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Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures

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ABSTRACT

This study builds on resource based view (RBV) theory by examining the effects of e-commerce on exporting performance. Specifically, a framework is developed and tested to determine the e-commerce resources/capabilities–marketing efficiencies–performance relationship. To explore the impact of e-commerce on exporting, a two-stage methodological approach was employed. Results from 15 depth interviews with exporters were used to gain insight into types of e-commerce resources and capabilities and their impact on export marketing efficiencies and performance. Next, the framework was empirically tested using a sample of 340 exporters. The evidence shows that specialized e-commerce marketing capabilities directly increase a firm's degree of distribution and communication efficiency, which in turn leads to enhanced export venture market performance. Overall, the analyses provide support for the need to incorporate e-commerce constructs into existing RBV theory in export marketing. Theoretical and managerial contributions are discussed and directions for future research are offered.

1. Introduction

The importance of exporting in today's global marketplace is undeniable. It is the most popular way for firms to engage with international markets (Leonidou & Katsikeas, 2010) and the most common mode of entry for small and medium-sized firms (Spyropoulou, Skarmeas, & Katsikeas, 2010). The value of worldwide exporting has now exceeded $18.5 trillion dollars and accounts for 23% of world GDP (World Bank, 2015; World Trade Organization, 2014). Export trade is expected to grow due in part to recent advances in communication, transportation, and information technologies. Given the importance of exporting and the unlimited growth potential in e-commerce technologies, little empirical research exists on how exporters leverage these technologies in developing efficiencies in exporting (Gregory, Karavdic, & Zou, 2007). Despite recent theoretical and conceptual advancements in identifying factors affecting exporting success (Morgan, Kaleka, & Katsikeas, 2004; Morgan, Katsikeas, & Vorhies, 2012; Morgan, Zou, Vorhies, & Katsikeas, 2003), there is still an absence of research integrating new technologies (e-commerce) into existing export theory.

As one of the greatest technological developments in the last twenty years, e-commerce has driven revolutionary change in global business, with the primary benefits including entrance into new markets, increased customer base, streamlined supply chains, improved customer service, increased profits and reduced costs (Karavdic & Gregory, 2005). The transformation from traditional markets to e-markets demands specialized marketing capabilities housed in a supportive firm that is oriented toward achieving superior marketing efficiency. For industrial sellers there are numerous opportunities to develop specialized capabilities using information technology to enhance communications with buyers and improve distribution, purchasing and supply chain efficiencies. This is especially important for business-to-business (B2B) exporters as they often must enter new markets and manage relationships while being separated geographically from their venture markets.

Investing in e-commerce resources has become customary practice in today's exporting and consequently, easily duplicated by other firms. But simply investing in resources related to information technologies (IT) doesn't assure success, leading researchers to challenge the direct effect of IT resources on performance (Ravichandran, Liu, Han, & Hasan, 2009). Recent findings using the resource-based view of the firm (RBV) suggests to focus on the outcomes of resource deployment processes (e.g. capabilities) and how firm capabilities aid in implementing firm strategies (Vorhies, Morgan, & Autry, 2009). Yet, despite the theoretical and conceptual advances in this field, surprisingly little empirical work has assessed whether technology-based capabilities aid in creating marketing efficiencies, as capabilities theory predicts (DeSarbo, Di Benedetto, & Song, 2007). The advancement and widespread use of e-commerce allows firms to leverage a whole new set of capabilities creating the level of global connectivity needed for successful exporting. Transforming technology-based resources into unique and specialized capabilities is essential for firms to achieve

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organizational efficiencies, and represents an important and un-explored area in the export literature (Katsikeas, 2006).

Given the importance for international marketers to focus on developing resources and capabilities such as e-commerce, one important gap in the exporting literature is the lack of knowledge on how the integration of IT resources and capabilities enhances marketing efficiencies and improves exporting performance. Recent research provides a solid foundation we can draw upon establishing that resources can be developed into specialized distinctive marketing capabilities, which in turn can enhance marketing strategy implementation effectiveness and lead to higher export performance (Morgan et al., 2012). To fill this important research gap, we extend the authors' capabilities–effectiveness–performance model to include e-commerce marketing capabilities, and then measure the subsequent impact on both marketing efficiencies (strategy implementation) and export performance. In doing so, we extend existing RBV theory by developing and validating a capability–efficiency–performance model.

By incorporating e-commerce marketing capabilities we are better able to explain how exporters use IT to develop efficiencies and enhance export performance. Our approach adds to the growing body of literature and provides a stronger foundation for studying industrial and B2B exporting. Specifically, our research further informs capabilities and RBV theories and makes three distinct contributions to the export marketing literature. First, we extend existing RBV theory by incorporating e-commerce capabilities as a driver of efficiencies and performance in B2B exporting. Through qualitative research, we offer conceptualization and measurement of e-commerce resources and marketing capabilities and develop a model for testing. Second, we analyze these capabilities using RBV theory by testing a dual mediation effects model. Our model predicts that specialized e-commerce marketing capabilities and marketing efficiencies act as mediators between organizational resources and firm performance. The findings provide empirical support that marketing capabilities (e.g., e-commerce marketing capabilities) and marketing efficiencies (e.g., distribution and communication) act as dual mediators in the resources–performance relationship. These findings are compared across models indicating that our dual-mediating model better explains the value of e-commerce than would a direct-effects model. Finally, we measure the overall impact of e-commerce enhanced marketing efficiencies on different forms of export performance (e.g., e-commerce performance and export sales), and demonstrate that such efficiencies are necessary for exporters to enhance e-commerce performance, and in turn strengthen overall export performance. The integration of IT-enabled capabilities into existing export marketing frameworks provides evidence of important factors impacting export performance that are overlooked in existing export literature.

The remainder of the paper is organized as follows. First, we discuss resource-based view (RBV) perspective and the implications of e-commerce in export marketing. Second, we identify and integrate e-commerce resources and capabilities into existing theory, and present hypotheses and a framework explaining the capabilities–efficiencies–performance relationship. Third, we describe our measures and how they were developed; then test our model and present results from surveys of B2B exporters. Finally, we conclude by discussing both managerial and theoretical implications, and provide a foundation for future research and theory development.

2. Theoretical background and hypotheses

2.1. The resource-based view (RBV)

The RBV considers firm's internal organization resources (assets, capabilities, processes, managerial attributes, information and knowledge) to explain its strategy and performance (Barney, 1991; Collis, 1991; Deligonul & Cavusgil, 1997; Wernerfelt, 1984). The RBV theorists use the term 'resource' in a broad sense. Porter (1986), for example, argues that the most critical resources are those that are superior in use, hard to imitate, difficult to substitute for, and more valuable within the firm than outside. The differential benefit of strategic resources among firms is the ultimate determinant of their performance (Barney, 1991; Grant, 1991; Wernerfelt, 1984). Researchers believe that uniquely combining a set of complementary and specialized internal resources and capabilities, may lead to value creation (Amit & Schoemaker, 1993; Barney, 1991; Peteraf, 1993; Wernerfelt, 1984). However, a firm's resources and capabilities are valuable if they reduce a firm's costs or increase its revenues compared to what would have been the case if the firm did not have those resources (Barney, 1997).

Only recently have researchers begun to focus on the specifics of how some organizations first develop internal specific capabilities and then how they renew competencies to respond to shifts in the business environment (Eisenhardt & Martin, 2000). The dynamic capabilities approach is an extension of the resource-based view of the firm that was introduced to explain how firms can develop their capability to adapt and even capitalize on rapidly changing technological environments (Teece, Pisano, & Shuen, 1997). Dynamic capabilities emphasize the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external experience, resources, and functional competencies within a changing environment.

The difference between the traditional conceptualization of the resource-based view of the firm (Barney, 1997; Grant, 1991; Wernerfelt, 1984) and the dynamic capabilities view (Teece et al., 1997) is that under the traditional view, current firm resources and capabilities are exploited based on opportunities in the marketplace, whereas under the dynamic capabilities view, the firm needs to develop new capabilities to identify opportunities and respond quickly to them. Contemporary research in export marketing currently integrates both the traditional view with the dynamic capabilities perspective and suggests that marketing capabilities are important predictors of effective export venture marketing strategy, which in turn leads to greater market performance (Morgan et al., 2004; Morgan et al., 2012). The RBV and dynamic capabilities approaches help us to understand how firms leverage their investments in e-commerce to develop capabilities that are valued, rare, inimitable and non-substitutable (Barney & Clark, 2007).

The study of resources and capabilities has received a great deal of attention in contemporary marketing and strategic management research. Based on an extensive review of the literature, the resource-based view (RBV) is used as a theoretical basis to best explain how e-commerce technologies could be integrated into existing export marketing theory. Our research framework is presented in Fig. 1 followed by a conceptualization of our focal constructs and discussion on the rationale for each of the hypothesized relationships.

2.2. E-commerce resources and marketing capabilities

Given the value of IT in global marketing, many organizations have embraced e-commerce as a necessity in exporting. Yet, the way that e-commerce is embedded in business processes differs. In fact, it is how firms leverage their investments to create unique IT-enabled resources and firm-specific capabilities that determine a firm's overall success (Zhu & Kraemer, 2002). In the information systems (IS) literature RBV has been used extensively to explain how firms can create unique value from IT resources, and how capability resides more in the organization's skills to leverage those resources than in the resources itself.

Capabilities are fundamental to the firm's success when operating and selling in foreign markets (Leiblein & Reuer, 2004), and lead to important sources of competitive advantage (Murray, Gao, & Kotabe, 2011). Capabilities have also received significant attention in the international marketing literature (Yalcinkaya, Calantone, & Griffith, 2007). Although recent studies have recognized the importance of capabilities to create value, sustain competitive advantage, and achieve superior

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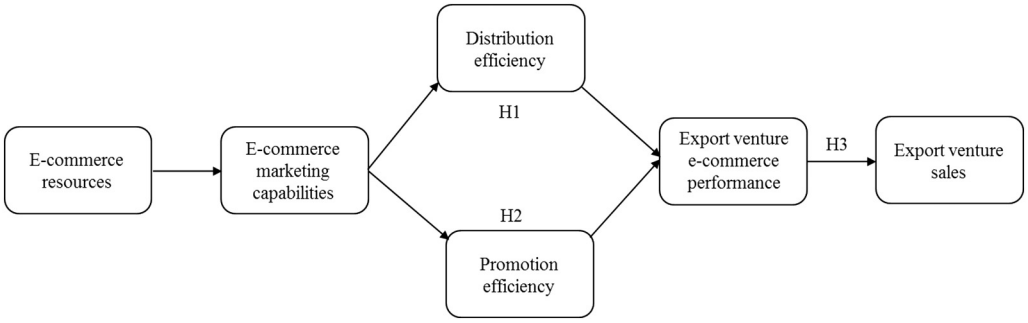

Fig. 1. Research framework.

profitability (Fang & Zou, 2009; Song, Nason, & Di Benedetto, 2008), there is little empirical evidence of the strategic impact of e-commerce marketing capabilities on export strategy and performance.

Organizational capabilities can be examined from different perspectives. A comprehensive review of the literature suggests three distinct categories of capabilities exist: outside-in, inside-out, and spanning (Wade & Hulland, 2004). Outside-in capabilities are externally oriented, focusing on a firm's ability to anticipate market requirements and understand competitors (e.g., responsiveness to competitive and external market dynamics). Inside-out capabilities is internally focused and involves deployment from inside the firm in response to market opportunities (e.g., technology development, cost reductions). While spanning capabilities involve the integration of both outside-in and inside-out capabilities, allowing firms a more holistic view of business relationships, planning and management of operations. Research in dynamic capabilities theory further identifies two types of higher-order capabilities especially relevant to export venture performance, architectural and specialized export marketing capabilities (Morgan et al., 2012). Architectural capabilities generally result from the learning process of external markets, the subsequent analysis of external market information, and the development of export venture marketing strategies in response to external marketing information (Vorhies & Morgan, 2005). External market information is crucial for predicting changes in foreign markets and anticipating competitive challenges. Whereas specialized capabilities generally result from the utilization of internal resources, the development of marketing processes (e.g., communication, distribution) and the implementation of efficient/effective export venture marketing strategies. Interconnection and synergies between each set of higher-order capabilities is likely for some firms, yet for others one specific type of capability may be more effective than others. For purposes within the current study, we consider e-commerce marketing capabilities (new technologies, innovations, processes) to be primarily internally generated and thus more in line with the development of specialized export marketing capabilities (inside-out capabilities) rather than architectural capabilities (or outside-in capabilities). The notion that utilization of internal IT resources improves processes, reduces costs and leads to capabilities that improve efficiencies is well supported in the IS literature (Liang, You, & Liu, 2010).

In order to examine the resources–capability relationship, we begin by extending RBV theory to conceptualize *e-commerce resources* as comprised of both tangible (e.g., communications infrastructure, high-tech software/hardware) and intangible (e.g., knowledge, expertise) assets available to the firm. When firms invest in resources and are able to capitalize on and transform resources in processes and mechanisms that create marketplace value offerings they are said to have created capabilities (Grant, 1996). Next, we focus on examining e-commerce market value offerings and capture them as a specific construct in e-commerce marketing capabilities. We extend the notion that marketing capabilities serve as processes by which firms select value propositions and deploy resources to deliver those value offerings (Vorhies & Morgan, 2005). From an IS perspective, firms that combine and integrate resources into unique e-commerce functionalities can create distinctive e-commerce capabilities (Zhu, 2004). Combining both a strategic management/marketing and IS perspective, we conceptualize *e-commerce marketing capabilities* as the ability of an organization to identify, develop, and assimilate e-commerce activities into market value offerings that meet desired goals. As a specialized marketing capability, e-commerce marketing capabilities are considered part of the export market program processes that allow firms to implement their export venture strategies.

Our field interviews with export managers explored value offerings (unique functionalities) generated from e-commerce, and confirmed processes such as providing online product/service support (informational), communications (promotion and advertising) of company's products (interaction), services and capabilities, e-procurement of products/services, electronic supply chain management, e-distribution and selling support (supplier connections, e-fulfilment) and online e-auctions (transactional) that represent all the important e-commerce capabilities exporters hoped to achieve. These value offerings closely align to the broad multi-dimensional construct of e-commerce capabilities (informational, transactional, fulfilment activities and supplier connections) found by Zhu and Kraemer (2002), and follow the logic that such capabilities represent 'the firm's ability to deploy and leverage e-commerce resources to support order cycle activities' (Zhu, 2004, p. 181). We believe these processes allow firms to transform their resources into planned value offerings in the export venture market (Vorhies et al., 2009). In line with prior research on the resource–capability linkage we expect that e-commerce resources are positively related to specialized e-commerce marketing capabilities.

2.3. Export marketing efficiencies

Past research on export marketing strategy tends to focus on standardization/adaptation of traditional marketing mix variables (product, promotion, distribution and pricing) as a basis of performance (Cavusgil & Zou, 1994). While more contemporary research examines both the manifestation of the marketing mix into specific marketing capabilities (Murray et al., 2011) and the effectiveness of implementing export market strategy relative to export goals (Morgan et al., 2004; Morgan et al., 2012) as the driver of export performance. Both of these contemporary approaches accept that marketing strategies alone do not explain variation in performance, and suggest that strategies must be effectively implemented and achieve certain goals. Murray et al. (2011) consider capabilities as embedded within marketing strategies (e.g., pricing capability, new product development capability, etc.), whereas Morgan et al. (2012) look at capabilities as antecedents of a firm's implementation of planned export marketing strategy. We extend Morgan et al.'s (2012) approach but rather than looking holistically at the effectiveness in implementation of the marketing program we instead focus on specific aspects of marketing strategy where e-commerce is able to create marketing efficiencies. We broadly define marketing efficiencies as the utilization of a company's internal business tactics, activities and

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strategies aimed at creating efficiencies in marketing functions. This conceptualization is consistent with RBV in that dynamic capabilities impact performance and that organizational efficiency can be measured as the relative company performance at the operating-routine level (Drnevich & Kriauciunas, 2011).

Efficiency and effectiveness are similar in that they are both important measures of performance of a business process. In digital marketing, for example, efficiency involves increasing conversion rates and reducing costs of acquisition (Chaffy, Mayer, Johnston, & Ellis-Chadwick, 2000), whereas effectiveness involves achieving broader marketing objectives and often indicates the contribution of the entire online channel. Hasan and Tibbits (2000) note that the internal process measures in particular are concerned with the efficiency and the customer, whereas business value perspectives are indicated with effectiveness. For purposes of our study, we believe investigation of specific e-commerce marketing capabilities on internal marketing efficiencies is more appropriate than looking at a broader approach of market strategy implementation effectiveness.

In a B2B context, our fieldwork interviews looked to gain insights into specific areas of export marketing strategy where unique competencies and efficiencies could be established using e-commerce. While there are many applications of e-commerce in product development and pricing strategies, our results indicated that two specific areas where e-commerce has the biggest impact on business processes are *distribution efficiency* and *communication efficiency*. Distribution and communication efficiencies not only represent two fundamental goals necessary for success in B2B exporting (Samiee, 2008), but are also consistent with the principles of e-commerce 'as a sharing of business information, maintaining business relationships, and conducting business transactions using digital networks' (Zwass, 2003).

2.3.1. Distribution efficiency

Research on distribution suggests that the process by which distributors are selected, as well as the support to, and commitment of foreign distributors, are important aspects of efficiency and serve as key export success factors (Klein, 1987; Rosson & Ford, 1982). Past findings further suggest that transaction efficiency is one of the primary value drivers generated by e-commerce (Amit & Zott, 2001). Using e-commerce in distribution also creates efficiencies in (1) communication channels (2) transaction channels, and (3) distribution channels (Peterson, Balasubramanian, & Bronnenberg, 1997). Efficiencies in the delivery time of the products exported constitutes a key overseas supplier selection criterion used by importing firms, as it affects competitiveness and success in the market in which these firms operate (Piercy, Kaleka, & Katsikeas, 1998). Distribution efficiencies generated by e-commerce also allow exporters to reduce the number of channels in a distribution chain – or disintermediation – the process of cutting out the middleman (Papows, 1998).

Global B2B exporters need to manage supply chain systems through greater coordination of entire distribution channels, alliances, and relational exchanges, requiring them to leverage electronic forms of exchange, particularly with respect to information access, storage, and retrieval (Samiee, 2008). Experts in e-commerce agree that supply chain management is the main area where e-commerce has its greatest impact on business efficiency (Benjamin & Elsie, 2003; Ranganathan, Dhaliwal, & Teo, 2004), especially in B2B trade. In particular, utilizing e-commerce in supply chain management in manufacturing and wholesale trade helps B2B firms realize real growth in business efficiency (Baršauskas, Šarpovas, & Cvilikas, 2008). Research using RBV supports that IT-enabled supply chain capabilities act as a catalyst in transforming IT-resources into higher value for the firm (Wu, Yeniyurt, Kim, & Cavusgil, 2006). Distribution is a key aspect of business-to-business exporting, and usage of e-commerce resources and capabilities provides for numerous ways firms can gain efficiencies and improve export performance.

2.3.2. Communication efficiency

The theoretical rationale for consideration of communication efficiency is rooted in the generally accepted definition of marketing as a set of activities involved in the facilitation of exchange (Kotler & Levy, 1969). As products and services move along the value-added chain from supplier to firm to distributor to consumer, increasingly a major component of exchange is the exchange of information (Porter, 1986). Efficiencies in communication can reduce buyers' search and bargaining costs (Lucking-Reiley & Spulber, 2001), as well as reduce opportunistic behavior (Williamson, 1991). The reason that search costs decline with e-commerce marketing capabilities stems from a wider geographic reach of possible suppliers and buyers with the potential to communicate with the firm either directly or via an intermediary. As open and cost effective, e-commerce technologies also increases access to information in forms that suit the users and transactions involved. Wider access to and greater transparency of information decreases not only search cost, but also monitoring and enforcement costs (Brews & Tucci, 2004). Communication efficiency using e-commerce also creates a reduction of information asymmetries between buyers and sellers through the supply of up-to-date and comprehensive information. Efficiency enhancements can improve information flows, reducing coordination costs and transaction costs (Zhu, 2004). E-commerce technologies further empower intermediaries to learn more about other channel members, thereby allowing them to generate incremental value through service customization and relational exchange (Walters, 2008). In sum, B2B trading using e-commerce to communicate with distributors and suppliers provides firms the opportunity to create business opportunities and efficiencies.

Firms that are able to focus on specialized marketing capabilities can build important marketing efficiencies in the export market and enhance export performance. Specialized marketing capabilities are made up of mainly 'tactical' marketing processes necessary for effective marketing strategy (Vorhies & Morgan, 2003). This idea fits nicely with the application of e-commerce in exporting, whereby many of the resources and capabilities in this area relate directly to tactical choices in electronic marketing and delivery of products/services. For example, firms that are able to develop specialized e-commerce marketing capabilities in communications and promotions can communicate more efficiently and better manage buyer expectations in export markets. Likewise, developments in e-commerce technologies have resulted in efficiencies in distribution on a global scale. Efficiencies in logistics combined with reduction in channel members result from establishing e-commerce marketing capabilities in distribution, and have a direct impact on export performance. This suggests that specialized e-commerce marketing capabilities will lead to efficiencies in export market strategy (marketing efficiencies) and enhance export performance. Finally, there is strong support in the literature that marketing capabilities are crucial for leveraging positional advantages and export performance (Zou, Fang, & Zhao, 2003) and have both a direct impact on export performance, as well as work indirectly through implementation of planned export marketing strategy (Morgan et al., 2012). Based on this idea, we hypothesis that export marketing efficiencies mediate the e-commerce marketing capabilities–performance relationship:

H1. Export marketing distribution efficiency mediates the relationship between e-commerce marketing capabilities and e-commerce export venture performance.

H2. Export marketing communication efficiency mediates the relationship between e-commerce marketing capabilities and e-commerce export venture performance.

2.4. Export venture performance

Export performance is the extent to which a firm's objectives, both economic and strategic, with respect to exporting a product/service into a foreign market, are achieved through planning and execution of

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export marketing strategy (Cavusgil & Zou, 1994). The performance of an export venture is determined by export marketing strategies and management's capability and commitment to implement the strategies (Aaby & Slater, 1989; Cooper & Kleinschmidt, 1985). Measures of export performance range from financial-based measures such as market share, return on assets, return on investments, return on equity, and sales growth, to market-oriented measures such as strategic objectives achievement and management commitment to export (Zou & Stan, 1998). Strategic oriented measures are particularly useful when measuring export venture market performance and the degree to which the export goals and objectives are achieved (Morgan et al., 2012).

The measurement of export performance is one of the most challenging topics in international marketing research. Although there is still no agreement on how to best measure export performance (Matthyssens & Pauwels, 1996; Zou & Stan, 1998), a general agreement is that there are two main categories of export performance measures: financial performance and market performance (Morgan et al., 2012). The first category emphasizes financial outcomes of exporting such as export sales, export growth, export intensity and export profitability. Among these measures, export intensity, which is the proportion of export sales to total sales, received considerable attention (Matthyssens & Pauwels, 1996). The second category emphasizes market-based export performance or strategic outcomes of exporting such as attainment of strategic goals, improved competitiveness, increased market share or strengthened strategic position (Cavusgil & Zou, 1994).

Our field interviews and the literature support the inclusion of a multi-dimensional approach including both market and financial-based measures. For our market-based measure, we adapt previous performance metrics of export venture market effectiveness, capturing the extent to which the venture's growth objectives are met in the target export market served (Katsikeas, Leonidou, & Morgan, 2000). Applying this construct to our study we develop a measure of *export venture e-commerce performance* that includes utilizing e-commerce to achieve strategic goals for the target export venture market. Findings from our qualitative field interviews indicates a comprehensive set of eight (8) strategic goals exporters hope to achieve utilizing e-commerce: provide lower cost channel for transacting with customers, maintain relationship with the overseas customers, exploit new sources of revenue, offer new services to existing customer base, reduce operating costs, develop stronger relationships with suppliers and buyers, access new international markets, and bring new services and products to international market more quickly.

Second, our financial-based measures pertaining to export venture performance include export venture sales as a percentage of total sales and export venture sales growth rate. Firms often have a set of market-based strategic goals, as well as financial goals. Thus, our multi-dimensional approach in capturing export venture performance includes (1) the extent to which the initial export venture e-commerce strategic goals were achieved and (2) the average annual export sales growth rate over last three years of the venture. It is expected that if export venture e-commerce performance is truly reflective of the specialized e-commerce marketing capabilities and resultant strategic efficiencies, then there should be a positive association between this market-based performance indicator and a financial-based approach. Hence, we expect that:

H3. Export venture e-commerce performance is positively related to export venture performance (sales).

3. Methodology

3.1. Research approach

The two primary goals of this study are (a) to develop and extend existing RBV theory by incorporating e-commerce into the exporting process, and (b) to examine the effects of e-commerce marketing capabilities on export venture marketing efficiencies and performance. In doing so, we develop new constructs and adapt existing measures using a two-stage research approach. In the first stage, exploratory research using in-depth interviews was used to gain a better understanding of the phenomenon under investigation and to develop preliminary measures of e-commerce constructs. In the second stage, surveys of firms currently using e-commerce in exporting were gathered to explore the underlying dimensions of our constructs and to examine the influence of e-commerce resources and capabilities on export market efficiencies and performance.

3.2. Data collection and sampling frame

In-depth interviews were conducted in the first stage of this research to determine the impact of e-commerce on export business in practice, and to establish specific dimensions of e-commerce marketing capabilities and marketing efficiencies. A set of in-depth interviews (15) was conducted with Australian business-to-business exporting firms currently using e-commerce in exporting. Research participants for the exploratory phase were selected from the Business Who's Who (BWW) of Australia database, published by Dun & Bradstreet Marketing. The major objectives of these interviews were (a) to gain an in-depth understanding of how e-commerce is currently being used in exporting (b) to identify 'key' e-commerce drivers (both resources and capabilities) used, and (c) to detect possible marketing efficiencies realized using e-commerce. Ultimately, our goal was to use this information to develop and/or adapt measures and to improve upon our preliminary understanding of existing relationships in our conceptual framework. The findings from the exploratory research are incorporated into the corresponding section on model constructs and measurement development.

In our second phase of data collection, a survey based on computer-assisted Web interviewing method (CAWI) was employed nation-wide across Australia. The sampling frame used for this study was the Australian Suppliers Directory (ASD), created by the Australian Trade Commission (AUSTRADE) and the Government of Australia. The ASD is considered the most comprehensive and extensive source of exporters in Australia since it is a government database that covers all industries exporting from Australia-wide. The ASD provides the names of exporting companies, addresses, telephone numbers, persons to contact, position of contact persons (which in majority of cases include managing director, general manager or export manager), e-mail address of contact persons, and the company web address. It also records type of business exporters are involved in. We selected industrial (B2B) exporters for this study based on their primary business being conducted between companies, rather than between a company and individual consumers. The final sampling frame consisted of B2B exporters operating in industrial manufacturing, business-to-business (B2B) services, wholesale trade and distribution/transport/storage, which comprises the majority of all industrial B2B exporting activities in Australia.

Firms were screened in an attempt to target exporters that have a business web site and who currently use e-commerce technologies in exporting (i.e., from soliciting/accepting orders through the Internet to complete electronic delivery of product/service). Consistent with past research, the unit of analysis was a specific export venture, which is defined as the marketing of a specific product in a specific market (Cavusgil & Zou, 1994; Morgan et al., 2004). Additionally, only those exporters with a minimum of three years' experience in a specific export venture were asked to be included in the sample to ensure adequate experience and knowledge.

Company managing directors, export managers or marketing managers were identified as key informants due to their extensive knowledge about company involvement in export business (Kumar, Stern, & Anderson, 1993) and their personal involvement with the specific export venture under investigation. An email invitation to participate in

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an online survey was sent to senior managers responsible for export business for the entire 5233 exporting firms in the ASD.

Approximately 24% of e-mails were returned because of internal firewall restrictions or invalid e-mail addresses. Of those who were able to receive the e-mail (3982), 73% of them opened the e-mail, with a further 21% clicking through to the survey link (608). Of those who clicked through, 28% of these completed the survey (171). This initial step was followed one week later by a second invitation to increase response rates (Brennan, 1992). In the second invitation process the e-mails that did not get through in the first invitation were excluded along with those that had completed the survey. Additionally, 1600 new contacts from medium to large size companies were added from Business Who's Who (BWW) of Australia database, published by Dun & Bradstreet, to supplement the ASD database (5344 in total). The response from the second invitation was marginally better than the first. From those that received the e-mail invitation (3954), 69% of them opened the e-mail, 20% clicked-through (544), and 33% of these firms completed the survey (179), resulting in a total of 350 responses. Overall, the total response rate based on click-throughs was 30.3%, well within the range of Internet surveys where response rates range anywhere from 6% to 76% (Sheehan & Mcmillan, 1999; Simsek & Veiga, 2000). After cleaning up the data and eliminating responses that didn't meet the screening criteria, the final sample included 340 export ventures.

The final sample of the export ventures comprised of industrial manufacturing (48%), business-to-business (B2B) services (29%), wholesalers (12%), distribution/transport/storage (6%) and other (5%). Small firms made up 77% of the sample, medium-sized 20% and large firms 3%, consistent will government figures on firm size distribution in Australia. Firms' international experience ranged from 3 years (34%), 4–5 years (45%), 6–9 years (18%), to 10+ years (3%). The average e-commerce experience was 6 years, and ranged from a minimum of 3 years (34%), 4–5 years (33%) to 6+ years (33%). Export ventures operated primarily in Asia (50%), followed by North America (27%), European Union (17%), and other regions (6%).

3.3. Measures

The proposed model consists of six constructs – e-commerce resources, e-commerce marketing capabilities, distribution efficiency, communication efficiency, export venture e-commerce performance, and export venture sales. Measurements of these constructs were drawn from and/or adapted from existing literature on e-commerce exporting and export marketing.

3.3.1. E-commerce resources

We measured *e-commerce resources* with a four-item scale (1 = strongly disagree and 5 = strongly agree) adapted from Rasheed and Geiger (2001) and Gregory et al. (2007) that assess the extent firms invest substantially in the following resources: Budget for e-commerce export development, People in charge of e-commerce export development, E-commerce team in export marketing development, Services to support e-commerce export sales.

3.3.2. E-commerce marketing capabilities

E-commerce marketing capabilities were measured using an eight-item scale (1 = not considered and 4 = already achieved) adapted from Burd (2001) and Prasad, Ramamurthy, and Naidu (2001). These measures assess the extent to which firms achieved their export venture goals in creating capabilities utilizing e-commerce activities such as providing online product catalogue, online promotion of products, online ordering, online payment, salesperson online access, e-procurement, participation in electronic marketplace, and e-fulfilment. This operationalization is in line with current measurement of e-commerce capabilities as 'the firm's ability to deploy and leverage e-commerce resources to support order cycle activities' (Zhu, 2004, p 181). These processes were derived through a comprehensive review of the literature in addition to data collected from our field interviews with B2B exporters, and represent a broad and comprehensive range of e-commerce marketplace value offerings. We believe the successful achievement of these processes allow firms to transform their resources into planned value offerings in the export venture market (Vorhies et al., 2009).

3.3.3. Export venture marketing efficiency

We adapted the existing scales (1 = strongly disagree and 5 = strongly agree) from the study by Gregory et al. (2007) to measure *distribution efficiency*, and *communication efficiency*. In particular, the two-item scale of *distribution efficiency* accounts for how efficient is firms' distribution activities related to online logistic support, and distribution channels reduction. Research uses efficiency-related indicators to examine the impact of e-commerce on the operational efficiency, including productivity (Zhuang & Lederer, 2005), cost reductions in distribution and sales (Wang, Tai, & Wei, 2006), communications and selling. The four-item scale of communication efficiency accounts for how efficient is firms' communication activities related to information intensity, online after-sales support, market research efficiency, and online communications.

3.3.4. Export venture e-commerce performance and export sales

We measured *export venture e-commerce performance* using a nine-item scale (1 = not at all [achieved] and 5 = completely [achieved]). In line with the conventional strategic objectives for the export venture scale suggested by Cavusgil and Zou (1994), our scale consists of nine e-commerce strategic objectives for the export venture developed from previous managerial studies (conducted by large consulting companies) and critically reviewed by a panel of "experts" from academia and industry. Additionally, we measured *export venture sales* using an objective measure as a percentage of total sales averaged for the last three financial years.

3.4. Non-response and informant bias

Non-response bias was first examined using the procedures recommended by Armstrong and Overton (1977). As such, the responses from the first e-mailing were compared with the responses from the second e-mailing by testing for mean differences on variables in the study. A comparison across a number of key dependent and independent variables showed no significant differences between responses across the two invitations. Further tests for non-response bias included a comparison of secondary data on exporters' population characteristics from the Australian Bureau of Statistics (ABS) with this study's final sample characteristics. The results of this comparison, presented in Table 1, showed no significant differences across the two samples regarding the company size of exporters. Finally, we conducted analysis on a number of key variables to determine informant bias (see Table 2), and found no significant differences across informant's position within the firm. Overall, analysis of non-response and informant bias suggests that the chosen sample represents a broader population of Australian exporters.

4. Analysis and results

4.1. Validity and reliability of measures

We assessed the adequacy of the measurement model via an examination of individual item reliabilities, convergent validity, and discriminant validity. As shown in Table 3, all factor loadings of our constructs were greater than the minimum cut-off of 0.50 suggested by Hulland (1999), thus indicating adequate item reliabilities. We assessed convergent validity using the internal consistency measure (composite reliability) suggested by Fornell and Larcker (1981). The internal consistency values for all the constructs in our model exceeded the 0.70 guideline (Nunnally, 1978). As such, we concluded that our constructs exhibit adequate convergent validity.

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Table 1
Comparison by company size - total population versus sample.

Number of employees	Sample N = 340%	Total population - exporters[a] N = 21.787%	Difference	2-Tail significance level
Small firms (<20 empl.)	77.0	76.2	0.8	0.242
Medium firms (20–199 empl.)	20.0	20.6	0.0	0.972
Large firms (200+ empl.)	3.0	3.2	-0.2	0.642

[a] Source: Australian Bureau of Statistics (2000), A portrait of Australian exporters: A report based on a business longitudinal survey.

We examined discriminant validity of each construct using two different methods. First, we followed a procedure suggested by Fornell and Larcker (1981) by comparing the square root of the AVEs and all corresponding correlations. As shown in Table 4, we found that discriminant validity is evident as the square root of the AVEs of the constructs was greater than all corresponding correlations. Second, we followed a procedure suggested by Bagozzi and Warshaw (1990) and found that each correlation was <1 by an amount greater than twice its respective standard error. We also calculated the Heterotrait-Monotrait (HTMT) ratio for all reflective constructs in the model (from 0.31 to 0.66) which were below the conservative threshold of 0.8 (Henseler, Ringle, & Sarstedt, 2015; Kline, 2011). Based on these tests, we concluded that our constructs exhibit adequate discriminant validity.

We checked for common method bias in two steps. First, we conducted a Harmon's single-factor test suggested by Podsakoff and Organ (1986). We found that no single factor accounted for the majority of the variance (the first factor accounted for 21.18% of the 55.4% explained variance). Second, we applied the marker variable technique recommended by Lindell and Whitney (2001). As the marker variable, we used the level of preference in attending seminars/conferences (seminar attendance), which has a non-significant correlation coefficient of 0.03 with export venture e-commerce performance (the endogenous construct). We used this correlation to partial out effect from other correlations to examine the degree of the common method bias. As suggested by Lindell and Whitney (2001), we also conducted a sensitivity analysis at 95% and 99% levels of confidence for the correlations of the marker variable. Table 5 provides the results of the partial-out procedure and sensitivity analysis and shows that the partial correlations between the key constructs are high and significant, indicating no evidence of common method bias.

4.2. Hypothesis testing

We tested the proposed hypotheses in several ways. First, we conducted a series of direct and indirect analyses using the bootstrapping bias-corrected confidence interval procedure (Preacher & Hayes, 2008). This procedure uses an OLS path analysis to estimate the coefficients in the model, specifying a 95% confidence internal and 5000 bootstrap re-samples. Second, we performed two robustness checks including (a) testing the interaction effect of distribution efficiency and communication efficiency, (b) and performing fsQCA, a set-theoretic method that examines how variables (causal conditions) combine into all possible configurations of binary states (i.e. presence or absence) to explain the desired outcome (Ragin, 2008).

Table 6 reports the results of the proposed hypotheses and the path analysis. Model 1 provides evidence for the unstated hypothesis that e-commerce resources is positively related to specialized e-commerce marketing capabilities (Model 1, $\beta = 0.41$, t-value = 9.46). In H1 and H2, we hypothesized distribution efficiency and communication efficiency as the two mediators of the relationship between e-commerce marketing capabilities and export venture e-commerce performance, respectively. To test the mediation effect of distribution efficiency we estimated Model 2. H1 was supported: the indirect effect of e-commerce marketing capabilities on export venture e-commerce performance via distribution efficiency was significant (Model 2, ab = 0.07, $p < 0.05$; 95% CI [0.02, 0.11]). To test the mediation effect of communication efficiency we estimated Model 3. H2 was also supported: the indirect effect of e-commerce marketing capabilities on export venture e-commerce performance via communication efficiency was significant (Model 3, ab = 0.14, $p < 0.05$; 95% CI [0.09, 0.19]). We also estimated Model 4 with the inclusion of the two mediators. Results indicated that distribution efficiency and communication efficiency mediate the effect of e-commerce marketing capabilities on export venture e-commerce performance (Model 4, ab = 0.17, $p < 0.05$; 95% CI [0.12, 0.24]).[1] H3, which posited that export venture e-commerce performance is positively related to export venture performance (sales), was supported (Model 4, $\beta = 0.37$, t-value = 8.73).

4.3. Robustness check

Robustness check is a now common exercise in empirical studies for examining how certain "core" regression coefficient estimates behave when the regression specification is modified in some way, typically by adding or removing regressors (Lu & White, 2014). We conducted robustness check in two ways. First, we examined a competing model in that distribution efficiency and communication efficiency moderate the effect of e-commerce marketing capabilities on export venture e-commerce performance. Results shown that the moderating effects of distribution efficiency and communication efficiency were insignificant ($p = 0.59$ and $p = 0.0.04$, respectively), providing greater evidence for the mediation model as opposed to the moderating model.

Second, we re-analyzed the hypotheses using fuzzy-set qualitative comparative analysis (fsQCA) in order to enhance the robustness of our findings following the recommendations by Woodside (2013). fsQCA 'performs a systematic cross-case analysis that models relations among variables in terms of set membership and uses Boolean algebra to identify configurations that reflect the necessary and sufficient conditions for an outcome of interest' (Ordanini, Parasuraman, & Rubera, 2013, p. 137). Thus, fsQCA is complementary to structural equation modelling that examines pre-determined relationships (Woodside, 2013). In this study, we employed a three-stage approach recommended by Fiss (2011) and Ragin (2008) to conduct fsQCA. First, we transformed the measures of constructs in the model into fuzzy-set membership scores. Specifically, we calibrated all the independent and dependent variables of our study, which involves classifying values of each variable into full membership (covering 95% of the data values), cross-over (covering 50% of the data values) and full non-membership (covering 5% of the data values). Second, we constructed and refined the truth table that presents all possible configurations of causal conditions of the desired outcome by selecting a frequency threshold and a consistency threshold. Frequency refers to the minimum number of cases required for a configuration to be considered (Fiss, 2011). We set the frequency threshold at 3 to ensure that the configurations

[1] We acknowledge that the capabilities–performance relationship may also be mediated by other marketing efficiencies (e.g., product and price). To test this, we added product and price into Model 4 as two additional mediators. Using the bootstrapping bias-corrected confidence interval procedure (Preacher & Hayes, 2008), we found that the results for product (ab = −0.0057, 95% CI [−0.0302, 0.0038]) and price (ab = −0.0035, 95% CI [−0.0427, 0.0381]) were not significant because their 95% CIs contained zero, while distribution (ab = 0.06, $p < 0.05$; 95% CI [0.0147, 0.1103]) and communication (ab = 0.15, $p < 0.05$; 95% CI [0.0887, 0.2062]) remained significant.

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Table 2
Informant bias assessment using selected variables – managing directors/CEO versus other management.

Variable of comparison	MD/CEO mean	Other mgrs. mean	Difference	2-Tail significance level
Objectives in developing the export venture market	3.18	3.23	−0.05	0.685
E-commerce experience overall	2.88	2.95	−0.07	0.572
Management commitment to export venture	4.38	4.28	0.1	0.362

Table 3
Measurement statistics.

Construct	Items	Loading[a]
E-commerce resources	Budget for e-commerce export development	0.50
$\alpha = 0.75$[b]	People in charge of e-commerce export development	0.59
(Rasheed & Geiger, 2001; Gregory et al., 2007)	E-commerce team in export marketing development	0.64
	Services to support e-commerce export sales activities	0.84
E-commerce marketing capabilities	Provide online product/service catalogue to customers	0.54
$\alpha = 0.83$	Promote and advertise company's products, services and capabilities	0.55
(Burd, 2001; Prasad et al., 2001)	Online ordering of products/services	0.63
	Presenting and paying bills online (e.g. paying bills, being payed)	0.59
	Enable salespeople online access to product/price/performance information	0.67
	Ordering supplies online (e-procurement)	0.75
	Participating in an electronic market place	0.59
	Fulfilling and/or delivering online–e-fulfilment (e.g. software)	0.52
Distribution efficiency	Company realizes efficiencies in the logistics process (e.g. electronic booking of transport, inspections, online	0.79
$\alpha = 0.79$	tracking of shipment etc.)	
(Gregory et al., 2007)	Company has been able to reduce the number of distribution channels (middlemen) necessary for export market	0.83
Communication efficiency	Company realizes efficiencies in communication with customers/partners	0.81
$\alpha = 0.84$	Company realizes efficiencies in information exchange between customers/partners	0.81
(Gregory et al., 2007)	Overall, our company realizes efficiencies in after-sales support	0.80
	Company realizes efficiencies in export marketing research	0.59
Export venture e-commerce performance	Provide lower cost channel for transacting with customers	0.55
$\alpha = 0.85$	Maintain relationship with the overseas customers	0.61
(Newly developed)	Exploit new sources of revenue	0.63
	Offer new services to your existing customer base	0.52
	Reduce operating costs	0.57
	Develop stronger relationships with suppliers and buyers	0.59
	Access new international markets	0.67
	Bring new services and products to international market more quickly	0.62
	Objectives for utilizing e-commerce in the export venture market	0.71

[a] Denotes measurement model loadings for items of constructs. All items are greater than 0.50 as suggested by Hulland (1999).
[b] Denotes composite reliability of measures, which is calculated as follows: $(\sum \lambda_{yi})^2/[(\sum \lambda_{yi})^2 + \sum \mathrm{var}(\varepsilon_i)]$, where $\mathrm{var}(\varepsilon_i) = 1 - \lambda_{yi}$ (Fornell & Larcker, 1981).

selected captured at least 80% of cases. Consistency refers to the degree to which the cases sharing a given configuration of attributes exhibit the desired outcome (Fiss, 2011). We set the consistency threshold at 0.85 which is above the minimum consistency threshold of 0.80 (Ragin, 2008). Third, we used the Quine-McClusky algorithm to logically reduce the truth table rows to simplified configurations. The fsQCA results in Table 7 show three configurations of causal conditions (i.e. ERE*ECAP*DISE*ECPER; ERE*DISE*COME*ECPER; ERE*ECPER) that explain the presence of export venture sales with an overall consistency level of 0.83 and an overall solution coverage of 0.60. The solution exhibited acceptable consistency (>0.80) and the three identified configurations account for 60% of the membership in the presence of export venture sales. Importantly, the results showed that none of the causal conditions (i.e. ERE, ECAP, DISE, COME, and ECPER) are sufficient conditions for the occurrence of export venture sales, but their combinations are (i.e. ERE*ECAP*DISE*ECPER + ERE*DISE*COME*ECPER + ERE*ECPER → EXSALE). Thus, we provide greater robustness to our findings by illustrating that ERE, ECAP, DISE, COME, and ECPER are important elements of a complex causal combination in explaining export venture sales.

5. Discussion and implications

E-commerce has been a major force for innovation and change in the field of international marketing, providing a superior channel of communication and a foundation for information exchange in global B2B markets (Walters, 2008). Our results add to this growing body of literature and suggest deploying e-commerce resources upon which unique, specialized e-commerce marketing capabilities are developed is essential for achieving marketing efficiencies as a path to export venture performance. Extant research has proposed that investing in e-commerce resources has become customary practice in exporting and are necessary for enhancing export performance, but offer little insight into process by which such resources translate into enhanced performance. Specifically, our results conclude that deploying e-commerce resources directly leads to the firms' ability to develop and enhance specialized marketing capabilities in exporting. These capabilities have both a direct impact on export venture performance, but also work through the development of specific marketing efficiencies. Our overall findings support the resource–capability–efficiency–performance relationship and show how it can be extended to specialized marketing activities involving new technologies in exporting.

Our study makes several contributions to the extant literature. First, our findings indicate that e-commerce marketing capabilities are crucial in achieving marketing efficiencies in export venture strategy. That

Table 4
Construct-level measurement statistics and correlation of constructs.[a]

	1	2	3	4	5
1. E-commerce resources	0.67				
2. E-commerce marketing capabilities	0.41	0.61			
3. Distribution efficiency	0.30	0.40	0.81		
4. Communication efficiency	0.26	0.46	0.40	0.76	
5. Export venture e-commerce performance	0.27	0.24	0.29	0.43	0.61

[a] Diagonal entries show the square roots of average variance extracted, others represent correlation coefficients.

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Table 5
Common method bias and sensitivity analysis.

	ERE	ECAP	DISE	COME	EXSALE	SA
E-commerce marketing capabilities (ECAP)	0.41					
	0.39					
	0.34					
	0.31					
Distribution efficiency (DISE)	0.30	0.40				
	0.28	0.38				
	0.22	0.33				
	0.19	0.30				
Communication efficiency (COME)	0.26	0.46	0.40			
	0.24	0.44	0.38			
	0.17	0.40	0.33			
	0.14	0.37	0.30			
Export venture sales (EXSALE)	0.30	0.35	0.22	0.31		
	0.28	0.33	0.20	0.29		
	0.22	0.27	0.13	0.23		
	0.19	0.25	0.09	0.20		
Seminar attendance (SA) as marker variable	*0.09*	*0.00*	*0.02*	*0.09*	*−0.09*	
	0.06	*−0.03*	*−0.01*	*0.06*	*−0.12*	
	−0.02	*−0.12*	*−0.10*	*−0.01*	*−0.22*	
	−0.06	*−0.16*	*−0.14*	*−0.05*	*−0.27*	
Export venture e-commerce performance (ECPER)	0.27	0.24	0.29	0.43	0.33	*0.03*
	0.25	0.22	0.27	0.41	0.31	
	0.18	0.15	0.21	0.36	0.25	
	0.15	0.12	0.18	0.34	0.22	

Note: All correlations are significant at $p < 0.05$, except for values in italics. The first value in the cell is the correlation between constructs, the second is the correlation corrected for common method bias, the third is 95% sensitivity analysis, and the fourth is 99% sensitivity analysis. ERE = e-commerce resources.

is, firms that develop capabilities utilizing e-commerce resources are able to enhance both communication and distribution efficiencies which in turn significantly improve e-commerce-related performance. In their pioneering work, Morgan et al. (2012) conclude that marketing capabilities contribute to export venture performance via marketing strategy implementation effectiveness. We extend this conventional wisdom by showing that strategic efficiencies mediate the relationship between e-commerce marketing capabilities and export venture performance. Thus, our results suggest that effectively implementing export marketing strategy to improve venture performance requires both that there are efficiencies realized in certain aspects of strategy (e.g., communication and distribution) *and* that the firm is able to develop specialized e-commerce marketing capabilities. Our study is in line with advocates of multiple mediator models, which are recommended for investigating complex relationships in the real world (Preacher & Hayes, 2008). The multiple-mediator model provides a more accurate assessment of mediation effects than models with a single mediator in many research contexts (MacKinnon, Fairchild, & Fritz, 2007). The findings of our study indicate that a mediated model that includes organizational capabilities and efficiencies as mediators between organizational IT resources and firm performance can better explain the value of IT than the direct-effect model.

Second, we advance our knowledge on export marketing by incorporating e-commerce drivers (e.g., e-commerce resources/capabilities) as enablers of export marketing efficiencies. In particular, we found that achieving efficiency in distribution and communication is a necessary modus operandi through which the value of e-commerce resources and capabilities can be realized. To the best of our knowledge, ours is the first study that signifies the important role of specific marketing mix elements as the missing links of the relationship between firms resources-capabilities and performance. In support of Ketchen, Hult, and Slater (2007), the inclusion of distribution and communication efficiency in our study was needed to capture the competitive advantage

Table 6
Path analysis results[a].

	Model 1			Model 2				Model 3				Model 4				
Main effects	ECAP	ECPER	Export venture sales	ECAP	DISE	ECPER	Export venture sales	ECAP	COME	ECPER	Export venture sales	ECAP	DISE	COME	ECPER	Export venture sales
E-commerce resources (ERE)	0.41[c] (9.46)	–	–	0.41[c] (9.26)	–	–	–	0.40[c] (8.84)	–	–	–	0.41[c] (9.27)	–	–	–	–
E-commerce marketing capabilities (ECAP)	–	0.50[c] (11.67)	–	–	0.41[c] (9.60)	0.42[c] (8.46)	–	–	0.46[c] (12.50)	0.36[c] (6.37)	–	–	0.41[c] (9.41)	0.46[c] (11.67)	0.33[c] (5.69)	–
Distribution efficiency (DISE)	–	–	–	–	–	0.17[c] (3.09)	–	–	–	–	–	–	–	–	0.11[a] (1.95)	–
Communication efficiency (COME)	–	–	–	–	–	–	–	–	–	0.31[c] (5.74)	–	–	–	–	0.28[c] (4.97)	–
Export venture e-commerce performance (ECPER)	–	–	0.36[c] (7.25)	–	–	–	0.36[c] (8.07)	–	–	–	0.38[c] (8.60)	–	–	–	–	0.37[c] (8.73)
Firm size	–	−0.11 (1.92)	−0.24[c] (5.26)	–	–	−0.11[a] (1.79)	−0.24[c] (5.23)	–	–	−0.08 (1.45)	−0.24[c] (5.50)	–	–	–	−0.08 (1.46)	−0.24[c] (5.12)
Exporting experience	–	0.10 (1.39)	−0.11[b] (2.08)	–	–	0.10 (1.54)	−0.11[b] (2.09)	–	–	0.10 (1.39)	−0.11[c] (2.08)	–	–	–	0.10 (1.48)	−0.11[b] (2.15)
E-commerce experience	–	0.04 (0.62)	0.18[c] (3.63)	–	–	0.03 (0.57)	0.18[c] (3.45)	–	–	−0.00 (0.03)	0.17[c] (3.29)	–	–	–	−0.00 (0.02)	0.17[c] (3.32)
R^2	0.17	0.28	0.25	0.17	0.17	0.30	0.25	0.16	0.21	0.35	0.26	0.17	0.17	0.21	0.36	0.26

Indirect effects	Estimate	LLCI	UCLI
E-commerce marketing capabilities → export venture e-commerce performance (via distribution efficiency)	0.07[b]	0.02	0.11
E-commerce marketing capabilities → export venture e-commerce performance (via communication efficiency)	0.14[b]	0.09	0.19
E-commerce marketing capabilities → export venture ecommerce performance (via distribution efficiency and communication efficiency)	0.17[b]	0.12	0.24

N = 340; LLCI = lower level of the 95% confidence interval; ULCI = upper level of the 95% confidence interval.
[a] $p < 0.10$.
[b] $p < 0.05$.
[c] $p < 0.01$.

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Table 7
fsQCA configurations results.

Complex solution Model: EXSALE = f (ERE, ECAP, DISE, COME, ECPER) Algorithm: Quine-McCluskey Frequency cutoff: 3.000000 Consistency cutoff: 0.852196	Raw coverage	Unique coverage	Consistency
ERE*ECAP*DISE*ECPER	0.520324	0.033272	0.843098
ERE*DISE*COME*ECPER	0.519266	0.029521	0.847325
ERE*ECPER	0.229535	0.039233	0.852196
Solution coverage: 0.598983 Solution consistency: 0.826237			

Note: EXSALE = export venture sales; ERE = e-commerce resources; ECAP = e-commerce marketing capabilities; DISE = distribution efficiency; COME = communication efficiency; ECPER = export venture e-commerce performance.

components and completely test the resource-based view. Hunt (2007) suggests that competitive advantage can be gained through three different ways: an efficiency advantage, an effectiveness advantage, or an efficiency-effectiveness advantage. Building on past findings showing clear effectiveness advantages (Morgan et al., 2012), our study adds to this important stream of literature by showing clear efficiency advantages.

Third, our study advances the export marketing literature by developing a comprehensive set of measures that capture e-commerce tactics, activities and strategies. This is an essential step toward providing a guideline as to how different measurement indicators of e-commerce activities in export marketing should be consolidated. Managers will find our study beneficial as the actionable measurement instrument recommended in this study indicates where they should allocate their efforts to manage e-commerce marketing activities for superiority in export venture performance.

Fourth, we used both subjective and objective measures of export venture performance that may provide more reliable findings than that of previous studies employing either subjective *or* objective performance measures. The inclusion of both subjective and objective performance indicators also helps to eliminate common method bias as this study employs a single source of informants.

Finally, although our findings point to the direct impact of e-commerce marketing capabilities on strategic efficiencies and export venture e-commerce performance, we also found that there is a direct impact of e-commerce performance on export venture sales. These findings are important in that they not only support recent research confirming the link between specialized marketing capabilities and export venture market performance (Morgan et al., 2012) but also suggest that existing theoretical frameworks can be applied in the context of new technologies such as e-commerce.

6. Limitations and directions for future research

Despite the noted contributions, our study has several limitations that provide avenues for future research. First, our findings show that only 20% of variance in export venture firm performance is explained by distribution efficiency and communication efficiency. Future research may consider potential performance implications of other marketing mix variables such as product development efficiency and pricing efficiency. Second, we have not considered potential complementarity between distribution efficiency and communication efficiency. Future research can attempt to examine synergistic effects of other e-commerce marketing mix variables on export venture performance such as price and product efficiencies. In the same vein, we have not paid attention to the dynamics of e-commerce resources and capabilities.

Future research also needs to extend to environmental dynamism, whereby the impact of e-commerce marketing capabilities can be examined relative to changes in competition, customer preferences and technology. Examining architectural capabilities (in response to environmental changes) in additional to specialized marketing capabilities would provide further insights into the role of e-commerce capabilities on exporting efficiencies and performance. If firms can leverage new technologies and at the same type adapt to environmental changes, they can create adaptive capabilities to align with the market. Recent thoughts suggest firms look beyond dynamic capabilities to advance toward adaptive marketing capabilities enabled by technology advances (Day, 2001).

Finally, research should assess how the effects of e-commerce resources and capabilities change over time. Additional longitudinal data also help to examine if and when the efficiency of e-commerce marketing mix elements is optimal for the e-commerce resource acquisition and deployment. Finally, the use of cross-sectional data limits our ability to make causal inferences. In particular, our empirical data support the hypothesized relationships among focal constructs without evidence of causality. Thus, additional longitudinal data is needed in future research to confirm causality.

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