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Research paper

Quadratic effects of dynamic decision-making capability on innovation orientation and performance: Evidence from Chinese exporters

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ABSTRACT

This study examines quadratic effects of three export decision-making approaches (planning, creativity and spontaneity) on innovation orientation, and the direct effect of innovation orientation on export market performance. The model, anchored in decision theory and dynamic capabilities, is tested on a sample of Chinese exporting firms using structural equation modelling. Findings indicate that while a greater proclivity to innovate is beneficial for export market performance, a more complex web of relationships is revealed between the three export decision-making approaches and innovation orientation, providing insights on the operationalization of a dynamic decision-making capability. Specifically, while an increasing level of export planning reduces an exporter's capacity to innovate, creativity has a positive direct effect on exporters' innovation orientation, which also benefits from extreme spontaneity in export decision-making. We discuss theoretical contributions and export managerial implications of this dynamic decision-making capability for industrial marketing management.

1. Introduction

Much academic attention has been devoted to addressing drivers of export performance (e.g., Morgan, Kaleka, & Katsikeas, 2004; Murray, Gao, & Kotabe, 2011). In this context, it has been argued that a firm's proclivity to innovate is fundamental to its export success (e.g., Boso, Story, Cadogan, Micevski, & Kadić-Maglajlić, 2013; Guan & Ma, 2003; Roper & Love, 2002). Greater firm innovativeness, which is predicated on a firm's ability to introduce new products/services to targeted export market(s), enables the firm to dominate a competitive scene, benefit from first-mover advantage (e.g., faster new product trials, referrals and adoptions), control export market supply chains, attract premium prices, and extend existing products to new users (Slater, Mohr, & Sengupta, 2014). Beyond this, it is argued that superior export performance is a function of a firm's strategic export decision-making (Nemkova, Souchon, Hughes, & Micevski, 2015). Nevertheless, while the dynamic capabilities approach clearly depicts the important role of managerial activities to collect information, sense opportunities, and make informed conjectures (Teece, 2016), the potential role of different export decision-making approaches has not been clearly articulated.

Improving the effectiveness and efficiency of industrial markets is critical to contemporary marketing research. Current thinking about how better marketing decisions can be made and better strategy created in global industrial markets centres on two schools of thought: normative and descriptive. These two schools have traditionally come to represent diametrically opposed approaches to the investigation and examination of decision-making. The normative approach is entrenched within the classical rational-design philosophy where export managers are viewed as rational decision-makers who focus on export decision optimization (Ansoff, 1965). Here, managerial attention is directed to widespread collection, interpretation, evaluation and sharing of export market information to create detailed exporting plans and options prior

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to making an export market decision choice (e.g., Dew, Read, Sarasvathy, & Wiltbank, 2009; Mintzberg & Lampel, 1999; Wiltbank, Dew, Read, & Sarasvathy, 2006). Thus, under the normative school of thought it is deemed a necessity to systematically collect intelligence and objectively use that intelligence to formulate clear plans of action, otherwise referred to as the *planning* approach. This line of export marketing research has drawn on constructs such as export market orientation to examine the value of normative decision-making for performance gains, where extant studies have demonstrated a clear link to export success (e.g., Murray et al., 2011; Souchon, Sy-Changco, & Dewsnap, 2012).

On the other hand, the descriptive approach is less concerned with how export decisions *should* be made (Cyert & March, 1963), but focused on how decision-making actually happens. Rather than arguing that decision-making should be a deliberate and intentional process, proponents of the descriptive approach contend that this is a futile exercise particularly under changing conditions where the future cannot be predicted (Mintzberg & Waters, 1985). The descriptive approach acknowledges that indeed rational-design may have a part to play in the functioning of organizations on a daily basis, but it has no part to play in the strategic decision-making of firms (Hughes, Hodgkinson, Arshad, Hughes, & Leone, 2018). This descriptive school of thinking has spawned research interest into the role of emergent decision-making and, more recently, the roles and value of *creative* and *spontaneous* export decision-making processes (Evers & O'Gorman, 2011; Nemkova, Souchon, & Hughes, 2012; Quinn, 1980). Therefore, the normative and descriptive schools have different implications for the kind of export information managers rely upon to achieve export decision objectives. There are, as within any diametrically opposed beliefs, proponents and critics of both schools of thinking. Yet, what they share is a belief in strategizing as a core capability necessary to realize competitive advantages. This is central to both approaches, though they disagree about the form this should take and this is key to the normative (planning) and descriptive (creativity and spontaneity) debate.

With the three different decision-making approaches in mind: planning, creativity, and spontaneity, we model how normative and descriptive export decision-making processes impact innovation orientation in export operations. Decision-makers have limited ability to attend to, and therefore act on, unlimited export stimuli surrounding them (Barnett, 2008) and the numerous pieces of export information that demand attention (Mintzberg, 1973). Export decision-makers must make strategic export decisions on appropriate responses to these stimuli. The response in terms of strategic export market choices (e.g., whether to innovate or not) depends on how export managers define what is 'important' and their interpretation of the export market environment conditions. Regardless of whether export planning or more creative and spontaneous decision-making approaches are adopted, export managers operate under conditions of bounded rationality (Cyert & March, 1963). Therefore, an argument can be made that what export decision-makers choose to do may depend on where they focus their attention (Barnett, 2008; Ocasio, 1997) in light of these bounded conditions. After all, "management is highly dependent on context" (Teece, 2016: 206). Thus, if firm behavior is the result of how firms channel and distribute the attention of their decision-makers, as proclaimed by Ocasio (1997), it is necessary to address the question: how can export managers optimize alternate approaches to decision-making for innovation and performance gains?

Therefore, our first contribution is to examine how different export decision-making approaches work together to form a dynamic decision-making capability that explains variation in exporters' innovation orientation. In so doing, we attend to the weakness of dynamic capabilities theory that it exists at the abstract and esoteric level as described by Danneels (2011), by demonstrating what a dynamic decision-making capability should look like in the context of exporting. As a second contribution (and in departure from the tendency within the export decision-making and export strategy-making literatures to examine direct linear relationships between export decision choices and given outcomes), we adopt a quadratic effect approach to explain the nature of the relationship between each decision-making approach and innovation orientation. We argue that given previous contradictory findings regarding the effects of decision-making processes (e.g., Wolf & Floyd, 2017), examining quadratic effects presents an opportunity for a more nuanced understanding of decision-making outcomes. Third, for export managers, we contribute to an understanding of how low and excessive attention to key export decision-making approaches facilitate or impede an orientation to innovate in export operations. By also examining how a proclivity to innovate relates to export market performance, we provide export managers with insights into how different export decision-making choices do not only help explain variation in their firms' propensity to innovate, but also help demonstrate how an orientation to innovate achieves superior export performance.

The paper is structured as follows: first, an attempt is made to conceptualize dynamic decision-making capability before proceeding to hypotheses development of the quadratic effects of export planning, creativity, and spontaneity on innovation orientation and how the latter is directly related to export performance. Next, the adopted research methodology is explained along with a presentation of the results of the study's hypotheses tests. The paper concludes with a discussion of the study's results and implications for dynamic decision-making capability theory and practice.

2. A dynamic decision-making capability

According to Teece (2014), dynamic capabilities are the mechanisms (skills, processes, procedures, organizational structures, *decision rules*, and disciplines) that enable learning and innovation at the organizational level by first sensing (and shaping) opportunities and threats, seizing those opportunities (and mitigating the threats), and then transforming/reconfiguring the organization in the light of what has been learned via sensing and seizing (Hodgkinson & Sadler-Smith, 2018 *[emphasis added]*).

Capability-based reasoning is apt for studying organizational phenomena, and strategic decision-making is one such phenomenon that is central to industrial marketing success. Given its contribution to firm strategy and performance, and following the premise of decision theory, the impact of different decision-making approaches on export performance warrants capabilities-based research. Specifically, the interface between different decision-making capabilities and performance, under contingencies, is in need of scholarly attention (Hughes et al., 2018; Nemkova et al., 2015). Following the suggestion of Karna et al. (2016), there is a distinction to be made between capabilities that are ordinary and those that are dynamic. Strategic decision-making falls under the latter, as characterized by Teece (2014: 332), who states that dynamic capabilities "allow the enterprise and its top management to develop conjectures about the evolution of consumer preferences, business problems, and technology; validate and fine-tune them; and then act on them by realigning assets and activities to enable continuous innovation and change". Thus, how this is done and the decision processes followed will be determined by the decision-making approach taken.

Dynamic capabilities enable managers to use and reconfigure resources to maximize alignment with the external environment (Slater, Hult, & Olson, 2010). How managers and, in turn, organizations, formulate and make decisions is central to the dynamic capabilities approach and is typically labelled 'entrepreneurial management' in the dynamic capabilities literature:

> … involves the ability to sense opportunities and shifts in the business environment, to coordinate the resources to exploit promising new avenues, and to develop plans to adapt the organization and its business model for maximum advantage. These functions, which will ideally be supported by routines and coordinated across

all levels of the organization, are core elements of the dynamic capabilities of the firm (Teece, 2016: 207).

The ability to continuously transform in a proactive manner to shifts in the environment distinguishes decision-making as a dynamic capability from those decisions that exist at the operational-, project-, or product-level, which are more appropriately deemed ordinary decision-making capabilities consistent with Teece's (2014) conceptualization. Yet, within this conceptualization of dynamic capabilities, decision-making may take multiple forms in practice and be more or less biased toward either a normative or a descriptive approach. For example, contemporary planning has been demonstrated to afford organizations the capability to adapt and be flexible under changing business environments (Hughes et al., 2018). While similarly, much more emergent approaches like improvisation are contended to drive sensing, seizing, and reconfiguration through intuitive action (Hodgkinson, Hughes, & Arshad, 2016).

In strategic management, managers themselves feature under the capabilities of a firm, since managerial decision-making comprises the creation, shaping, and deployment of capabilities (Teece, 2014); otherwise referred to as dynamic managerial capabilities. There is a distinction to be made here, however, between the individual decisions made by individual managers on a daily-basis versus the decision-making orientations that are collectively developed through managerial decisions over time. This distinction is articulated by Teece (2016) who highlights that while individual managers can come and go, firm-level capabilities are rooted in well-established processes, values, and culture that will not change with the departure of an individual manager; a *firm's* decision-making orientation is an example. In the dynamic capabilities literature, a decision-making orientation is often referred to as an 'enterprise capability', described as a set of current or potential activities that combine some portion of the firm's resources to make and/or deliver products and services (Teece, 2016). Integrating these insights from the dynamic capabilities literature, we define decision-making orientation as a dynamic rather than static or ordinary capability (Teece, 2016).

Decision-making orientation is essential in the identification of organizational processes and managerial traits that can exploit environmental conditions through the orchestration of resources needed for innovation (Teece, 2016). As Teece (2016: 212) argues, "the processes for sensing, seizing, and transforming must be distributed throughout the organization so that all levels of the organization's managers, experts, and even line workers are involved". This is a key trait of decision-making orientation; hence, why organizations are claimed to typically favor one dominant approach over others (Hughes et al., 2018). Thus, decision-making is a process that some firms do better than other firms and has been deemed a strategic resource in itself in the extant industrial marketing literature (Hughes & Morgan, 2007). But what does a dynamic decision-making capability look like for exporters?

Danneels (2011) has argued that the biggest weakness of the dynamic capabilities approach is found in its abstractness, meaning that the approach is largely in-actionable for managers in practice. Creativity and spontaneity as distinct descriptive decision-making approaches emphasize, particularly, the importance of non-routine action by management in their strategizing or strategic decision-making; which has been suggested to offer a rich and important area for research by Teece (2012). Nevertheless, while an opposing view, contemporary planning is also identified as a higher-level capability that meets the dynamic capabilities approach requirements to integrate, build, and reconfigure internal and external resources/competences to address rapidly changing business environments (Teece, 2012), as depicted by Whittington, Yakis-Douglas, Ahn, and Cailluet (2016). However, their pathways to innovation are conceptually and theoretically different and begin from opposing viewpoints.

The dynamic capabilities framework puts into the spotlight managerial responsiveness in order to "flesh out the details around strategic intent and to implement strategic actions quickly and effectively" (Teece, 2014: 341). However, the potential decision-making pathways available to exporters may have differing effects (positive or negative) on innovation and, ultimately, the performance of exporters. Given significant competition and rapidly changing markets, it is essential that exporters "consistently assess and reassess whether they are fully taking advantage and contributing to the development of technological and market opportunities that provide what customers want, when they want it, and at desirable price points" (Teece, 2014: 348); thus making the dynamic capabilities framework more salient to this research context. However, suggesting that the presence of responsiveness in itself is what matters is clearly not enough to explain innovation and/or performance under export conditions. Rather, the specific role and value of different decision-making approaches and their respective processes, values, and culture is required to extend the dynamic capabilities framework. Therefore, discerning what a dynamic decision-making capability should look like for exporters to realize their goals is essential to contemporary industrial marketing.

3. Decision-making: study hypotheses development

3.1. Export decision planning and innovation orientation

Our conceptual model is depicted in Fig. 1. The normative approach is underpinned by the notion of rationality and optimal decision-making. It is based on the idea that managers are able to predict what to do next to achieve better outcomes through planning (Nemkova et al., 2015). Export planning can be conceptualized as a firm's ability to collect, evaluate, and internalize export market information to inform its export market-related alternatives (Craig et al., 2014). At the same time, export planning makes the export goal achievement process more focused and strengthens an exporter's capacity to make the right export market decisions (Shoham, 2002). The clarity of export objectives as a result of export planning helps foster defining positions of responsibility (Nemkova et al., 2012), which in turn helps to coordinate the actions of multiple actors (Moorman & Miner, 1998). Given that the export planning process is associated with a formalized generation, codification, sharing, and internalization of export market knowledge and skills, the process accords export unit personnel a greater orientation

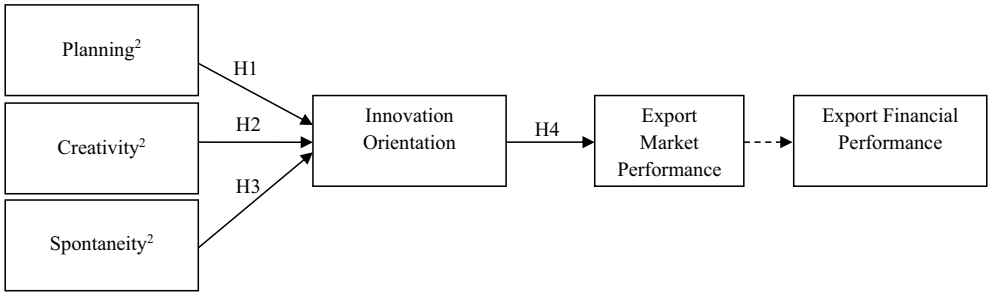

Fig. 1. Conceptual model.

for export market-relevant innovations. The ultimate aim here is the alignment of resources both inside and outside the firm, consistent with the purpose of dynamic capabilities (Teece, 2012).

Being responsible for systematic analysis of the environment and setting clear objectives, export planning enables firms to identify export market problems that need new products and technologies, which helps to ascertain the needs and wants of customers and desirable price points (e.g., Teece, 2014). Export planning also helps firms determine whether there is a good fit between their intended innovations and competences (Salomo, Weise, & Gemünden, 2007). Moreover, if a firm understands its export customers' needs and competitors' positioning, it can incorporate these insights into its new product development (NPD) programs (Calantone, Garcia, & Dröge, 2003). Therefore, export planning ensures effective concept development and increases a firm's proclivity to innovate (Salomo et al., 2007).

However, the literature suggests that excessive focus on planning can have negative implications for companies (Nemkova et al., 2015) and instead a curvilinear (inverted U-shape) relationship between export planning and innovation orientation exists (Katsikeas, Piercy, & Ioannidis, 1996; Lukas, Whitwell, & Hill, 2007; Nemkova et al., 2012; Shoham, 2002). Two key arguments are advanced in support of a curvilinear association. First, a capacity to innovate is a function of a firm's flexibility to define, coordinate, and deploy key resources (Chang, Chang, Chi, Chen, & Deng, 2012), such that a propensity to engage in excessive export planning may introduce structural rigidities and inertia in the firm's learning processes (Dibrell, Down, & Bull, 2007). This can prevent the company from introducing changes necessary for innovations to be implemented (Vafeas & Hughes, 2016). High levels of planning often impose rules, norms, and step-by-step processes for making decisions (Im, Montoya, & Workman Jr, 2013). These are meant to minimize potential mistakes and divide the positions of responsibility (Nemkova et al., 2015). On the other hand, however, high levels of planning are more likely to encourage convergent thinking and negatively impact innovation orientation (Im et al., 2013). Additionally, export planning activity can limit a firm's proclivity to conceptualize and commercialize innovative ideas (Lumpkin & Dess, 1996). Second, greater planning implies a strong orientation to risk-aversion in export operations, which the literature suggests dampens an innovation orientation (Covin & Slevin, 1991). In order for companies' (export) functions to be innovation-oriented they often have to rely on a trial-and-error process instead. While low levels of planning can be associated with chaos and lack of direction, high levels of planning restrict the experimentation necessary for innovations to take place. It can, therefore, be argued that:

H1. The relationship between export planning and innovation orientation is curvilinear (inverse U-shaped), with the highest level of innovation orientation occurring at an intermediate level of export planning.

3.2. Creative export decision-making and innovation orientation

In contrast to the normative approach, descriptive decision-making is associated with an ability to take risks, rely on trial-and-error processes and accommodate 'out of the box' solutions, and is known to be related to creativity (Covin & Slevin, 1991; Song et al., 2011; Nemkova et al., 2015). In the psychology field, creativity is defined as 'any act, idea, or product that changes an existing domain, or that transforms an existing domain in to a new one' (Csikzentmihalyi, 2013: 28). Creativity, then, is not something that happens in people's minds but in the interaction between a person's thoughts and external environment. In the marketing literature, creativity often refers to a specific type of decision-making process (Nemkova, 2017). Specifically, a process of initiation of new ideas or the reconfiguration of existing ideas in a new way regarding product, services, and procedures that is potentially useful to the market (Im & Workman Jr, 2004). Prior research has subsequently modeled creativity as an antecedent to innovation orientation (Im & Workman Jr, 2004; Pretorius, Millard, & Kruger, 2006).

Thus, by its nature, creative decision-making encourages generation of new ideas and a company's 'openness' to new information (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Im & Workman Jr, 2004; Nemkova, 2017). It refers to the ability to try new approaches without always knowing the final result and producing ideas during the process itself (Nemkova, 2017). It also facilitates matching new combinations of resources with market opportunities (Pretorius et al., 2006). At the same time innovation orientation depends on the firm's ability to create new and useful export market knowledge (Parjanen, 2012). In turn, creativity allows introducing variations into the decision-making process and focusing managers' attention to new knowledge regarding export market needs (Pretorius et al., 2006), which are key traits of firms that hold strong dynamic capabilities (Teece, 2016). For instance, firms that employ creative decision-making tend to welcome experimentations, creative destruction, and possibilities to challenge the established status quo (Auh & Menguc, 2005).

However, it is acknowledged in the literature that creative export decision-making may not always lead to desired innovation outcomes. According to Auh and Menguc (2005), in being inherently disruptive of existing routines, creative decisions may not always be beneficial. This position is echoed by Pirola-Merlo and Mann (2004) who argue that given that creative ideas are new and, therefore, surrounded by uncertainty as to their value, their outputs may invite negative reactions from the market. Being associated with a trial-and-error process, creativity has a high potential to lead to mistakes on the market (Vera & Crossan, 2005). There is also concern that export functions that are continuously relying on creative decision-making 'are constantly changing things' (Nemkova et al., 2015: 55) and lacking attention-to-details needed for innovations to be successfully developed and marketed (Sok & O'Cass, 2015). High variety of ideas can make it more difficult for the team to reach consensus in the decision-making process (Dayan, Ozer, & Almazrouei, 2017). Therefore, it is argued that order should be introduced into the creative export decision-making process otherwise high levels of creativity might lead to negative innovation outcomes (c.f. Pretorius et al., 2006). This represents the interplay between routine action and non-routine action highlighted by Teece (2014, 2016) in the dynamic capabilities approach. Accordingly:

H2. Creativity of export decision-making has a curvilinear (inverse U-shaped) relationship with innovation orientation: creativity is positively related to innovation orientation up to a point at which the relationship becomes negative.

3.3. Spontaneous export decision-making and innovation orientation

The descriptive approach recognizes that decisions can also be made in a spontaneous fashion. Managers often make timely decisions by responding in the moment and relying on established heuristics rather than looking for an optimal solution (Souchon, Hughes, Farell, Nemkova, & Oliveira, 2016). However, defined as an extent of making 'ad-lib' decisions, spontaneity is known to reduce a firm's protection against mistakes (Barrett, 1998). Therefore, we posit that spontaneous export decision-making may have quadratic implications for innovation orientation.

Spontaneity has been observed to increase risk-taking and reduce a firm's protection against mistakes (Barrett, 1998). Thus, when the level of spontaneity in the company is low, this reduces the probability of making spontaneous decisions that can cause unpleasant destructions (chaos) (Vera & Crossan, 2005). Here, decision-makers do not rush into making a decision when it is not necessary, but focus on a limited number of options to solve a problem, while searching for available alternatives (Baum & Wally, 2003) to enhance the value of their decisions. On the other hand, high levels of spontaneity are associated with increased innovation orientation as it allows timely reaction to changes

on the market and provision of new solutions (Weick, 1979). Given that slow decision-making can result in lost export market opportunities, decision-making speed becomes crucial if innovative ideas are to be introduced to the market quickly. By relying on prior experiential knowledge rather than the time-consuming collection of additional export market information (Eisenhardt & Tabrizi, 1995; Nemkova et al., 2015), spontaneous export decision-making has a higher chance of being translated into successful innovations. This highlights the value of knowledge signatures for effective strategizing under the dynamic capabilities framework, when a firm itself may not entirely understand the complex cause-effect relationships that drive its outcomes (Teece, 2016); a process that can be described as arriving at plausible courses of action based on 'knowing how or what' but without knowing why (Hodgkinson, Sadler-Smith, Burke, Claxton, & Sparrow, 2009). Accordingly, we posit that:

H3. Spontaneity of export decision-making has a U-shaped (positive quadratic) relationship with innovation orientation: low and high levels of spontaneity are positively related to innovation orientation while average levels of spontaneity are negatively related to innovation orientation.

3.4. Innovation orientation and export performance

The dynamic capabilities approach is underpinned by the desire to investigate firms' competitive advantage (Teece, Pisano, & Shuen, 1997), thus, examination of the distal performance outcomes of a dynamic decision-making capability is a necessary consideration. The literature suggests that successful firms have a strong orientation to innovate (Auh & Menguc, 2005; Calantone et al., 2003; Camisón & Villar-López, 2014; Story, Boso, & Cadogan, 2015). Innovation orientation challenges established ways of doing things and encourages managers to deviate from the status quo (Sethi, Smith, & Park, 2001), enabling a firm to differentiate itself from competitors by re-establishing its position in an existing market or entering a new market (McNally, Cavusgil, & Calantone, 2010; Story et al., 2015). Therefore, innovation orientation allows the company to align to external environment (Slater et al., 2010).

It is argued that a continuous stream of innovative outputs enables a firm to extend its product portfolio and ensure continuous cash flow (Song et al., 2011). The firm is also capable of boosting its finances more effectively relative to the competition due to its ability to earn stronger export customer loyalty and retention while at the same time taking in premium prices. As a result, a greater propensity to innovate will be associated with stronger export market and financial performances (Yalcinkaya, Calantone, & Griffith, 2007). Thus, we propose:

H4. Innovation orientation is positively related to export market performance.

4. Methodology

4.1. Data

A cross-sectional survey design using self-reported data from Chinese manufacturing firms engaged in export marketing was adopted. The unit of analysis for the study was the export function. The sample frame was formed on the recommendation list provided by Ningbo Customs Office, Weibo's LinkedIn application, Baidu Tieba listings and from the FOB Business Forum in China, which is the biggest foreign trade sector website in the country with 2,203,774 members. Baidu Tieba is the counterpart of Google groups. Given resource constraints and the need to ensure that the base number of cases was achieved for structural equation modelling (> 200), through multiple phases of survey administration, 270 firms were randomly selected and formed the target sample. Both offline and online methods were used to reach the targeted respondents. Offline respondents were chosen from the listings provided by the Ningbo Custom official and the Baidu Tieba listings while online respondents were taken from Baidu Tieba and FOB Business Forum. Responding companies were from all over China with 80% of them from Shanghai and Zhejiang province, two of China's most industrialized regions.

The sample consists of both small (< 50 employees) and larger (> 1000 employees) firms. Over 50% of the firms export to 10 or more countries. The respondents were the key export decision makers of each firm surveyed and these individuals were identified via phone and mail notifications. Survey administration comprised of a total of 4 waves (e.g., pre-notification and follow-ups). All targeted respondents completed and returned the questionnaire, however, of the 270 questionnaires received 57 were non-usable resulting in a total of 213 usable questionnaires (111 via the offline method with the rest via the online method): a response rate of 78.8%. The Mandarin version of the questionnaire was professionally translated from English and back translated by a native speaker.

On average, the firms have 6 years exporting experience (with a minimum of 1 and a maximum of 59 years). While 87% of the firms have a separate specific export department, 13% have no export-specific functional unit. On average, the firms employ 29 export staff, with a minimum of 1 and a maximum of 800. The firms export to 14 countries on average, with a minimum of 1 and a maximum of 194 across the sample. The average percentage of sales turnover derived from exporting is 66%, with a minimum of 10% and a maximum of 100%. Where profit dependence is concerned, we observe a similar pattern, with a mean of 60%, a minimum of 1% and a maximum of 100%. The firms earned an average of 11% sales growth and 8% profit growth in export markets. Finally, in terms of assessing the respondents' suitability for answering the survey questions, we asked three knowledgeability/competence items, and these average over 5 on a 7-point scale. This confirms the legitimacy of respondents in answering the survey questions.

4.2. Measures

Existing measures were used for all the constructs in the study and adapted to the exporting context from interviews with exporters to ensure content validity. Planning measures were adapted from Bailey, Johnson, and Daniels (2000). The measures of spontaneity were developed from Moorman and Miner (1998) and Vera and Crossan (2005). The items for creativity were developed from Hmieleski and Corbett (2006). The innovation orientation construct was measured based on the work of Narver, Slater, and MacLachlan (2000). The measures of export market performance and export financial performance were adapted from Hultman, Robson, and Katsikeas (2009), Shilke et al. (2009), and Leonidou, Katsikeas, and Samiee (2002). Competitive intensity (adapted from Kaleka & Berthon, 2006), formalization (adapted from Olson, Slater, & Hult, 2005) and centralization (adapted from Hult, Hurley, Giunipero, & Nichols, 2000) were also measured and included as control variables in data analysis. Appendix A contains a complete list of the measures used and their sources.

We guarded against potential common method variance (CMV) problems by taking procedural measures at the questionnaire development stage (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Specifically, we improved the specificity of scale items and answer options during questionnaire development and pilot phases, to minimize vagueness and unfamiliarity. In addition, we targeted only knowledgeable respondents to reduce the chances of question unfamiliarity. We also used physical separation among measurement items within the questionnaire, in order to make prior responses less salient, available, and relevant (Podsakoff et al., 2003). Additionally, we conducted empirical tests to test for CMV as it can be a source of endogeneity. It has been argued that endogeneity tests can be used to assess CMV (Antonakis, Bendahan, Jacquart, & Lalive, 2010). Accordingly, we used the

Table 1
Model fit indicators, correlation matrix, and properties of measurement scales.

Model	χ2(d.f.)	χ2/d.f.	Sig.	RMSEA	90% CI	GFI	NNFI	CFI
Measurement model	405.111 (240)	1.688	0.000	0.057	(0.047–0.066)	0.867	0.963	0.971
Structural model	261.679 (146)	1.792	0.000	0.061	(0.049–0.073)	0.899	0.936	0.959

Variable	1	2	3	4	5	6	7	8	9
1. Planning	**0.644**	0.001	0.319	0.205	0.156	0.037	0.394	0.012	0.246
2. Spontaneity	0.023	**0.696**	0.001	0.007	0.005	0.080	0.002	0.277	0.038
3. Creativity	0.565	0.032	**0.659**	0.246	0.173	0.065	0.371	0.004	0.265
4. Innovation orientation	0.453	−0.085	0.496	**0.540**	0.127	0.070	0.123	0.002	0.246
5. Market performance	0.395	0.073	0.416	0.357	**0.576**	0.338	0.154	0.024	0.098
6. Financial performance	0.192	0.283	0.255	0.264	0.581	**0.707**	0.029	0.093	0.000
7. Formalization	0.628	0.046	0.609	0.351	0.393	0.170	**0.806**	0.011	0.281
8. Centralization	0.111	0.526	0.062	−0.049	0.155	0.305	0.107	**0.561**	0.011
9. Competitive intensity	0.496	−0.195	0.515	0.496	0.313	0.010	0.530	−0.103	**n/a**
Mean	5.363	3.451	4.858	4.993	4.599	4.062	5.020	4.089	5.005
Standard deviation	1.074	1.281	0.967	1.120	0.912	0.964	1.142	1.323	1.436
CR	0.844	0.821	0.851	0.699	0.871	0.906	0.926	0.716	n/a

RMSEA = Root Mean Square Error of Approximation.
90% CI = 90% Confidence Interval for RMSEA.
GFI = Goodness of Fit Index.
NNFI = Non-Normed Fit Index.
CFI = Comparative Fit Index.
CR = composite reliability.
Average variance extracted (AVE) is presented on the diagonal.
Figures above the diagonal represent squared correlation values.
Figures below the diagonal represent correlation values.

instrumental variable approach to assess and lessen potential endogeneity problem. The instrumental variables used were export complexity, degree of non-specialization of export employees, export staff intellectual resources, and managerial export related resources. We then ran models where endogeneity is assumed not to exist and models in which endogeneity is assumed and controlled for. The difference in χ^2 between the two competing models was not statistically significant. This indicates that endogeneity is not an issue (Antonakis et al., 2010). Such results also provide evidence that CMV is unlikely to be an issue in this research.

4.3. Analysis and results

To evaluate the reliability and validity of the constructs, we ran a confirmatory factor analysis (CFA) using LISREL 8.8. The CFA results show a good model fitting to the data (please see Table 1). Further, we demonstrate that our variables are normally distributed and evidence suggests that the measures we used meet key reliability and validity requirements. Specifically, composite reliability values are 0.70 or above. The lowest average variance extracted (AVE) value is 0.54, and these AVE values are greater than the squared terms of the correlation between each pair of constructs.

Table 2 outlines the results of the structural model. We followed established multiplicative and quadratic procedures to test the hypotheses using the maximum likelihood method in LISREL 8.80. To analyse the structural equations, we initially created single indicants for each constructs involved in the quadratic interactions by averaging across their observed indicators. We controlled for potential multicollinearity issues by residual-centering all variables involved in quadratic interaction terms (Little, Bovaird, & Widaman, 2006). Specifically, quadratic terms were created by squaring residual centered values of planning, creativity and spontaneity, corresponding to hypotheses 1, 2, and 3 respectively. Subsequently, eq. 1, eq. 2 and eq. 3 were produced and simultaneously estimated.

$$\text{Equation 1: Innovation Orientation} = \gamma_1\text{PLAN} + \gamma_2\text{CREAT} + \gamma_3\text{SPON} + \gamma_4\text{PLAN} - \text{SQ} + \gamma_5\text{CREAT} - \text{SQ} + \gamma_6\text{SPON} - \text{SQ} + \gamma_7\text{COMINT} + \gamma_8\text{FORM} + \gamma_9\text{CENT} + \gamma_{10}\text{PLAN x CREAT} + \gamma_{11}\text{PLAN x SPONT} + \varepsilon_1$$

$$\text{Equation 2: Market Performance} = \gamma_1\text{INNOV} + \gamma_2\text{COMINT} + \gamma_3\text{FORM} + \gamma_4\text{CENT} + \varepsilon_1$$

$$\text{Equation 3: Financial Performance} = \gamma_1\text{MRKT} + \gamma_2\text{COMINT} + \gamma_3\text{FORM} + \gamma_4\text{CENT} + \varepsilon_1$$

where PLAN = planning; CREAT = creativity; SPON = spontaneity; PLAN-SQ = planning squared; CREAT-SQ = creativity squared; SPON-SQ = spontaneity squared; COMINT = competitive intensity; FORM = formalization; CENT = centralization; INNOV = innovation orientation; MRKT = market performance and ε_1 = residual variance.

In what follows, we summarize our findings. Since our hypotheses are directional (in other words, they predict either positive or negative effects) we utilise one-tailed tests to judge the statistical significance of the coefficient estimates attained (Diamantopoulos & Schlegelmilch, 2000). Findings show that the percentage of variance explained in innovation orientation is 67.90%. The study further finds that innovation orientation and the controls explained 34.30% of the variance in market performance whereas market performance and the controls explained 55.00% of the variance in financial performance. The results of the fit indices, inter-construct correlations, mean values and standard deviation for the constructs are available in Table 1. Importantly, from Table 1, it is evident that the structural model fits the data well: $\chi 2/\text{DF} = 261.679/146 = 1.792$; and RMSEA = 0.061.

Hypothesis 1 proposed that the relationship between export planning and innovation orientation is curvilinear (inverse U-shaped), with the highest level of innovation orientation occurring at an intermediate level of export planning. Findings from our structural equation

Table 2
Structural model results.

Antecedents	Outcome variables and parameter estimates					
	Innovation orientation $R^2 = 0.679$		Market performance $R^2 = 0.343$		Financial performance $R^2 = 0.550$	
	Gamma (γ)	*t*-Value	Gamma (γ)/Beta (β)	*t*-Value	Gamma (γ)/Beta (β)	*t*-Value
Planning	0.423	2.266**	n/a	n/a	n/a	n/a
Creativity	0.513	3.856***	n/a	n/a	n/a	n/a
Spontaneity	−0.051	−0.373	n/a	n/a	n/a	n/a
Planning × planning	−0.146	−1.658**	n/a	n/a	n/a	n/a
Creativity × creativity	0.053	0.514	n/a	n/a	n/a	n/a
Spontaneity × spontaneity	0.147	1.909**	n/a	n/a	n/a	n/a
Innovation orientation	n/a	n/a	0.409	3.805***	n/a	n/a
Market performance	n/a	n/a	n/a	n/a	0.684	7.848***
Competitive intensity	0.338	3.363***	−0.066	−0.638	−0.152	−1.859**
Formalization	−0.221	−1.487*	0.246	2.773***	−0.151	−2.159**
Centralization	−0.162	−1.081	0.216	2.724***	0.279	4.101***
Planning × creativity	−0.004	−0.039	n/a	n/a	n/a	n/a
Planning × spontaneity	−0.082	−0.717	n/a	n/a	n/a	n/a

* Critical *t*-value (10%, one-tailed) = 1.282.
** Critical *t*-value (5%, one-tailed) = 1.645.
*** Critical *t*-value (1%, one-tailed) = 2.326.

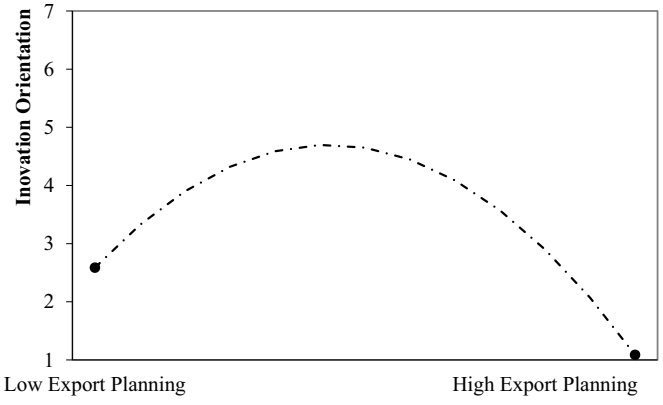

Fig. 2. Surface plot of the quadratic effect of export planning.

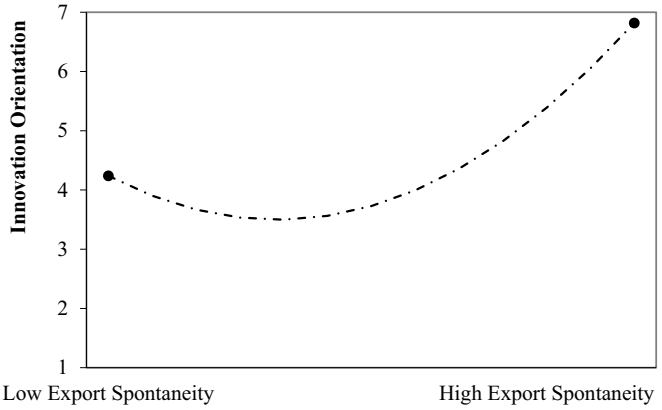

Fig. 3. Surface plot of the quadratic effect of export spontaneity.

modelling as reported in Table 2 reveals that export planning (γ = 0.423; *t* = 2.266) is directly related to innovation orientation and we find that the squared term of export planning is negatively associated with innovation orientation (γ = −0.146; *t* = −1.658), suggesting that export planning has an inverted U-shaped relationship with innovation orientation supporting hypothesis 1. As Fig. 2 shows (based on mean centred values of the quadratic term), exporting firms in China face a decline in the positive effect of export planning on innovation orientation after one standard deviation above the mean level of export planning, further indicating support for hypothesis 1.

Hypothesis 2 expected that creativity of export decision-making has a curvilinear (inverse U-shaped) relationship with innovation orientation, such that creativity is positively related to innovation orientation up to a point at which the relationship becomes negative. We report that export creativity (γ = 0.513; *t* = 3.856) is directly related to innovation orientation, but creativity's squared-term is not significantly associated with innovation orientation (γ = 0.053; *t* = 0.514), providing partial support for hypothesis 2 as to the positive role of creativity.

Hypothesis 3 contends that spontaneity of export decision-making has a U-shaped (positive quadratic) relationship with innovation orientation, where low and high levels of spontaneity are positively related to innovation orientation, while average levels of spontaneity are negatively related to innovation orientation. Export spontaneity, however, is not related directly to innovation orientation (γ = −0.051; *t* = −0.373), but the squared-term of spontaneity is positively associated with innovation orientation (γ = 0.147; *t* = 1.909). As Fig. 3 shows, consistent with our argument, the findings show that, rather than being U-shaped, the impact of export decision-making spontaneity on innovation orientation is J-shaped, such that the relationship is always positive as levels of spontaneity in increase in magnitude. This provides partial support for hypothesis 3 as to the positive effect of high levels of spontaneity.

Finally, hypothesis 4 proposed that innovation orientation is positively related to export market performance and we find that innovation orientation is indeed positively associated with export market performance (γ = 0.409; *t* = 3.805).

5. Discussion

5.1. Theoretical contributions

This study integrates the tenets of decision-making theory with dynamic capabilities to examine how three export decision-making approaches (i.e. planning, creativity and spontaneity) impact innovation orientation in Chinese exporting firms. The study sought to discern what a dynamic decision-making capability comprises. Based on research on firm-level innovation, the study then examines how innovation orientation impacts export market performance, which is the ultimate goal of the dynamic capabilities framework.

Firms with strong dynamic capabilities are expected to outperform

counterparts that are locked into their existing resource possession, that neglect changing customer needs, that cherish the status quo, and that prioritize efficiency over innovation (Teece, 2016). Decision-making is typically articulated as either (or both) entrepreneurial management or dynamic managerial capabilities and marks innovation as a central organizational outcome. Nevertheless, these characteristics of dynamic capabilities could feature across a variety of different export decision-making approaches, including across the diametrically opposed schools of decision theory examined (Hughes et al., 2018). For instance, planning is characterized by how organizations formulate major problems, set objectives, analyse alternatives, and choose strategy, as well as acting as facilitating integration and coordination and a basis for both centralizing and decentralizing organizational decision-making (Wolf & Floyd, 2017). The aim of this approach is to achieve alignment between internal resources and external opportunities on an on-going basis. In contrast, descriptive approaches to decision-making, such as spontaneity and creativity, are viewed as intuitive, rarely rational and logical, spontaneous, and reliant on novel ideas that are executed as they unfold to respond rapidly to a changing environment (Hodgkinson et al., 2016). So what does a dynamic decision-making capability look like?

The study finds support for the argument that export planning has an inverted U-shaped relationship with innovation orientation. This is an interesting finding in that it challenges the normative assumption that greater export planning is essential for an exporter's proclivity to innovate. As we show in this study, export planning only drives greater innovation orientation at an intermediate level, implying that low and high levels of export planning may hurt a firm's proclivity to innovate in export markets.

On the other hand, in line with current thinking in the innovation literature this study finds that high levels of creativity in export decision-making is associated with a greater propensity to innovate in export market operations (e.g. Parjanen, 2012; Pretorius et al., 2006). However, we find that the squared-term of creativity is not associated with increases or decreases in innovation orientation. We explain this finding in two ways. First, we suggest that creativity in export decision-making is associated with greater degree of trial and error, which logic suggests may be distractive (Vera & Crossan, 2005). Second, a firm may have a culture that glorifies generation of creative exporting ideas for innovation, however, such a strong proclivity for creativity may also distract managerial attention away from actual export market innovations that are more systematically thought through (c.f. Pretorius al., 2006).

Furthermore, contrary to prior research that argues for a linear positive association between spontaneity in export decision-making and innovation orientation, we find evidence that suggests the relationship is more complex than previously thought. We find that spontaneity is not directly related to a proclivity to innovate in export markets. However, at increasingly high levels of spontaneity, exporters' orientation to innovate in export market operations increases.

For theory development, then, we begin to unpick the conceptual and theoretical complexities of a dynamic decision-making capability. Specifically, this capability appears to comprise of moderate planning, constant creativity, and extreme spontaneity, for superior export innovation. We, therefore, contribute new knowledge on how exporters should combine these approaches to decision-making for innovation ends, as called for by Hodgkinson and Sadler-Smith, (2018). The findings demonstrate a need for their joint application to respond to or anticipate changes in their environment, rather than the typical gravitation of export managers to one approach only. This joint application, in turn, "…allows for enhanced accuracy, speed, and maintenance of information-processing activities, facilitating perception and action for those activities attended to" (Ocasio, 1997: 204).

This also marks an extension of decision theory that has typically positioned these different ontological approaches to decision-making as being mutually exclusive. This has dominated management thinking based on a belief that their associated process, values and culture are in contradiction and, thus, organizations will always favor one approach over the other (Hughes et al., 2018). Indeed, this would be expected in an emerging economy context such as China where planning appears to be a default decision-making orientation owing to a dominant managerial mindset; one that actively promotes deliberate systematic decision-making using mechanisms such as structured coordination of business activities, quantifiable budgets and detailed analysis of trends to justify future developments (Filatotchev, Wright, Uhlenbruck, Tihanyi, & Hoskisson, 2003). Yet, this is not the case. Therefore, as contended by Hughes et al. (2018), there is need for a shift in the conceptualization of decision-making in emerging economies, and in the exporter context specifically, to recognize the integration of both normative *and* descriptive decision-making approaches. In doing so, research on decision-making can move away from the dual-interventionist account, which has dominated research investigation, toward the parallel-competitive account and a necessary conceptual shift as called for by Hodgkinson and Sadler-Smith (2018).

The findings, then, contribute to extending the value of the dynamic capabilities approach by digging deeper into the linkages between managerial actions, dynamic capabilities, and long-run firm performance, as called for by Teece (2016). Specifically, this study highlights the roles of managerial routine (planning) and non-routine (creativity and spontaneity) action for dynamic decision-making capability and its impact on an essential organizational-level phenomenon in emerging economies: innovation. In turn, export innovation carries benefits for export market performance and may be a source of future economic growth and high-income status.

5.2. Implications for practice

We recommend that managers of exporting companies focus on enhancing their firms' levels of innovation orientation. Our findings demonstrate that innovation orientation is a key antecedent of export performance. The international environment is typically more competitive, volatile and uncertain relative to the domestic environment. Hence, exporting companies need to be able to innovate in order to remain agile in changing market conditions. This is particularly relevant in the case of Chinese exporters. As a middle-income economy, China is pursing high-income growth and has already established itself as a major economic giant. However, it is acknowledged that transitioning from middle-income to high-income status is more difficult than moving from low- to middle-income status. In this context, sustaining growth and developing sustainable competitive advantage in the international arena requires a shift from imitation strategies to novel and innovative organizational processes. Consequently, managers of Chinese exporting companies are encouraged to strive to enhance the levels of innovation orientation of their firms' export functions.

To this end, we show that the joint-application of different decision-making approaches facilitates the achievement of higher levels of innovation orientation, thereby improving firms' ability to outperform competitors in the international marketplace. Managers need to recognize that a moderate level of planning is necessary to establish goals and objectives. It is useful when the company is trying to resolve a particular problem (i.e., when it has clear ends). However, changing environmental conditions often require timely and creative decisions rather than optimal ones (Nemkova et al., 2015). Higher levels of planning can restrict innovation processes, as objectives are likely to evolve over time. For innovations to take place employees have to be encouraged to create new ideas which *a priori* may not always be 'good'. Hence, while some level of export planning is ideal for innovation to flourish, planning should not be prioritized at the expense of other approaches.

Currently many companies invest substantial resources trying to increase the originality of their employees in order to gain a competitive edge in the market place. Nevertheless, these initiatives have to be employed with caution, as managers also have to learn how to quickly recognize potentially valuable ideas (Csikzentmihalyi, 2013). According to Csikzentmihalyi (2013: 49) 'if you are good at creativity you should be able to discard quickly the ideas that are not good'. Indeed, this research provides evidence that export managers have much to gain from using creativity and spontaneity alongside the traditional export planning approach, as creativity and spontaneity encourage 'out of the box' thinking and enable firms to come up with solutions when timely actions are needed. For Chinese exporters it is especially important as many Chinese firms are relatively new to doing business internationally. At the same time there is a lot of pressure to produce high quality 'made in China' innovations to counter the negative stereotypes of this label. Therefore, if export managers are aiming to increase their innovation orientation they have to rely on constant creativity and extreme spontaneity alongside moderate planning. Exporters can, thus, enhance their innovation orientation through the joint application of planning, creativity and spontaneity. Managers who are able to master this will be able to gain a competitive advantage and outperform their competitors in the international arena.

6. Limitations and directions for future research

A number of limitations are identified in the study that might prompt further research. First, the study is cross-sectional in nature and, as such, no true causal relationships can be proved. Therefore, future longitudinal research should be conducted to track the evolving effects of decision-making approaches on innovation orientation. Second, we studied the Chinese context. China, as a market, is idiosyncratic and the underlying mechanisms revealed in the current study might not be the same in a more developed market context. Future researchers are therefore recommended to study the decision-making phenomenon from a multitude of market contexts since such research might reveal some interesting cross-market effects. Third, the investigated model is quite parsimonious in nature as we were specifically interested in unveiling the core mechanisms driving innovation orientation and its outcomes in exporting from a decision theory perspective. Future researchers might want to expand the current model by including variables using complementary theoretical perspectives such as contingency theory and systems theory. Finally, as this research focuses on exporting organizations in particular, future researchers are encouraged to investigate the applicability of our findings across a wider range of market entry modes.

7. Conclusion

In conclusion, findings from this study indicate that while a greater proclivity to innovate is beneficial for export market performance, a more complex web of relationships exist between export decision-making approaches and an orientation to innovate. While a moderate level of export planning reduces an exporter's capacity to innovate, constant creativity has a positive direct effect on exporter's innovation orientation, which also benefits from extreme spontaneity in export decision-making. The operationalization of a dynamic decision-making capability that comprises both planning (at moderate levels), creativity, and spontaneity (at very high levels only) demonstrates how strategy development practices in emerging economies differ from their counterparts in developed economies, where the mutual exclusivity argument reigns supreme. This study, therefore, provides exporters in emerging economies with an actionable dynamic decision-making capability, and moves the dynamic capabilities framework beyond the abstract and esoteric toward a practical application.

Appendix

A Measurement scales and their sources.

Constructs and their measures	Standardized loading	Standardized error
Planning (adapted from Bailey et al., 2000)		
When we formulate an export decision it is usually planned in detail	0.846	0.413
We generally develop definite and precise exporting objectives	0.766	0.284
We make our export decisions based on a systematic analysis of our business environment	0.788	0.379
Spontaneity (developed from Moorman & Miner, 1998 and Vera & Crossan, 2005)		
We often make ad-libbed export actions	0.841	0.293
We usually make export decisions spontaneously	0.826	0.317
Creativity (developed from Hmieleski & Corbett, 2006)		
We always try new approaches to export problems	0.669	0.553
We are very good at finding new solutions to export problems	0.933	0.130
We often produce new ideas for doing exporting	0.811	0.342
Innovation-orientation (developed from Narver et al., 2000)		
Export employees are always rewarded for coming up with new export ideas	0.812	0.341
Innovations are readily marketed to our export customers	0.651	0.576
Market performance (adapted from Hultman et al., 2009, Leonidou et al., 2011, and Schilke, Reimann, & Thomas, 2009)		
Export customer satisfaction	0.773	0.403
Retention of export customers	0.802	0.356
New referrals from existing export customers	0.744	0.446
Acquiring new export customers	0.778	0.395
Company reputation among export customers	0.700	0.510
Financial performance (adapted from Hultman et al., 2009, Leonidou et al., 2011, and Schilke et al., 2009)		
Reaching financial goals	0.827	0.316
Return on investment made on exports	0.864	0.254
Export profit growth	0.852	0.274
Growth in export sales revenue	0.821	0.326
Competitive intensity (adapted from Kaleka & Berthon, 2006)		
There are many promotion wars in our export markets	0.837	0.300
Formalization (adapted from Olson et al., 2005)		
There are regulations and procedures for most things in our export function	0.845	0.286
While making an export decision, we always have to use formal communication channels	0.874	0.236
In our export function, we follow strict procedures at all time	0.848	0.280
Centralisation (adapted from Hult et al., 2000)		
There is usually little exporting action until top management approves a decision	0.658	0.567
If we wanted to make our own export decisions we would be put off by top management	0.831	0.309

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