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Antecedents and consequences of marketing dynamic capabilities in international joint ventures

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Abstract
The influence of firms' dynamic capabilities on performance has been well articulated in the strategy literature. Yet conceptualization and operationalization of dynamic capabilities in marketing function have not been attempted, and empirical evidence substantiating the effect of dynamic capabilities is scarce. This research develops a conceptualization of marketing dynamic capabilities (MDCs), investigates their development in international joint ventures (IJVs), and explores their effect on IJVs' performance and competitive advantage. Using a dyadic dataset collected from top managers of IJVs in China, as well as objective performance data collected separately, the study found empirical support for the effect of MDCs on IJVs' competitive advantage and performance. In addition, MDCs are found to be influenced by IJV resource magnitude, resource complementarity, organizational culture, and organizational structure. The theoretical implications of our findings and future research directions are also discussed.
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INTRODUCTION

The resource-based view (RBV) offers a rich theoretical foundation for understanding how to achieve and sustain a firm's competitive advantage and superior performance (e.g., Barney, 1991; Penrose, 1959). It sees a firm as an idiosyncratic bundle of resources and capabilities that are available for deployment by the firm's business units but are difficult for rivals to imitate (Amit & Schoemaker, 1993; Mahoney & Pandian, 1992). More recently, through insightful theoretical development and qualitative case analysis, scholars have expanded the RBV literature into dynamic capabilities to address the concern that RBV has not adequately explained how and why certain firms can achieve competitive advantage in a market with rapid and unpredictable changes (e.g., Eisenhardt & Martin, 2000; Makadok, 2001; Teece, Pisano, & Shuen, 1997; Winter, 2003). Specifically, dynamic capabilities are defined as the ability to build, integrate, and reconfigure internal and external competencies to address rapidly changing environments (Teece et al., 1997).

In order to develop dynamic capabilities, more and more firms are involved in international joint ventures (IJVs) to gain access to

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resources and knowledge that are otherwise unavailable. However, much of the existing literature on IJV performance has focused on governance mechanisms, such as structure and process of resources and interaction between IJV partners, as determinants of IJV performance (e.g., Luo, 2000; Lane & Lubatkin, 1998; Oxley & Sampson, 2004). Few studies have viewed IJVs as living concerns that can develop their own dynamic capabilities, and little empirical evidence exists that can substantiate the effects of dynamic capabilities. Given that dynamic capabilities are considered to be key determinants of a firm's performance and competitive advantage (e.g., Eisenhardt & Martin, 2000; Makadok, 2001), the lack of a solid empirical foundation for the effect of dynamic capabilities and the ignorance of them as determinants of IJV performance represent major gaps in the literature. Without a solid empirical foundation, the validity of the contentions about dynamic capabilities would have to be called into question. Similarly, ignoring IJVs' dynamic capabilities as determinants of their performance would lead to incomplete theory of IJV performance.

The objective of this research is to fill the two major gaps in the literature by addressing two overarching questions: how does an IJV develop dynamic capabilities, and do an IJV's dynamic capabilities affect its competitive advantage and financial performance? Specifically, we focus on one type of dynamic capabilities, *marketing dynamic capabilities* (MDCs), because the ability to create and deliver superior customer value through efficient and fast-responding marketing processes has long been suggested as one of the critical factors that contribute to a firm's financial performance and sustainable competitive advantage (Day, 1994). Although the dynamic capabilities theory has been cited in marketing studies, such as the effect of entrepreneurial proclivity on retailers' market responsiveness (Griffith, Noble, & Chen, 2006), no one has attempted to conceptualize and operationalize MDCs and assess their direct effect on performance. Specifically, this research attempts to make the following contributions.

First, based on the IJV and dynamic capability literature, we propose a conceptual framework for developing MDCs in IJVs. The resource endowments in IJVs are more complex than in a single firm because functional resources such as R&D, marketing, and manufacturing are contributed by different IJV partners. As living entities, IJVs can develop their own organizational culture and organizational structure, which can be different from either of their parent companies. Specifically, we contend that IJV resource magnitude and resource complementarity form the "building blocks" for developing efficient and fast-responding business processes aimed at creating and delivering customer value (Collis & Montgomery, 1998; Prahalad & Hamel, 1990), whereas the effects of resource magnitude and resource complementarity are moderated by IJVs' culture (goal-congruency and learning culture) and structure (formalization and departmentalization). This is in contrast to much of the existing literature, which has viewed an IJV as the product of partners but has ignored an IJV's MDCs as determinant of its performance.

Second, this research conceptualizes MDCs as specific and idiosyncratic cross-functional business processes to create and deliver superior customer value in response to market changes. By exploring IJVs in China, this research provides empirical evidence that MDCs positively drive IJVs' financial performance and competitive advantage. This empirical evidence forms a solid foundation for the contention advanced by Eisenhardt and Martin (2000) and Makadok (2001) about the importance of dynamic capabilities, and contributes to the IJV literature by establishing an IJV's MDCs as a key determinant of its competitive advantage and superior performance.

Finally, most previous studies about IJV performance are based either on secondary data or on single-source primary data. To the best of our knowledge, this research is the first to use dyadic primary data collected from both foreign and local senior managers of IJVs in China, and objective performance data collected separately, months after the initial survey. Specifically, in order to investigate the dynamic nature of IJVs' MDCs, the collection of dyadic primary data from both local and foreign partners and the use of objective performance data are important to reflect both partners' viewpoints and the time-lag between the development of dynamic capabilities and the realization of financial return. In addition, the strength of our dataset allows better measures of the constructs, and reduces the potential common method variance bias that may plague single-source data.

THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

Marketing Dynamic Capabilities

The key notion behind dynamic capabilities is a firm's ability to respond to external market changes

efficiently and promptly. Teece et al. (1997: 516) conceptualized dynamic capabilities as the "ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments". They suggested that resources by themselves cannot be a direct source of competitive advantage; they must be translated into dynamic capabilities in order to realize competitive advantage and superior financial performance. Furthermore, according to Eisenhardt and Martin (2000), dynamic capabilities are a set of specific and identifiable organizational processes in response to environmental market changes. Through these processes, managers integrate, combine, and utilize resources to generate value-creating strategies. They are therefore the drivers behind the creation, evolution, and combination of existing resources into new sources of competitive advantage and financial return (Henderson & Cockburn, 1994). This concept is echoed by Ray, Barney, and Muhanna (2004), who demonstrated that business processes are the mechanisms through which resources and capabilities are exposed to market processes, allowing their ultimate value to be realized, and their ability to respond efficiently and quickly to market changes to be enhanced.

To integrate the literature on dynamic capabilities with the marketing literature, we define marketing MDCs as the responsiveness and efficiency of cross-functional business processes for creating and delivering customer value in response to market changes. It is this focus on customer value that distinguishes MDCs from dynamic capabilities in general. First, MDCs can be reflected by the speed with which an organization's cross-functional processes of creating and delivering customer value respond to market changes (Hult, Ketchen, & Slater, 2005). Indeed, the market orientation literature has long suggested that responsiveness to market changes, especially customer changes, is critical for an organization to achieve competitive advantage (e.g., Narver & Slater, 1990). However, MDCs are different from market orientation. Market orientation is related to a firm's overall value and business philosophy about the importance of serving customers' needs, and can be reflected by customer orientation, competitor orientation, and cross-functional coordination (Narver & Slater, 1990), or by the firm's activities in intelligence generation, intelligence dissemination, and responsiveness (Jaworski & Kohli, 1993). In contrast, MDCs as conceptualized here are about a firm's capabilities in specific functional areas of marketing to respond to market changes, and are reflected through the speed and efficiency of the firm's cross-functional business processes. A market-oriented firm may or may not possess MDCs, because the efficiency and responsiveness of the firm's cross-functional business processes are idiosyncratic to it, and hard for others to imitate (Eisenhardt & Martin, 2000).

Second, efficiency refers to the cost, relative to the outcomes, of implementing and adjusting these business processes in response to market changes. Demand uncertainty and competitors' actions associated with market changes create challenges for a firm if it is to keep costs from getting out of control and maintain adequate margins (Ebben & Johnson, 2005). Therefore the efficiency of customer-value-related cross-functional business processes is an important reflection of an organization's dynamic capabilities to achieve competitive advantage and superior financial performance (Wernerfelt, 1984).

Specifically, we contend that three cross-functional business processes – *product development management*, *customer relationship management*, and *supply chain management* – are the key components of an IJV's MDCs. The product development management process is the cross-functional process of designing, developing, and launching new products to satisfy customer needs and preferences, whereas the customer relationship management process is defined as the cross-functional process of managing relationships with customers and channel members so as to learn their needs and the way to satisfy them, and the supply chain management process is the cross-functional process of designing, managing, and integrating the organization's supply chain with those of its suppliers and customers (Srivastava, Shervani, & Fahey, 1999). The rationales for our focus on these three customer-value-related cross-functional processes are threefold:

(1) they comprise specific functions that serve as mechanisms for resource combination, integration, and deployment;
(2) they are critical to the creation and delivery of customer value; and
(3) they are interrelated, in that they jointly affect the competitive advantage and financial performance of an IJV.

First, Eisenhardt and Brown (1999) and Eisenhardt and Martin (2000) suggested that for a specific business process to become a dynamic capability, it must be able to span and support a firm's multiple

lines of business, and combine and deploy functional resources. Product development management consists of and interconnects with functions such as those for ascertaining customer needs, identifying new product ideas, designing new product protocols, and manufacturing and launching new products (Day, 1994). Customer relationship management interconnects the functions of acquiring and leveraging customer information, establishing and maintaining relationships with customers and channel members, and providing after-sales services and support (Day, 1994). Finally, supply chain management connects such functions as selecting and qualifying desired suppliers, establishing and managing inbound and outbound logistics, and designing work flow in product/solution assembly (Mentzer et al., 2001).

As a result of these cross-functional processes, resources are combined and integrated among different specific functions and between both IJV parties, because the implementation of these cross-functional processes requires a common understanding and shared language between IJV partners about the IJV's internal resource stock and external environment (Grant, 1996a). This common understanding, together with coordination of the partners' behaviors, facilitates the combination and integration of partner resources. Furthermore, by connecting and engaging different functions into these processes, product development management, customer relationship management, and supply chain management processes not only *allocate* resources to functions, regions, and products but also *deploy* them in specific actions in response to market changes (Bourgeois, 1981; Slotegraaf, Moorman, & Inman, 2003).

Second, these cross-functional processes are critical to creating and delivering customer value, directly or indirectly. Specifically, an efficient and fast-responding product development management process can enhance customer value through innovativeness of a product, improved product quality, fast cycle time for product development, and control of the development budget (Griffin & Hauser, 1993). Likewise, an efficient and responsive customer relationship management process can identify, target, deliver to, and serve customers in ways that are tailored to their individual needs and preferences (Woodruff, 1997), whereas an efficient and fast-responding process of supply chain management works indirectly through procuring, jointly designing, moving, and using raw materials and components, as well as transforming inputs into cost-efficient and/or differentiated customer solutions against competitors (Mentzer et al., 2001).

Finally, studies have also found that these three processes demonstrate a high level of interdependence (e.g., Srivastava et al., 1999). For example, the product development management process depends on how customer relationship management solicits customer input, and how supply chain management identifies and builds relationships with qualified component suppliers (Griffin & Hauser, 1993). The customer relationship management process depends on customer-tailored product design and supplier flexibility in component designing and manufacturing (Payne & Frow, 2005). Meanwhile, the responsiveness and efficiency of the supply chain management process is contingent on product design that fits well with suppliers' component specifications, and on timely information about channel members' strategy and environmental changes (Mentzer et al., 2001).

Development of MDCs in IJVs

Two distinct causal mechanisms contribute to the development of MDCs in IJVs: resource-picking and capability-building (Makadok, 2001). With the resource-picking mechanism, managers gather information and perform analysis to outsmart the resource market in choosing what and how much resources to put into the firm (Barney, 1986), whereas, with capability-building, managers design and construct an organizational context, such as organizational structure and organizational culture, to enhance the efficiency and responsiveness of resource integration, combination, and deployment (Mahoney & Pandian, 1992). In the context of IJVs, Grant (1996a) suggested that customer-value-related cross-functional processes – namely new product development, customer relationship management, and supply chain management – can be decomposed into successively more specialized tasks, such as collecting customer information, product design, and distribution. The greater the amount of resources contributed by IJV partners to the specialized tasks of an IJV, and the more complementary these resources are, the more efficient and fast-responding the IJV's customer-value-related cross-functional processes tend to be. The capability-building mechanism, on the other hand, involves the design of organizational structure and the development of organizational culture to facilitate the connectedness between partners and among different functional parameters,

which as a result heightens the efficiency and speed of integrating, combining, and deploying the accumulated and complementary resources contributed by IJV partners to the functional lines (Mahoney & Pandian, 1992).

According to Zott (2003) and Eisenhardt and Martin (2000), resources accumulated through the resource-picking mechanism form the "building blocks" of dynamic capabilities, whereas the capability-building mechanism functions as the "architecture" that moderates the effects of accumulated and complementary resources on the development of dynamic capabilities. Building on these lines of argument, we thus present our conceptual model of MDCs of IJVs in Figure 1.

Resource-Picking Mechanism: Resource Magnitude and Resource Complementarity

In the context of an IJV, since resources are contributed by partner companies, the resource-picking mechanism entails two important resource characteristics: *resource magnitude* and *resource complementarity*. Resource magnitude captures the overall level of resources contributed by IJV partners to specific functional tasks, whereas resource complementarity is the degree to which the resources contributed by IJV partners differ and do not overlap, thus stressing the "non-redundant" nature of partner resource stock (Hill & Hellriegel, 1994).

Following Grant (1996a), the resources of an IJV include those in specific functional areas such as product design, manufacturing techniques, specialized marketing activities, and distribution. When forming an IJV, the potential partners engage in a process of courting, negotiation, and commitment. To determine the value of a potential partner, the managers of a firm not only assess the extent to which the potential partner could add to its own contribution of valuable resources to augment the overall magnitude of the stock of IJV resources, but also evaluate the extent to which the potential partner could contribute valuable resources that complement its own contribution to the IJV (Kogut, 1988). Since the formation of an IJV is essentially a resource-picking process by potential partners, resource magnitude and resource complementarity capture the essence of resource-picking by managers of partner firms of an IJV.

Resource magnitude. The efficient and rapid responses to market changes by adjusting cross-functional business processes require resources to be directed to areas with uncertain outcomes (Bromiley, 1991), and adequate resources can buffer an IJV from environmental uncertainties

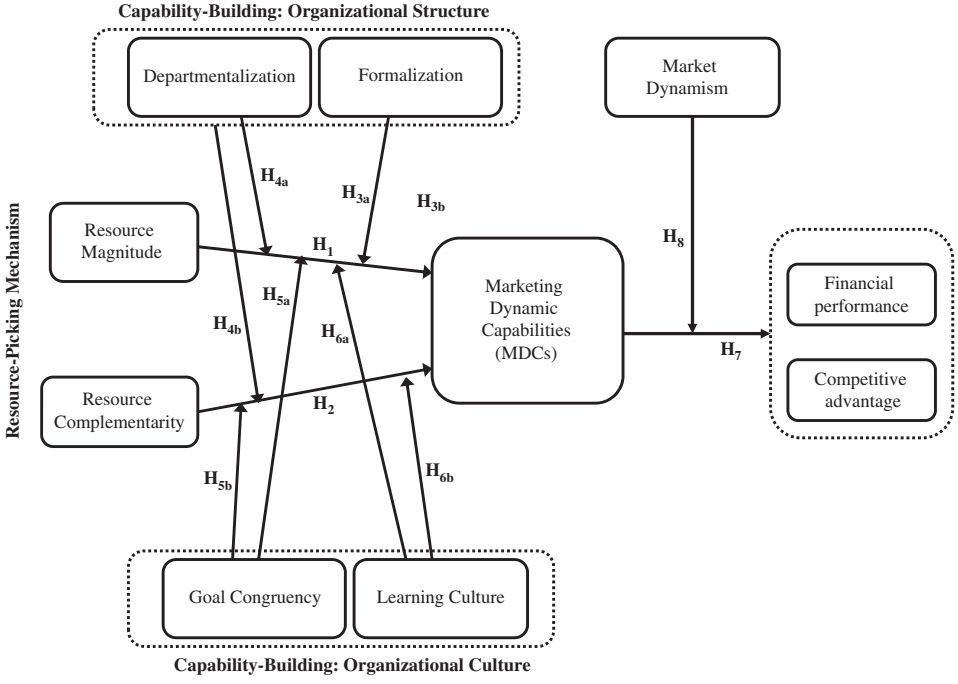

Figure 1 Model of marketing dynamic capabilities in international joint ventures.

and downside risks (Baird & Thomas, 1985; Cheng & Kesner, 1997). For example, Park, Chen, and Gallagher (2002) demonstrated that excessive internal resources in the strategic alliance are critical to efficient and rapid adaptation to external market uncertainties and changes. In an IJV, a high resource magnitude makes it possible to direct adequate resources to areas with high uncertainty, allowing the IJV to adapt quickly to environmental changes by reconfiguring or shifting its resources. Finally, by easing the degree of managerial attention that must be focused on competing for resources with other functions and/or other projects, a high resource magnitude can also help individuals to focus more on job-related tasks, thereby enhancing the efficiency and responsiveness of customer-value related business processes and dynamic capabilities (Cyert & March, 1963). Therefore we hypothesize that:

Hypothesis 1: The resource magnitude of an IJV positively influences its MDCs.

Resource complementarity. Resource complementarity can improve the development of MDCs by enhancing the value of the IJV resources, and by providing opportunities for IJV partners to learn from each other (Cohen & Levinthal, 1990; Hitt, Dacin, Levitas, Arregle, & Borza, 2000). Indeed, resource complementary and its associated learning opportunities are critical reasons for firms to be involved in IJV (Beamish & Banks, 1987). The more complementary the resources contributed by IJV partners, the more valuable the combined resources are to the IJV when it needs to respond quickly to changes in the market environment. Anand and Khanna (2000) suggested that, through learning, IJV partners gain new resources, providing yet additional resources for the development of MDCs. Resource complementarity also creates a strategic interdependence between IJV partners, in which power is distributed across both partners (Emerson, 1962; Pfeffer & Salancik, 1978). This high interdependence makes it increasingly dangerous for IJV partners to engage in opportunistic behavior (Provan & Skinner, 1989). Consequently, resource complementarity can reduce the potential dysfunctional conflicts between IJV partners, and enhance the efficiency and speed of the IJV's resource combination and resource deployment into business processes (Pfeffer & Salancik, 1978). Similarly, Luo (2000) argued that resource complementarity reduces the governance costs associated with partner monitoring and incentive, and makes the coordination between IJV partners along business processes more efficient. Thus:

Hypothesis 2: The resource complementarity of an IJV positively influences its MDCs.

Capability-Building: IJV Organizational Structure

Grant (1996b) suggested that two types of capability-building mechanism, namely *organizational culture* and *organizational structure*, are most important in facilitating the integration and deployment of an IJV's resources. In this research, we focus on two dimensions of an IJV's structure – *formalization* and *departmentalization* – and two aspects of its culture – *learning culture* and *goal congruency* between IJV partners.

Formalization and departmentalization: an IJV's organizational structure. An appropriate organizational structure is critical for integrating and deploying resources efficiently and promptly. Formalization of organizational structure refers to "the emphasis placed within the organization on following specific rules and procedures in performing one's job" (Zaltman, Duncan, & Holbeck, 1973: 138). Grant (1996a) proposed that efficient resource integration and speedy response to market changes require an organization to economize on the amount of communication. In the context of a domestic firm, a formalized organizational structure is sometimes considered as detrimental to interfunctional communication, because formal rules and procedures tend to stymie informal communication channels between employees in different functions. As a result, formalization might impede integration of a firm's functional resources into efficient and rapid-responding cross-functional processes.

In an IJV, however, communication between two partners is especially difficult and time-consuming, owing to language and/or cultural differences. Cultural and language barriers may discourage IJV partners from engaging in close social interactions, which is necessary for informal communication to take place. Thus, in contrast to the case of a domestic firm, setting up formalized rules and procedures for employee behavior in an IJV could actually facilitate inter-partner communication and learning, because the ambiguity and uncertainty associated with cross-cultural interaction would be reduced by formal rules and procedures. Indeed, formalization in an IJV's structure would reduce the

extent and intensity of inter-partner communication needed to integrate the partners' resources efficiently and quickly (Demsetz, 1988). For example, it is often more efficient to set up a formalized procedure governing an employee's interaction with others than to educate every employee to communicate with those from another culture (Grant, 1996a). Furthermore, a formalized IJV organizational structure facilitates resource deployment through a sequencing mechanism, making it more efficient to decompose a complex cross-functional business process (such as new product development) into sequential phases (such as concept testing, design, and production). It helps reduce the need for cross-cultural communication among IJV partners, and increases the speed and efficiency with which the IJV deploys resources to cross-functional business processes (Sobrero & Roberts, 2001). Therefore formalization in an IJV should enhance the effects of resource magnitude and resource complementarity on MDCs. Thus we hypothesize:

Hypothesis 3a: Formalization of an IJV's organizational structure positively moderates the effect of resource magnitude on its MDCs.

Hypothesis 3b: Formalization of an IJV's organizational structure positively moderates the effect of resource complementarity on its MDCs.

In contrast, a departmentalized organizational structure in an IJV can hurt the efficiency and speed of resource deployment and integration. Departmentalization is defined as the extent to which tasks are confined to a predetermined domain, and members of departments are isolated from inter-departmental interactions (Mintzberg, 1979). It is different from decentralization because departmentalization does not give decision autonomy to individual departments. Galbraith (1973) noted that group problem-solving among different departments can supplement an interpersonal mode of resource integration and deployment, and requires direct communications between partners. In other words, group problem-solving and decision-making that entail direct communication between both partners are still critical, even with the efficient adoption of other integration mechanisms for avoiding communication costs (Hutchins, 1991). Because a departmentalized IJV organizational structure isolates employees from inter-departmental connectedness, it damages the efficiency and speed of the IJV's decision-making and problem-solving processes, which as a result impairs the integration and deployment of the IJV accumulated and complementary resources in responding efficiently and quickly to market changes.

Hypothesis 4a: Departmentalization of an IJV's organizational structure negatively moderates the effect of resource magnitude on its MDCs.

Hypothesis 4b: Departmentalization of an IJV's organizational structure negatively moderates the effect of resource complementarity on its MDCs.

Capability-Building: IJV Organizational Culture

Goal congruency is the extent to which IJV partners have consistent strategic objectives for the operations and evaluations of the IJV (Luo, 2002), whereas learning culture is defined here as the extent to which the partners believe that a commitment to learning from each other and from the external environment is an important value for the IJV. Goal congruency reduces a partner's uncertainty about the other partner's behaviors; the uncertainty could deter it from making the best response to the other's predicted moves (Gibbons, 1992). Goal congruency also enhances organizational fit and strategic symmetry between the partners, thus helping to build mutual trust and commitment between IJV partners (Luo, 2002). The reduced uncertainty about each other's behaviors and enhanced trust and commitment in the IJV facilitate the development of a mutually accepted value within the IJV, leading to institutionalized behaviors that are commonly acceptable and mutually understood (Gulati & Singh, 1998). Once these institutionalized behaviors are established, both partners can understand, utilize, and integrate each other's resources in the IJV more efficiently and quickly (Gulati & Singh, 1998), which as a result enhances the effects of IJV accumulated and complementary resources on MDCs.

Hypothesis 5a: Goal congruency between two IJV partners positively moderates the effect of resource magnitude on the IJV's MDCs.

Hypothesis 5b: Goal congruency between two IJV partners positively moderates the effect of resource complementarity on the IJV's MDCs.

A strong learning culture in an IJV commits partners to pay attention to each other's practices and routines, improves the process of institutionalizing individual knowledge, makes it more efficient and faster to develop organizational routines within the IJV, and facilitates the development of a shared interpretation of resources (Slater & Narver, 1995). On the one hand, this shared interpretation of the IJV's resource stock improves the institutional process by shaping individuals' behavioral routines as "the way we've always done it" (Slater & Narver, 1995). These shaped behavioral routines can in turn facilitate accumulated resources on functional lines being deployed in customer-value associated business processes efficiently and quickly (Kogut & Zander, 1992). On the other hand, a learning culture makes both partners aware of where resources are located, and how to gain access to them when needed (Huber, 1991): this learning culture can then help IJV partners to take advantage of learning opportunities created by resource complementarity, increasing the positive effect of resource complementarity on MDCs.

Hypothesis 6a: A learning culture in an IJV positively moderates the effect of resource magnitude on the IJV's MDCs.

Hypothesis 6b: A learning culture in an IJV positively moderates the effect of resource complementarity on the IJV's MDCs.

The Moderating Role of Market Dynamism on MDCs' Effect

As discussed, the key notion behind dynamic capabilities is a firm's ability to respond to external market changes efficiently and promptly (Teece et al., 1997), and an IJV's ability to adjust its business processes quickly and efficiently to face environmental changes through the creation and delivery of superior customer value has long been suggested as an important driver of its competitive advantage and financial performance (e.g., Day, 1994). We would expect that the development of MDCs to positively influence the IJV's competitive advantage and financial performance. We also argue that the effects of MDCs on competitive advantage and financial performance are contingent upon market dynamism.

Market dynamism refers to changes in customers' and competitors' behaviors that occur frequently and are difficult to predict (Miller, 1987). The term describes the uncertainty associated with both customers' demand and competitors' strategies. When demand uncertainty is high, MDCs help IJVs track changes in the consumer environment quickly, and respond to them efficiently. That is, an IJV with high MDCs in a highly uncertain consumer environment is more accustomed to monitoring and reacting to shifting consumer demand, and should be in a better position to make the adjustment necessary to tap into new demand curves (Slater & Narver, 1995). Market dynamism also provides an IJV with a window of market opportunities, and the development of MDCs is often accompanied by positive customer responsiveness (Amit & Livnat, 1988). With a high level of uncertainty in the market, the IJV can capitalize on these advantages, enabling it to charge higher prices for product differentiation and positive customer response. Meanwhile, market dynamism indicates the uncertainty of market competition. When competition becomes unpredictable, it is more important for an IJV to protect and strengthen its competitive position, because it is likely to be challenged by potential entrants (Caves & Porter, 1980). An important way to maintain and strengthen its competitive position is through the development of MDCs to create and deliver superior customer value and maintain customer loyalty (Day, 1994). With high levels of customer loyalty and low levels of customer switching, the IJV is in a better position to protect its market position against potential entrants. Thus:

Hypothesis 7: An IJV's development of MDCs has a positive effect on (a) its financial performance and (b) its competitive advantage.

Hypothesis 8: The effects of an IJV's development of MDCs on (a) its financial performance and (b) its competitive advantage are stronger under high market dynamism than under low market dynamism condition.

METHODOLOGY

Research Context

The context of this research is equity-based IJVs in China. There were several reasons for selecting this context. First, it is widely recognized that most foreign firms and local Chinese firms enter into equity joint ventures to gain access to each other's resources (Luo, 2000). In particular, local Chinese partners seek foreign partners' R&D knowledge and management know-how, while foreign partners are

interested in local partners' resource in marketing and distribution channels. The nature of resource endowment in equity joint ventures in China provides an excellent context to study IJVs' resource magnitude and complementarity. Second, these IJVs may have different levels of goal congruency owing to the wide variety of strategic objectives when firms form equity joint ventures in China; their learning cultures also differ significantly. Moreover, these IJVs have a variety of organizational structures in terms of how decisions are made, and how formal rules and procedures are established (Luo, 2000). Thus the variety of equity IJVs in China provides a suitable context to investigate how organizational structure and culture influence the development of MDCs.

Finally, the context of IJVs in China is important by itself. China has been remarkably successful in attracting foreign direct investment (FDI), primarily through the establishment of IJVs. By the end of 2005, about 400,000 IJVs representing US$500 billion FDI had been established in China. Since 2004, China has surpassed the United States to become the largest country in the world receiving FDI, mainly through IJVs.

Data Collection Procedure

We adopted a research design to collect dyadic primary data from top managers of both foreign and local partners of the IJVs, together with objective performance data collected from a separate survey months after the initial survey. Our sample consisted of 200 manufacturing IJVs in the Suzhou and Changzhou high-tech zones (HTZs), which are located in the Yangtze River Delta area of Jiangsu Province. Records were obtained from the directory in those zones. Although using a single province may seem to limit the scope of study, Jiangsu is appropriate for analyzing IJVs in that it ranks second in China in attracting foreign capital and third in generating GDP. It is also very representative of the nation's cultural norms and standards (Luo, 2005).

Based on theoretical considerations and field interviews, our survey questionnaire was initially developed in English, then translated into Chinese and back-translated into English, ensuring that the English and Chinese versions contained equivalent measures. The questionnaire was then pre-tested for instrument validity with 30 managers representing 15 IJVs (paired respondents from each venture) in Jiangsu. In interviewing these managers, we asked them to respond to the items measuring the theoretical constructs, and to describe the nature of partner interaction in their respective IJVs. Their reported results revealed a high degree of internal consistency in the questionnaire items between the two respondents of the same IJVs (Guttman split-half $R > 0.86$). We also asked the managers to identify any ambiguities revealed in the draft questionnaire. Some minor changes of wording were made, based on their feedback.

Because of the relatively low response rate in mail surveys in China, and sensitivity to IJV managers' concerns about industrial espionage, a high level of personal involvement consisting of telephone calls and personal delivery and pickup of questionnaires was necessary to collect dyadic survey data from IJVs in this study. This is a common procedure when conducting research in China (Roy, Walters, & Luk, 2001). First, telephone calls were placed to general managers or CEOs of the 200 IJVs to explain the purpose of the study and request their participation. Respondents were offered a summary copy of the aggregate results and customized analyses in return for their participation. We also obtained endorsements from government administrative agencies in these two high-tech zones. One hundred and forty-six joint ventures agreed to participate. Once IJV participation was secured, questionnaires were hand-distributed to the general manager/CEO who represented one partner firm and to a senior IJV manager who represented the other, then picked up separately from each of the two respondents a week later. When an IJV involved multiple partners, questionnaires were distributed to the major local and foreign partners. These procedures resulted in 131 matched-dyadic questionnaires. Two of those were discarded owing to a large number of missing values, leaving us 129 paired responses. The survey instrument included checks on the informants' knowledge in their IJV's resource inputs and strategic decisions. On a seven-point scale, the average knowledge rating was 6.3 for foreign respondents and 6.1 for local respondents. Three questionnaires that showed inadequate levels of informant knowledge and involvement (less than 4 on a seven-point scale) were discarded, leaving a final sample of 126 pairs of dyadic responses.

Nine months later, these IJVs were contacted again to solicit objective performance data from company archives, particularly sales and profit levels. Owing to management turnover or IJV ownership changes, 12 out of the 126 IJVs failed to provide archival records of their sales. Thus 114

observations were used in subsequent data analysis. Foreign partners originated mainly from Germany, Hong Kong, Japan, Taiwan, the United Kingdom, and the United States. The IJVs do business in a variety of industries, such as consumer electronics, computer hardware, electronic components, new materials, medical equipment and supplies, industrial control, and telecommunications.

Measurements

Dependent variables. Measures of MDCs were developed specifically for this study. As discussed previously, MDCs are reflected in an IJV's efficiency and responsiveness in managing three cross-functional business processes in response to market changes. Specifically, both local and foreign respondents were asked to evaluate the efficiency and speed with which their IJVs responded to market changes through cross-functional processes of product development management, supply chain management, and customer relationship management. For a detailed description, please see the Appendix.

Three items were newly developed to measure IJVs' *competitive advantage*, and two indicators – sales/total asset and ROA (profits/total asset) from company archival records – were used to measure IJVs' *financial performance*. We standardized these two indicators and then averaged them to test the financial performance implications of MDCs.

Independent variables. Both local and foreign senior managers were asked to indicate on a seven-point scale the level of their resource contributions to their IJVs in the following 11 functional areas:

(1) collecting information related to the market in which the IJV is operating;
(2) building privileged relationships with customers and suppliers;
(3) control over and building relationships with distribution channels;
(4) analyzing customer needs;
(5) research and development (R&D);
(6) industrial design;
(7) engineering management;
(8) information technology management;
(9) product service and support;
(10) material/component procurement (both locally sourced and imported); and
(11) manufacturing.

These scales are similar to those used by Yan and Gray (1994).

After the measures were obtained for partner-contributed resources along the 11 functional lines, the measure for *resource magnitude* was constructed as the sum of the resources contributed by both partners in those areas:

$$\sum_{i=1}^{11} (F_i + L_i) \quad (1)$$

in which F_i and L_i refer to resource input by foreign partner and local partner in function i.

Resource complementarity was measured by asking both foreign and local partners the extent to which their resource contributions to the IJVs in the above 11 functional areas were complementary or overlapping, using a seven-point semantic scale. Cohen's kappa for inter-rater reliability is 0.71.

Measures of *formalization* and *departmentalization* were adopted from Jaworski and Kohli (1993). Four items were used to measure formalization (the extent to which clear rules and policies existed in the alliance with respect to job activities), and four other items were used to measure departmentalization (the extent to which tasks were confined to a predetermined domain, and members of departments were isolated from interdepartmental interactions). Measures of *learning culture* were adapted from Sinkula, Baker, and Noordewier (1997). Four items were used to measure the extent to which partners believed that a commitment to learning from each other and from the external environment was an important value of their IJVs. We also adapted four items from Sarkar, Echambadi, Cavusgil, and Aulakh (2001) to measure *goal congruency* between IJV partners. The measures of *market dynamism* were adapted from Miller (1987). Five items were used to measure the managers' perception of changes in customer needs, competition, and technology.

Control variables. Three control variables were included in the model: IJV *size*, *age* (years of operation), and *cultural distance*. Previous studies have indicated that these factors may affect an IJV's development of dynamic capabilities and performance (Li & Atuahene-Gima, 2001). Size was measured as the number of full-time employees in the IJV. Consistent with Luo (2005), cultural distance was measured via Kogut and Singh's composite index (1988) and Hofstede's latest dataset (2001), which contained five cultural dimensions: power distance, uncertainty

avoidance, individualism, masculinity, and long-term orientation.

Aggregation of Measures from Two Responses

It is important to note that, except for resource magnitude, all other measures were obtained from both partner firms of each IJV in a matched fashion. Since Cohen's kappa for inter-rater reliability of these measurements was relatively high (ranging from 0.69 to 0.80; see the Appendix), we aggregated the two responses into an overall measure of the constructs (Boyer & Verma, 2000). Aggregating multiple informants' responses has the following advantages. First, the sample frame of the study combines separate informants for the measures adopted for the model. This is essential for the current study, because the causal attribution by a single informant for perceptually related constructs was considered a major source of common method bias (Ayers, Dahlstrom, & Skinner, 1997). Both foreign and local senior managers were suitable sources of measures of the constructs because of their level of involvement in the IJVs (5.8 for foreign senior manager and 6.0 for local senior manager on a seven-point scale). Second, using multiple informants can significantly enhance the quality of the data by improving accuracy through a reduction in the random error component of the individual response data (Van Bruggen, Lilien, & Kacker, 2002).

Following the suggestions of Van Bruggen et al. (2002), we adopted confidence-weighted means to obtain construct scores. Instead of asking respondents their confidence for each individual question, which would significantly increase their cognitive burden, or asking their global confidence for the whole questionnaire, which would result in varied levels of confidences for different sets of questions (Van Bruggen et al., 2002), we asked respondents' confidence for each section of questions with related conceptual domains. The first section was resource complementarity; the second included formalization, departmentalization, learning culture, and goal congruency; the third was MDCs; the fourth was competitive advantage; and the final section was market dynamism. The aggregation was based on the following equation:

$$CW\_M = \frac{\sum_{i=1,j=1}^{n,2}\left[\left(CONF_{sj}\Big/\sum_{j=1}^{2}CONF_{sj}\right)X_{ij}\right]}{n} \quad (2)$$

where CW_M is the confidence weighted mean of the construct, X_{ij} is the response of respondent j (foreign or local senior manager) to question i, and $CONF_{sj}$ is the respondent j's confidence level of section s that question i belongs to.

Scale Validity and Reliability

We examined the unidimensionality and convergent validity of the constructs with confirmatory factor analysis (CFA) using EQS. CFAs were conducted separately for local and foreign manager datasets. As indicated in the Appendix, the CFA models indicated acceptable fit indices in both samples, all items loaded on their respective constructs, and each loading was large and significant at the 0.01 level. As shown in the Appendix, all the constructs had high reliability, with alphas over 0.70. To assess the discriminant validity of the constructs, a CFA model in which the correlation between a pair of constructs was constrained to 1 was compared with an unconstrained CFA model. If these two constructs indicate discriminant validity, the unconstrained model must fit significantly better than the constrained model (Anderson & Gerbing, 1988). The pair-wise chi-square difference tests indicated that, in each case, the chi-square difference statistic was significant at the 0.01 level, providing evidence for the presence of discriminant validity. Table 1 presents the correlation matrix and descriptive statistics.

Analysis and Results

We used hierarchical moderated regression analysis to test our hypotheses. To reduce the potential problem of multicollinearity, both the independent and moderating variables were mean-centered (Aiken & West, 1991). Variance inflation factors associated with each regression coefficient showed a range of 1.03–1.78, suggesting no serious problems with multicollinearity. Because IJV size is positively skewed, we transformed it by taking its logarithm. Tables 2 and 3 present our results.

As shown in Model 4 in Table 2, IJV resource magnitude had a positive effect on its MDCs ($\beta = 0.18$, $p < 0.05$), supporting Hypothesis 1, while IJV resource complementarity also had a positive impact on its MDCs ($\beta = 0.18$, $p < 0.05$), supporting Hypothesis 2.

The results for the moderating effects of formalization and departmentalization are also presented in Model 4 in Table 2. As can be seen, formalization positively moderated the effect of resource magnitude on MDCs ($\beta = 0.16$, $p < 0.05$). Thus Hypothesis 3a

Table 1 Descriptive statistics and Pearson correlation

		Mean	*Standard deviation*	*Correlation matrix*												
				1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	Formalization	3.85	1.30	1.00												
2	Departmentalization	3.75	1.36	0.04	1.00											
3	Coal congruency	4.55	1.37	0.17	0.17	1.00										
4	Learning culture	3.79	1.49	0.13	0.16	0.32	1.00									
5	Resource complementarity	4.58	1.12	0.00	−0.04	−0.03	0.07	1.00								
6	Resource magnitude	94.15	13.10	−0.15	−0.05	−0.05	0.05	0.26	1.00							
7	Marketing dynamic capabilities (MDCs)	4.04	1.10	0.14	−0.05	0.15	0.15	0.36	0.36	1.00						
8	Financial performance	0.00	1.00	−0.13	−0.11	−0.04	−0.04	0.16	0.17	0.24	1.00					
9	Competitive advantage	4.07	1.29	0.06	−0.14	0.11	−0.06	0.20	0.19	0.28	0.20	1.00				
10	Joint venture size	2.58	0.28	−0.10	0.00	−0.18	−0.14	0.03	−0.13	−0.05	0.05	0.02	1.00			
11	Years of operation	5.69	2.58	0.02	−0.08	−0.02	−0.02	−0.06	0.10	−0.02	−0.06	0.10	0.03	1.00		
12	Cultural distance	5.32	1.43	0.12	0.10	−0.12	0.01	0.15	0.10	0.07	0.02	0.03	0.02	−0.05	1.00	
13	Market dynamism	4.37	1.06	0.00	−0.02	−0.05	0.11	0.10	−0.05	0.10	−0.08	−0.03	0.01	−0.02	−0.05	1.00

$p<0.05$ if $0.17<r<0.21$; $p<0.01$ if $0.21<r<0.28$; $p<0.001$ if $r>0.28$.

was supported. However, the prediction of a positive moderating impact of formalization on the resource complementarity/MDCs relationship in Hypothesis 3b was not supported ($\beta=-0.02$, n.s.). The results also indicated that departmentalization negatively moderated the effect of IJV resource complementarity on MDCs ($\beta=-0.18$, $p<0.05$), supporting Hypothesis 4b. However, the interaction term between departmentalization and resource magnitude was not significant ($\beta=-0.08$, n.s.), suggesting that Hypothesis 4a was not supported.

In addition, it was found that goal congruency positively moderated the effect of resource magnitude on IJVs' MDCs ($\beta=0.22$, $p<0.05$), supporting Hypothesis 5a, and that learning culture significantly moderated the effect of resource magnitude on IJV's MDCs ($\beta=0.23$, $p<0.01$), supporting Hypothesis 6a. However, the moderating effects of goal congruency ($\beta=-0.02$, n.s.) and learning culture ($\beta=-0.03$, n.s.) on the relationship between resource complementarity and MDCs (Hypotheses 6a and 6b) were not supported.

Finally, Table 3 presents the direct effect of MDCs on financial performance and competitive advantage, as well as the moderating effect of market dynamism on those relationships. As indicated in Model 2 and Model 5 in Table 3, MDCs positive influenced IJV's financial performance ($\beta=0.18$, $p<0.05$) and competitive advantage ($\beta=0.20$, $p<0.05$), supporting Hypotheses 7a and 7b. Furthermore, market dynamism positively moderated the effect of MDCs on IJV's financial performance ($\beta=0.17$, $p<0.05$), supporting Hypothesis 8a, but only marginally moderated the effect of MDCs on IJV's competitive advantage ($\beta=0.15$, $p<0.10$) (Hypothesis 8b).

To test whether MDCs mediate the effects of resource magnitude and resource complementarity on financial performance and competitive advantage, we followed the suggestion of Baron and Kenny (1986) and included resource magnitude and resource complementarity in the regression model along with MDCs. As indicated in Model 3 and Model 6 in Table 3, MDCs remained significant after the inclusion of resource magnitude and complementarity with financial performance ($\beta=0.16$, $p<0.05$) and competitive advantage ($\beta=0.21$, $p<0.05$) as dependent variables, respectively. Thus we concluded that MDCs indeed mediate the impacts of both these variables on financial performance and competitive advantage. Table 4 summarizes the results of the hypothesis.

Table 2 Determinants of IJVs' marketing dynamic capabilities (MDCs)

	Marketing dynamic capabilities (MDCs) (standardized regression coefficients)			
	Model 1	*Model 2*	*Model 3*	*Model 4*
Independent variables				
Main effects				
Resource magnitude		0.22*	0.20*	0.18*
Resource complementarity		0.23*	0.19*	0.18*
Formalization			0.11	0.10
Departmentalization			−0.02	−0.01
Goal congruency			0.15†	0.13
Learning culture			0.04	0.04
Moderating variables				
Resource complementarity × Formalization				−0.02
Resource magnitude × Formalization				0.16*
Resource complementarity × Departmentalization				−0.18*
Resource magnitude × Departmentalization				−0.08
Resource complementarity × Goal congruency				−0.02
Resource magnitude × Goal congruency				0.22*
Resource complementarity × Learning culture				−0.03
Resource magnitude × Learning culture				0.23*
Control variables				
Joint venture size	−0.21*	−0.11	−0.16	−0.03
Years of operation	0.01	0.01	0.01	−0.00
Cultural distance	0.03	0.02	0.04	0.06
R^2	0.06	0.17	0.23	0.43
Adj. R^2	0.04	0.14	0.18	0.40

*p<0.05; **p<0.01; †p<0.10.

Table 3 The effects of marketing dynamic capabilities (MDCs) on financial performance and competitive advantage

	Financial performance (standardized regression coefficients)		*Competitive advantage (standardized regression coefficients)*	
	Model 1	*Model 2*	*Model 3*	*Model 4*
Independent variables				
Main effects				
Marketing dynamic capabilities (MDCs)	0.19*	0.18*	0.22*	0.20*
Market dynamism		0.02		0.03
Moderating effect				
MDCs × Market dynamism		0.17*		0.15†
Control variables				
Joint venture size	0.02	0.02	0.01	0.01
Years of operation	−0.03	−0.04	0.08	0.07
Cultural distance	0.02	0.03	0.03	0.04
R^2	0.08	0.11	0.10	0.13
Adj. R^2	0.05	0.08	0.07	0.10

*p<0.05; **p<0.01; †p<0.10.

Table 4 Summary results of hypothesis testing

Hypothesis	*Relationship*	*Finding*
Hypothesis 1	Resource magnitude → MDCs	Supported
Hypothesis 2	Resource complementarity → MDCs	Supported
Hypothesis 3a	Resource magnitude × Formalization → MDCs	Supported
Hypothesis 3b	Resource complementarity × Formalization → MDCs	n.s.[a]
Hypothesis 4a	Resource magnitude × Departmentalization → MDCs	n.s.
Hypothesis 4b	Resource complementarity × Departmentalization → MDCs	Supported
Hypothesis 5a	Resource magnitude × Goal congruency → MDCs	Supported
Hypothesis 5b	Resource complementarity × Goal congruency → MDCs	n.s.
Hypothesis 6a	Resource magnitude × Learning culture → MDCs	Supported
Hypothesis 6b	Resource complementarity × Learning culture → MDCs	n.s.
Hypothesis 7	(a) MDCs → IJV financial performance	Supported
	(b) MDCs → IJV competitive advantage	Supported
Hypothesis 8	(a) MDCs × Market dynamism → IJV financial performance	Supported
	(b) MDCs × Market dynamism → IJV competitive advantage	Supported

[a]Not significant.

DISCUSSION

Research Implications

This study set out to examine the development of MDCs in IJVs, and to test the effect of MDCs on IJVs' performance and competitive advantage. By examining 114 IJVs in China, this study filled significant gaps in the literature by defining MDCs, identifying two specific mechanisms of MDCs' development in IJVs, and providing unequivocal empirical support for the significant effect of MDCs on IJV's competitive advantage and performance. As a result, this study contributes to the literature in several notable ways.

The first contribution of this research is to the dynamic capabilities literature. With the conceptualization of the MDCs of IJVs, we have extended the dynamic capabilities literature into IJVs. This extension is complex and important. The complexity arises from the facts that IJVs are entities whose resources are put together by both partners along the functional lines, and that the significance of partners' contributed resources can be viewed through two factors: resource magnitude and resource complementarity. The former reveals the amount of resources the partners contributed to an IJV in various value-chain functions, whereas the latter indicates the complementarity between partners' contributions. The findings of this research support the contention that both resource magnitude and resource complementarity significantly influence the development of an IJV's MDCs. Thus our research suggests that both the magnitude and the complementarity of partner-contributed resources must be incorporated into future IJV-related research.

The complexity of extending the dynamic capability literature into IJVs could also arise from the fact that IJVs, as separate and living entities, can develop their own organizational structure and organization culture, which can then significantly affect the development of their MDCs. This perspective, to look inside the IJVs for IJV-specific characteristics, is an important extension of the existing IJV literature, which is focused largely on the relationship dynamics between IJV partners. Our research suggests that an IJV's organizational culture and organizational structure play a significant moderating role in converting partner-contributed resources into efficient and fast-responding cross-functional business processes – namely, the IJV's MDCs. Specifically, our findings suggest that goal congruency and learning culture – two important dimensions of organizational culture – positively moderate the effect of resource magnitude on IJVs' MDCs. Presumably, goal congruency reduces partners' uncertainty, enhances organizational fit, and helps to maximize the value of the partners' contributed resources, while a learning culture facilitates shared interpretation of knowledge, and helps turn accumulated resources into MDCs. Our findings also indicate that formalizing an IJV's organizational structure positively moderates the effect of resource magnitude on IJVs' MDCs. A formalized structure clearly defines the rules and procedures for both partners to follow, thereby reducing the cross-cultural barriers to communication between partners, and facilitating

the integration of their contributed capabilities into MDCs. Conversely, our findings suggest that departmentalization negatively moderates the effect of resource complementarity on an IJV's MDCs. Apparently, a highly departmentalized structure reduces the connectedness of IJV's employees in various functional departments, and impedes integration of partners' contributions into MDCs.

The second contribution of this study is to the literature on IJV performance. In the existing IJV performance literature, the partners' interaction in areas of commitment, cooperation, trust, and goal congruency has been considered the major determinant of IJV performance. Despite the importance of partners' interaction in determining IJVs' performance, the current literature has ignored the fact that an IJV is a living concern that can have its own culture, organization structure, and dynamic capabilities. By focusing on an IJV's MDCs as the key determinant of its performance, this study has contributed to making the IJV performance theory more complete. Indeed, our empirical findings clearly support the contention that MDCs have a significant impact on IJVs' performance and competitive advantage. For future research, our study has opened a new avenue to investigate the determinants of IJV performance. Specifically, the findings of this study imply that, in addition to IJV partners' interactions, researchers must consider IJVs' specific dynamic capabilities when attempting to develop and test their theory of IJV performance.

This research has also extended the notion of dynamic capabilities into the context of emerging economies such as China. Our research conceptualizes MDCs as the responsiveness and efficiency of three cross-functional processes: *product development management*, *customer relationship management*, and *supply chain management*. By implementing and adjusting these business processes, our findings suggest that MDCs facilitate IJVs' speedy and efficient responses to market changes, enable IJVs to create and deliver superior customer value, and help them develop and sustain their competitive advantages and superior performance. These findings lend support to Eisenhardt and Martin's (2000) perspective on dynamic capabilities that it can be investigated in specific and identifiable organizational processes, and argument that dynamic capabilities drive financial performance and competitive advantage. More interestingly, this paper clearly demonstrates that MDCs' effects on firm financial performance are more pronounced in a more dynamic marketplace. Since emerging markets are generally characterized as more dynamic than developed markets, we extend the perspective of dynamic capabilities by suggesting that the development of dynamic capabilities, specifically in marketing-related processes, is more relevant in emerging economies.

Managerial Implications

Managerially, our research offers managers several ways to foster developing MDCs in IJVs, and to create and deliver customer value in order to achieve competitive advantages and superior performance. First, our results indicate that, for a firm to develop MDCs to deal with rapid market changes, it should attempt to form an IJV with a partner with complementary resource stocks; they also caution against the tendency to merely pull overlapped functional resources together. Complementary resources could create learning opportunities between IJV partners so that they can access each other's resource stocks, which as a result improves the efficiency and responsiveness of the IJV's cross-functional processes in response to market changes. Second, it is also important for an IJV to accumulate a sufficient stockpile of functional resources from partners. The pool of resources provides a buffer that gives an IJV necessary flexibility to adapt to market changes quickly and efficiently.

Third, it is important that managers foster the development of proper organizational culture and organizational structure. Specifically, managers should work to foster a learning culture within an IJV, and promote goal congruence between the IJV partners. A learning culture is conducive to inter-partner communication and integration of IJV resources into MDCs, and goal congruence can help the IJV partners build mutual trust and reduce uncertainty, leading to more responsive and more efficient cross-functional processes. As for the IJV's organizational structure, managers should set up formalized rules and procedures for performing IJV tasks, and encourage inter-departmental communication. Owing to the different cultural background of the IJV partners, formalized rules and procedures in an IJV can facilitate inter-partner communication rather than impede it. Likewise, inter-departmental communications among individual employees could facilitate knowledge exchanges within an IJV and integration of its functional resources into MDCs. Finally, it is very

important for managers of IJVs to focus on creating and delivering superior customer value. In particular, they must work to improve the efficiency and responsiveness of their IJVs' new product management, customer relationship management, and supply chain management processes. By developing MDCs, IJVs could achieve sustained competitive advantages and superior financial performance, especially in volatile market environments.

Limitations and Future Research Directions

Some limitations of the present study need to be kept in mind when interpreting its findings. Despite significant personal involvement spent on data collection, we could master only 114 valid dyads with objective performance data for testing our proposed model. This limited sample might have reduced the statistical power necessary to generate more significant findings, especially with regard to some moderating effects. Future research should attempt to verify those insignificant relationships to obtain stronger support for our proposed model. Second, although our study has incorporated some of the most important capability-building mechanisms of IJVs (two dimensions of organizational culture and two dimensions of organizational structure), they are by no means the only ones. The relative low r^2 of MDCs appears to support this assertion. Future researchers are encouraged to build on our study to investigate additional dimensions, as well as other types of architectural resources.

Because we have developed a concept and measurement of MDCs, a broad direction for future inquiry is to conceptualize and measure other types of dynamic capability and investigate their effects on firm performance and competitive advantage. Moreover, although MDCs have been found to positively affect IJV performance and competitive advantage, the specific mechanism through which such an effect takes place is left to be investigated. Specifically, future researchers should focus on how product development, supply chain management, and customer relationship management processes enable a firm to outperform its major competitors. Still another broad research direction to pursue is to explore how the processes differ between various dimensions of organizational structure and culture in integrating resources and developing MDCs. Such inquiry should shed significant light on the complexity and intricacy of creating these resources, and extend the theory that we have advanced here.

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APPENDIX

See Table A1.

Table A1

Constructs and items	*Factor loading*		*Cohen's kappa inter-rater reliability*
	Foreign partner	*Local partner*	
Formalization	CA: 0.86, AVE: 0.65	CA: 0.90, AVE:0.70	0.70
1. There is a "standard operating procedure" for all major decisions in the joint venture.	0.86	0.85	
2. There are rules and procedures for most tasks in our joint venture.	0.85	0.82	
3. We rely extensively on contractual rules and policies in controlling the day-to-day operation of our joint venture.	0.74	0.86	
4. The employees follow written procedures in most aspects of business in our joint venture.	0.78	0.81	
Departmentalization	CA: 0.81, AVE: 0.56	CA: 0.75, AVE: 0.65	0.69
1. In our joint venture, employees from different departments feel that the goals of their respective departments are in harmony with each other (reverse-coded).	0.71	0.78	
2. Protecting one's departmental turf is considered to be a way of life in our joint venture.	0.81	0.78	
3. There is little or no interdepartmental conflict in our joint venture (reverse-coded).	0.73	0.89	
4. There is ample opportunity for informal "hall talk" among individuals from different departments in our joint venture (reverse-coded).	0.74	0.77	
Learning culture	CA: 0.90, AVE: 0.71	CA: 0.85, AVE: 0.72	0.75
1. Senior management in the joint venture agree that our joint venture's ability to learn is the key to competitive advantage.	0.74	0.81	
2. The basic values of the joint venture include learning as a key to improvement.	0.88	0.85	
3. The sense in the joint venture is that employee learning is an investment, not an expense.	0.83	0.8	
4. Learning in our joint venture is seen as a key commodity necessary to guarantee the organization's survival.	0.91	0.92	

Table A1 *Continued*

Constructs and items	*Factor loading*		*Cohen's kappa inter-rater reliability*
	Foreign partner	*Local partner*	
Goal congruency	CA: 0.88, AVE: 0.70	CA: 0.82, AVE: 0.72	0.73
1. The goals and objectives of both parties in this joint venture are compatible.	0.76	0.82	
2. There is total agreement regarding organizational goals across all levels, functions, and divisions in the joint venture.	0.87	0.89	
3. All employees are committed to our joint venture's organizational goals.	0.90	0.81	
4. There are major conflicts between the partners in this joint venture regarding its objectives (reverse-coded).	0.82	0.86	
Marketing dynamic capabilities (MDCs)	CA: 0.76, AVE: 0.80	CA: 0.73, AVE: 0.71	0.80
As compared to your joint venture's major competitors, how do you rate your joint venture's efficiency and speed of responsiveness in responding to market changes at the following areas: (much worse…… much better)			
1. Customer relationship management: The cross-functional process across areas of acquiring and leveraging customer information, establishing and maintaining relationships with customers and channel members, and providing after-sales service and support of managing relationships with customers, with the objective of learning about their needs and how best to satisfy them.	0.92	0.85	
2. Product development management: The cross-functional process across areas of ascertaining customer needs, designing tentative new product solutions and prototypes, manufacturing, and coordinating departmental relationships designing, with the objective of developing and engineering the product that enables the customer to experience maximum value and benefits.	0.87	0.86	
3. Supply chain management: The cross-functional process across areas of selecting and qualifying desired suppliers, establishing and managing inbound and outbound logistics, and designing work flow in product/solution assembly, with the objective of designing, managing, and integrating own supply chain with that of both suppliers and customers.	0.90	0.82	
Competitive advantage	CA: 0.71, AVE: 0.69	CA: 0.75, AVE: 0.66	0.75
1. Our joint venture has gained strategic advantages over our competitors.	0.82	0.85	
2. Our joint venture has gained benefits that enable the joint venture to compete more effectively in the marketplace.	0.87	0.75	
3. Our joint venture has successfully achieved strategically important outcomes.	0.80	0.83	
Market dynamism	CA: 0.83, AVE: 0.61	CA: 0.81, AVE: 0.52	0.69
1. In the market of our joint venture, customers' preferences change quickly over time.	0.76	0.71	
2. For our joint venture, market demand and consumer tastes have been unpredictable.	0.77	0.69	
3. Actions of local and foreign competitors of the joint venture have been highly unpredictable.	0.82	0.74	
4 The competition of our joint venture is changing very rapidly.	0.78	0.74	
5. It is very difficult to forecast where the technology will be in the next 5 years.	0.83	0.87	

Fit indices for foreign partner: χ^2: 256.654, $p<0.01$, CFI: 0.924, NFI: 0.913, IFI: 0.895, RMSEA: 0.061.
Fit indices for local partner: χ^2: 364.215, $p<0.01$, CFI: 0.899, NFI: 0.868, IFI: 0.885, RMSEA: 0.076.
CA: coefficient alpha, AVE: average variance extracted.
Unless noted otherwise, all items were measured as "strongly disagree" to "strongly agree".

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