provide more robustness to the currently contradictory findings from different markets, and enable future studies to identify the determinants of performance differentials in a more reliable fashion (Grewal, Chandrashekaran, Johnson, & Mallapragada, 2013).

Finally, a key assumption underlying the present study is that the relationships between MO, business process capabilities and firm performance are additive in nature. Future studies could investigate how different MO–business process capability configurations affect firm performance in different contexts, for example, by means of fuzzy set qualitative comparative analysis (fsQCA) approach (Ragin 2000; Fiss 2007). This approach would better address the potentially non-linear relationships and equifinality (Doty, Glick, & Huber, 1993) in the interplay between MO, business process capabilities, and firm performance.

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Appendix: Measurement items and standardised loadings

Source(s)	Construct	Item	Stand. loading
Narver and Slater (1990)	Market orientation[1]	1. Our business objectives are driven primarily by customer satisfaction	.65
		2. We constantly monitor our level of commitment an orientation to serving customer needs	.69
		3. Our strategy for competitive advantage is based on our understanding of customer needs	.73
		4. All of our business functions are integrated in serving the needs of our target markets	.73
		5. Our business strategies are driven by our beliefs about how we can create greater value for our customers	.79
Adapted from Vorhies and Morgan (2005); Chen (2009)	PDM process capability[2]	1. Ability to develop new product ideas	.72
		2. Rapid commercialisation of ideas	.73
		3. Ability to successfully launch new products	.68
Adapted from Tracey et al. (2005)	SCM process capability[2]	1.Order-processing abilities	.81
		2. Effective invoicing and terms	.74
		3. Management of logistics and inventory	.68
Adapted from Reimann et al. (2010); Reinartz et al. (2004); Hult et al. (2005)	CRM process capability[2]	1. Understanding customer needs in order to deliver what they want	.61
		2. Identifying potential new customers	.65
		3. Development/execution of customer service programs	.64
		4. Development/execution of customer encounters	.78
		5. Ability to respond to customer enquiries and requests rapidly	.79
Hooley et al. (2005); Reimann et al. (2010)	Firm performance[2]	1. Profit / profit margins relative to main competitors	.89
		2. Return on investment (ROI) relative to main competitors	.99
		3. Return on assets (ROA) relative to main competitors	.97
Jaworski and Kohli (1993)	Market turbulence[1]	1. In our kind of business, customers' product preferences change quite a bit over time	.76
		2. Our customers tend to look for new products all the time	.80
Jaworski and Kohli (1993)	Competitive intensity[1]	1. There are many 'promotion wars' in our industry	.66
		2. One hears of a new competitive move almost every day	.74
Jaworski and Kohli (1993)	Technological turbulence[1]	1. The technology in our industry is changing rapidly	.73
		2. Technological changes provide big opportunities in our industry	.83
		3. A large number of new product ideas have been made possible through technological breakthroughs in our industry	.89
		4. Technological developments in our industry are rather minor (R)	.64

[1] The response options ranged from 1, 'strongly disagree,' to 7, 'strongly agree.'

[2] The response options ranged from 1, 'much worse,' to 7, 'much better.'

(R) Reverse-coded item