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A Contingency Perspective on Organizational Ambidexterity

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Abstract

Organizational ambidexterity is a burgeoning field of research, but the boundary conditions of organizational ambidexterity are yet to be fully understood. This paper advances the growing literature with ten propositions on the boundary conditions of organizational ambidexterity. Those boundary conditions include an organization's degree of market orientation, environmental turbulence, organizational size, organizational slack, risk tolerance, organizational age, and the degree of institutionalization. We also discuss our findings' implications for future research agendas on organizational ambidexterity.

I. Introduction

Research on organizational ambidexterity is burgeoning. Defined as an organizational capability to simultaneously exploit internal knowledge and explore external knowledge (O'Reilly & Tushman, 2007; Raisch & Birkinshaw, 2008), organizational ambidexterity is thought to be a particularly important organizational competence in an increasingly turbulent modern competitive environment.[1)] One example is O'Reilly & Tushman (2007), who propose closely relating organizational ambidexterity to dynamic capabilities (Teece, Pisano, & Shuen, 1997), that is, "the firm's ability to integrate, build, and reconfigure internal and external competences

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1) The literature still has not made clear whether organizational ambidexterity is an organizational capability (O'Reilly & Tushman, 2007; Raisch & Birkinshaw, 2008) or simply a state in which an organization simultaneously exploits and explores (Jansen, Van Den Bosch, & Volberda, 2005 b). We adopt the former perspective in accordance with a recent theoretical development that emphasizes organizational ambidexterity as being closely related to dynamic capabilities.

to address rapidly changing environments (p.516).”[2] Weigelt & Sarkar (2011) also propose an intricate relationship between organizational ambidexterity and absorptive capacity by arguing that organizational ambidexterity is realized by a firm’s absorptive capacity (Cohen & Levinthal, 1990), a unique branch of dynamic capabilities (Jansen, Van Den Bosch & Volberda, 2005 a; Zahra & George, 2002). Raisch & Birkinshaw (2008) even state “the ability to achieve ambidexterity has been said to lie at the heart of a firm’s dynamic capabilities” (p.393),[3] indicating organizational ambidexterity is an equivalent of dynamic capabilities.

Since a seminal article by Duncan (1976) that first proposed the concept of organizational ambidexterity, many scholars have studied organizational ambidexterity (Adler, Goldoftas, & Levine, 1999; Gibson & Birkinshaw, 2004; He & Wong, 2004; Kane & Alavi, 2007; Lavie & Rosenkopf, 2006; Lubatkin, Simsek, Ling, & Veiga, 2006; O’Reilly & Tushman, 2007; Raisch & Birkinshaw, 2008; Sheremata, 2000; Siggelkow & Levinthal, 2003; Suzuki & Methé, 2011; Tushman & O’Reilly, 1996; Tushman, Anderson, & O’Reilly, 1997; Wang & Li, 2008; Weigelt & Sarkar, 2011). To date, however, most extant research focuses on either identifying antecedents of organizational ambidexterity, or empirically testing the beneficial effects of organizational ambidexterity. On the other hand, the boundary conditions of organizational ambidexterity have remained relatively underexplored (Raisch & Birkinshaw, 2008).[4] In this manuscript, we try to uncover contingencies

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2) The close association between organizational ambidexterity and dynamic capabilities is intuitively compelling, but their precise relationship is rather unclear. For example, O’Reilly & Tushman (2007) imply three distinct possibilities as follows: 1) organizational ambidexterity is a manifestation of a firm’s dynamic capabilities (“a set of propositions that suggest how ambidexterity acts as a dynamic capability” (p.2), or “dynamic capabilities are at the heart of the ability of a business to be ambidextrous” (p.12)); 2) dynamic capabilities are antecedents of organizational ambidexterity (“actions, behaviors, and design choices comprise the dynamic capabilities that enable firms to simultaneously explore and exploit” (p.31)); and 3) organizational ambidexterity is an antecedent of dynamic capabilities (“this capability, to both explore and exploit, helps organizations to reconfigure existing assets and capabilities to sense and seize new opportunities” (p.40)). An important future research agenda will be to specify the relationship between organizational ambidexterity and dynamic capabilities, if any.

3) This is one example of the confused usages of the term, “organizational ambidexterity.” Since Raisch & Birkinshaw (2008) define organizational ambidexterity as an “organization’s ability to be aligned and efficient in its management of today’s business demands while simultaneously being adaptive to changes in the environment” (p.375), “the ability to achieve ambidexterity” (p.393) should be a higher order organizational capability that enables lower order organizational capability (in this case, organizational ambidexterity), if it does exist.

4) Another relatively underexplored field of ambidexterity research is the optimal balance between exploitation and exploration. By showing a negative association between firm performance (sales growth rate) and the relative imbalance between exploitative and explorative innovation strategies, He & Wong (2004) implicitly suggest that equal resource allocation between ↗

under which managers can effectively leverage organizational ambidexterity for their organization's "system survival and prosperity" (March, 1991, p.71).

II. Organizational Ambidexterity

Organizational ambidexterity is an organizational capability to exploit internal knowledge while simultaneously exploring external knowledge (O'Reilly & Tushman, 2007; Raisch & Birkinshaw, 2008). Recent advances in our understanding of ambidextrous organizations (Adler, Goldoftas, & Levine, 1999; Gibson & Birkinshaw, 2004; He & Wong, 2004; Lavie & Rosenkopf, 2006; Lubatkin, Simsek, Ling, & Veiga, 2006; O'Reilly & Tushman, 2007; Raisch & Birkinshaw, 2008; Siggelkow & Levinthal, 2003; Suzuki & Methé, 2011; Tushman & O'Reilly, 1996; Tushman, Anderson, & O'Reilly, 1997; Wang & Li, 2008; Weigelt & Sarkar, 2011) show organizations are capable (or incapable) of simultaneously exploiting and exploring to varying degrees. Some organizations skillfully exploit and explore at the same time, whereas other organizations find it difficult to do so.

Exploitation is usually related to improvements, increased efficiency, and incremental adjustments, whereas exploration is closely linked with variety generation, distinctly new possibilities, distant search, and radical or revolutionary change (March, 1991). For example, in the context of technological innovation, the distinction between exploitation and exploration is made by considering whether the locus of organizational learning is on reusing existing knowledge and technology, or on pursuing new knowledge and technology. Accordingly, scholars operationalize exploitation and exploration with such polarized comparisons as pharmaceutical products based on an existing chemical entity and the ones based on a new chemical entity (Bierly & Chakrabarti, 1996; Cardinal, 2001; Dunlap-Hinkler, Kotabe, & Mudambi, 2010; Suzuki & Methé, 2011), self-citing patents and non self-citing patents (Benner & Tushman, 2002; Sørensen & Stuart, 2000), refinements of a CISC architecture microprocessor and a shift to a RISC architecture microprocessor

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↘ exploitation and exploration is the optimal. Wang & Li (2008) argue that deviation from the expected amount of exploration hurts firm performance, implying "the optimal search behavior" predicted from the focal firm's aspiration discrepancy, organizational slack, financial distress, technological scope, levels of competition, and environmental dynamism decides the firm-unique degree of organizational ambidexterity. He & Wong (2004) admit their assumption is rather naïve when they point out that future research should uncover "how the optimal balance between exploration and exploitation may be contingent on such environmental factors" (p.493) including market and technological dynamism. Wang & Li (2008) ignore the fact that the amount of exploitation may be decided independently from the optimal exploration behavior, and thus firm-level optimal balance differs from the one predicted by considering only exploration.

(Lee, Lee, & Lee, 2003), or repetition or refinement of a hard disk drive manufacturer's existing form factors (different-sized disks) and development of new form factors (Piao, 2010).

Empirical proofs show organizational ambidexterity is indeed beneficial for firm performance. He & Wong (2004) show that Singaporean and Malaysian manufacturing firms adopting both exploitative and explorative innovation strategy achieved higher sales growth rates than their competitors that are characterized by either exploitative innovation strategy or explorative innovation strategy. Wang & Li (2008) show both overexploitation and overexploration, defined as the degree of deviation from the expected amount of exploration, is negatively associated with sample U.S. firms' innovation performance as measured by a citation-based patent count. They also found a similar negative association between overexploitation (and overexploration) and financial performance (Tobin's q). Piao (2010) studied the hard disk drive industry between 1980 and 1999 to show that a moderate degree of temporal overlap between an exploitative product development process and an exploratory product development process is associated with firm longevity.

Then, how can organizations pursue these seemingly distinct initiatives (i.e., exploiting existing knowledge and exploring new knowledge) at the same time? According to prior works, organizations can be ambidextrous through such levers as managerial interventions (Tushman, Anderson, & O'Reilly, 1997), unique organizational contexts (Gibson & Birkinshaw, 2004), or top management teams' behavioral integration (Lubatkin, Simsek, Ling, & Veiga, 2006) in that they can exploit, as well as explore at the same time (Suzuki & Methé, 2011).

One of the most familiar recommendations on how to reconcile exploitation and exploration is structural separation (Christensen & Bower, 1996; Cooper & Smith, 1992; Gilbert, 2005). Because exploitation and exploration cannot be simultaneously pursued in the same organization, it is suggested that organizational units geared toward each of these activities should be separated. With such reasoning, these scholars argue that it is necessary to establish distinct organizational units with different orientations, i.e., one for exploitation (in most cases, an existing organizational unit), and another for exploration (again, in most cases a new organizational unit). This argument has received considerable empirical support (Afuah, 2001; Burgelman, 1983; McGrath, 2001; Puranam, Singh & Zollo, 2006; Rosenbloom & Christensen, 1994).

In case separating an organization is too difficult, exploitative and exploratory tasks can be assigned to different parts of an organization in a slightly modified manner. One example is to divide the responsibilities among hierarchical levels. Specifically, one can expect exploration from the operating levels where managers and front-line employees experiment with novel solutions to emerging problems,

while the responsibility to exploit promising solutions is assigned to the top-management who select and leverage middle managers' exploitative initiatives (Burgelman, 1983; Floyd & Lane, 2000; Siggelkow & Levinthal, 2003).

Another approach to address the trade-off relationship between exploitation and exploration is to separate them temporally. One of the most well-known examples is an organizational application of evolutionary pattern called punctuated equilibrium (Eldredge & Gould, 1972; Gersick, 1991; Tushman, Anderson, & O'Reilly, 1997; Tushman, Newman, & Romanelli, 1986; Tushman & Romanelli, 1985). Seen from the punctuated equilibrium perspective, organizations are described as cyclically going through a period of convergence and a period of upheaval. The period of convergence is characterized by incremental improvements on knowledge, technology, or organizational processes. The period of convergence is also associated with increasingly tighter coupling among decisions, actions, and organizational structures (Siggelkow, 2001). Whereas the essence of this period is continuity, it is suddenly punctuated with episodic upheavals, or drastic reorientations (Tushman & Romanelli, 1985). The period of upheaval is full of drastic changes based on unknown fields of knowledge. Everything, including strategy, control systems, and the distribution of power is redefined. This redefinition undermines existing rules, standards, and structures. Since the magnitude of substantial changes is traumatic to organizational members, managers' heroic interventions are required to push through the necessary disruptive changes during the period of upheaval.

While these arguments focus on how to divide tasks associated with exploitation and exploration either structurally or temporally, proponents for contextual ambidexterity argue that organizations can be ambidextrous not by separating exploitation and exploration, but by creating a unique organizational context supportive of both (Gibson & Birkinshaw, 2004). Defined as "the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit" (*ibid.,* p.209), people with contextual ambidexterity are enabled, as well as forced to be ambidextrous. More specifically, under an organizational context characterized by a combination of stretch goals, discipline, managerial support and trust, organizational members exploit and explore at the same time. The challenges of simultaneously pursuing exploitation and exploration cannot be fully attenuated even by contextual ambidexterity. However, this unique organizational context empowers organizational members so they can strive for an ambidextrous organization more vigorously, by reducing concerns about the risks of failure in meeting stretch goals.

Some other scholars argue that a specific behavioral pattern called behavioral integration among a top management team is an influential determinant of the

degree of organizational ambidexterity (Lubatkin, Simsek, Ling, & Veiga, 2006). Behavioral integration is characterized by rich and frequent information exchanges, a focus on joint decision making, and collaborative behaviors among a top management team. Such behaviors nourish increased degrees of wholeness and unity of efforts among executives, which are instrumental in effectively synchronizing contradictory knowledge processes associated with exploitation and exploration. Similarly, since executives' behavioral pattern is strongly influenced by their background, some other scholars argue a founding team's prior company affiliation can be another antecedent of organizational ambidexterity (Beckman, 2006). Founding teams characterized by a mixture of common and diverse company affiliations pursue exploitation and exploration more effectively than do other teams composed of mostly common company affiliations, or diverse company affiliations (*ibid.*).

The extant works reviewed above indicate that organizational ambidexterity is not easy to achieve. Executives, as well as organizational members, need to manage carefully their daily behaviors so that their organization is ambidextrous. In other words, organizational ambidexterity is costly. For example, separating an organization into independent units requires significant amounts of time and effort. In addition, managing those separated units in a manner that achieves synergistic effects demands more exertion by the managers involved. As for temporal ambidexterity, executives are periodically required to expend great efforts on drastically changing organizational strategy, technology, and routines while overcoming substantial resistance and reluctance on the part of managers, front-line employees, and various external stakeholders. At organizations characterized by contextual ambidexterity, the life of employees can be cognitively confusing in that they are trusted at the same time as they are disciplined. Likewise, a behaviorally integrated top management team calls for frequent information sharing and joint decision making among executives, which can be very stressful for already busy executives.

Given that organizational ambidexterity is so costly to achieve, managers need to be selective when they decide whether their organization should pursue organizational ambidexterity. Although scholars empirically report the beneficial effects of organizational ambidexterity (He & Wong, 2004; Piao, 2010, Wang & Li, 2008), their findings' external validity may be limited since their study is bounded by the authors' choice of sample firms and time periods. There may be some circumstances where the benefits of organizational ambidexterity are outweighed by its costs. We try to address this question below.

III. Key Assumptions underlying Benefits of Organizational Ambidexterity

When we consider the boundary conditions of organizational ambidexterity, it is useful to review assumptions underlying the virtue of organizational ambidexterity. As is discussed below, organizational ambidexterity is leveraged to address the obstacles or difficulties an organization confronts when both exploitation and exploration are pursued. In other words, under conditions where such obstacles and difficulties are circumvented by other (less costly) means, there is no need for organizations to rely on such costly measures as organizational ambidexterity. Understanding an organization's underlying motivation for adopting organizational ambidexterity provides us with a clue to uncovering the boundary conditions of organizational ambidexterity.

The first question we need to ask ourselves is why pursuing both exploitation and exploration is necessary. In other words, why can organizations not just rely on a single mode of organizational learning? According to March (1991), an appropriate balance between exploitation and exploration is necessary for the purpose of an organization's "system survival and prosperity" (p.71). When a firm only exploits, its adaptation is limited to local adjustments. However, excessively exploring new possibilities threatens a firm's survival. A firm needs to explore new knowledge because a firm should flexibly keep adapting to the continuously (and sometimes drastically) changing needs of customers and markets. However, such flexible adaptation is only possible when the day-to-day stability of routine operation is maintained.[5)] It may sound paradoxical, but a flexibly changing firm needs to maintain the reliability and accountability of its daily business operations as far as possible, which requires exploiting existing knowledge and technology to the fullest extent.

A choice between exploitation and exploration is generally understood as a choice between "current viability" and "future viability" (Levinthal & March, 1993: 105). However, in addition to the fact that exploitation and exploration supplement each other by occupying different learning time-frames, it is important to note that there is a more direct complementary relationship between exploitation and

5) For example, Auh & Menguc (2005) argue that although intense competition calls for exploration, it "does not necessarily suggest that greater exploration is the universally preferred option under conditions of intense competition. A critical point is that the consequences of exploration are distal and uncertain. At least in the short-term, firms will also need to engage in exploitative learning to respond to and counter competitive behavior. Without this balance, firms run the risk of losing their current position through diverting their resources to exploratory learning, the benefits of which might or might not materialize. Therefore, exploration needs to be complemented with exploitation" (p.1654).

exploration. More specifically, the fruits of exploration cannot be fully realized without exploitation, and vice versa. For example, organizations need to generate enough resources by extensively exploiting existing knowledge before they explore widely enough in order to ensure their adaptation to environmental changes. Achieving adaptation also requires appropriately exploiting new knowledge gained through exploration.[6] Since exploitation and exploration are often dichotomized as "mean enhancing (McGrath, 2001)" and "variance increasing" (*ibid.*), respectively, one may feel exploitation is unnecessary for realizing an organization's survival and prosperity through adaptation to uncertainty in future business environments. However, expected benefits from exploration (and exploitation) cannot be achieved unless an organization pursues both exploitation and exploration.

Given the importance of simultaneously pursuing exploitation and exploration, why do organizations need such a costly measure like organizational ambidexterity? In other words, why is the simultaneous pursuit of exploitation and exploration so difficult?

According to Levinthal & March (1993), organizational learning entails two mechanisms targeted to address complicated interactions among environmental factors and each organizational member's simultaneous learning behaviors. The first mechanism is simplification of experiences by decomposing learning units (and thus problems and solutions learned) and by enacting environment. The second is the specialization of adaptation patterns through substituting alternative adaptation patterns by the one with equivalent effects (*ibid.*). Although these mechanisms enable organizations to learn easily, they at the same time cause three types of myopia or overlooking. Namely, as organizations learn, they overlook distant times, distant places, and failures. Consequently, a delicate balance between exploitation and exploration is disturbed, and organizations are forced to pursue either exploitation or exploration, but not both.

Accordingly, Levinthal & March (1993) argue that it is necessary for organizations to choose to focus on either exploitation or exploration. Otherwise, it is very difficult to overcome complicated interactions so that they can be more adaptive. In other words, recognizing a complicated experience as it is, or diversifying adaptation patterns goes against an organization's inherent nature. Organizations are generally characterized as avoiding the risks (or uncertainty)

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6) For example, Jansen, Van Den Bosch, & Volberda (2005 b) state that "exploratory innovations help units to encounter rapid obsolescence of products and services. However, without rapid exploitation of the results from exploration, competitors are able to imitate a unit's exploration efforts and introduce an improved version more efficiently and at lower cost. In this way, units waste time and resources to exploratory innovation without enhancing efficiency and generating income through exploitative innovation" (p.353).

associated with exploration. Therefore, although both exploitation and exploration are required for long-term organizational adaptation, organizations either overexploit at the risk of losing major change opportunities (Levitt & March, 1988), or overexplore by not maximizing an innovation's potential for increasing efficiency (Anderson & Tushman, 2001).

The difficulty associated with simultaneous pursuit of exploitation and exploration is exacerbated by available resource constraints. Whether it is money, time, effort, or simply attention, organizational resources are limited. This is basically why one of a manager's most important jobs is to make decisions on resources allocation. One straightforward implication of the limitation of organizational resources is that some initiatives are selected for resource allocation, while others are abandoned. The more an organization is constrained for resources, the more difficult it is to allocate sufficient resources to exploitative as well as exploratory initiatives.

Even when enough resources are available, managerial cognition may prevent managers' pursuing both exploitation and exploration. From a cognitive perspective, the difficulty can be explained in that it is difficult for managers to perceive both exploitative and exploratory opportunity at the same time. Scholars have indicated that as an organization exploits its existing knowledge through local search, its subsequent exploratory innovation performance is negatively affected (Cyert & March, 1963; March & Simon, 1958; March, 1991; Stuart & Podolny, 1996). Those authors provide several reasons in support of this argument. From a behavioral perspective, it is explained that organizations are trapped at a local peak as a result of local search (Levitt & March, 1988; Levinthal, 1997). As managers focus excessively on local refinements, they lose sight of the global peak. The fundamental assumption for this argument is that exploitation requires distinctively different cognitive patterns from exploration (Anderson & Tushman, 2001).

Another way to understand the difficulty of simultaneous exploitation and exploration is that exploration of new knowledge is fundamentally at odds with the raison d'être of an organization (Suzuki, 2010).[7)] An organization is a device for coordinating diverse resources contributed by individual organizational members (Coase, 1937). This coordination is possible because a set of operational standards is explicitly defined as organizational routines, which exploit known behaviors,

7) Note that this perspective is based on a quite different understanding of the nature of the organization from that of the knowledge-based view (Kogut & Zander, 1992; Nonaka & Takeuchi, 1995). The fact that organizational learning and the knowledge-based view are two closely related disciplines, but adopt such distinctive viewpoints may show an organization is ambidextrous by its nature, and that relative balance between exploitation and exploration changes upon contextual requirements.

customs, and knowledge.[8)] With the help of organizational routines, employees are able to cooperate without extensive negotiations or enforcement measures (March & Simon, 1958; Nelson & Winter, 1982). Another reason organizations are built with a bundle of organizational routines is that routines are manifestations of organizational capability (Eisenhardt & Martin, 2000; Nelson & Winter, 1982; Teece, Pisano, & Shuen, 1997). Any task that can be skillfully executed without managers' deliberate choice is called organizational capability. Thus, organizational capability is maintained, and enacted as organizational routines. Competitive organizations maintain their competitiveness because employees intentionally or unintentionally maintain various organizational routines.

Structural and institutional factors gradually strengthen such predominance of exploitation (Suzuki, 2010). The explanation from a structural or institutional perspective is that there is an increasingly tighter coupling among "choices with respect to activities, policies and organizational structures, capabilities, and resources" (Siggelkow, 2001). More specifically, continuous exploitation of existing knowledge results in increasingly tight coupling among a firm's structure, cognition, resource allocation, rewards, culture, competences, as well as in the demography of the senior team, which favors internally consistent changes over exploratory ones (Adler et al., 2009; Bettis & Prahallad, 1995). In addition, stakeholders also prefer this tighter coupling for its reliability and accountability. They then select those organizations with tighter coupling over less tightly coupled competitors. As a result, organizations suffer structural inertia (Hannan & Freeman, 1984). The preference of external stakeholders strongly influences an organization's choice because these stakeholders provide resources indispensable for maintaining regular business operations (Pfeffer & Salancik, 1978). Sometimes the stakeholders' influence forces firms to abandon seemingly attractive and promising business opportunities (Christensen & Bower, 1996).

IV. Boundary Conditions of Organizational Ambidexterity

In this section, we develop propositions on boundary conditions under which

8) More recent works propose to reconceptualize organizational routines as a source of organizational adaptation, rather than a constraint for changes (Feldman & Pentland, 2003; Rerup & Feldman, 2011). We acknowledge these developments, but we also feel not all organizational routines are precursors of organizational changes. More precisely, organizational routines are enacted so that organizational changes are facilitated at some organizations, but not at other organizations. Organizational routines per se function to retain and repeat standardized behaviors, and consequently to reduce exploration. Some organizations can flexibly revise standardized behaviors and leverage organizational routines to disseminate those revisions throughout the organization.

organizational ambidexterity is expected to be beneficial for firms' survival and prosperity. We do so by leveraging the above discussion on the obstacles and difficulties organizations face when they try to pursue exploitation and exploration. In case those obstacles and difficulties are circumvented by less costly measures than organizational ambidexterity, organizational ambidexterity would not be very useful. Conditions under which those difficulties and obstacles are less problematic for organizations are also discussed. Through such discussions, we aim to uncover under what type of contingencies organizational ambidexterity is expected to be more or less beneficial for organizations. Then, for each boundary condition, we try to derive a proposition to be empirically tested by future research.

One quite straightforward corollary of Levinthal & March (1993)'s argument on myopic organizational learning is that if an organization can learn without simplifying its experiences or specializing its adaptive response patterns, simultaneous pursuit of exploitation and exploration should not be too difficult. Since no manager's rationality is unbounded (Cyert & March, 1963; March & Simon, 1958), complete exclusion of simplification and specialization is not feasible. However, there may be a difference in the degree of simplification and specialization among different organizations. In case some organizations are capable of learning with less simplification and specialization than their competitors, those organizations benefit less from being ambidextrous to the extent that those organizations are free from learning myopia.

One such example is organizations characterized by extensive market intelligence activities and cross-department collaborations. Such a combination of characteristics is called "market orientation" (Jaworski & Kohli, 1993; Kohli & Jaworski, 1990),[9] and those organizations characterized by higher market orientation are found to pursue both exploitative and exploratory marketing strategies in a more financially successful way than their less market oriented competitors (Kyriakopoulos & Moorman, 2004).[10] At organizations characterized by stronger market orientation, experiences are less simplified because diverse information on (current as well as future) customers' needs and preferences (including both direct

9) According to Kohli & Jaworski (1990) "market orientation is the organizationwide generation of market intelligence pertaining to current and future customer needs, *dissemination* of the intelligence across departments, and organizationwide *responsiveness* to it (6)."

10) Kyriakopoulos & Moorman (2004) hypothesize that market orientation is an antecedent for organizational ambidexterity in that market orientation promotes synergies between exploitative marketing strategy activities and exploratory marketing strategy activities. On the other hand, their empirical analysis proves market orientation moderates, rather than enables, the relationship between organizational ambidexterity and financial performance.

payers and end customers), competitors, regulators, and technology are vigorously gathered through extensive market intelligence activities. Such new information, then, enables continuous review and adjustment of existing norms and procedures with regard to customer responsiveness. In addition, adaptive patterns are also less specialized since more frequent cross-departmental collaborations call for negotiation, bargaining, and concessions among departments with different interests and specialties. Accordingly, our first proposition on boundary conditions for organizational ambidexterity is stated as follows.

> Proposition 1: Organizational ambidexterity is expected to be more beneficial for organizations characterized by less market orientation.

The second boundary condition refers to the situation under which organizations can survive and prosper either by exploring new knowledge or by exploiting existing knowledge, but not both. Prior work uncovered that the choice between exploitation and exploration is dichotomized by the degree of environmental turbulence (Burns & Stalker, 1961). According to such a contingency perspective, in case the degree of environmental turbulence is very low, organizational ambidexterity is not particularly beneficial, since organizations perform satisfactorily enough by exploiting known strategy (*ibid.*). In such a competitive landscape, organizations run the risk of the "failure trap" (Levinthal & March, 1993, p.105–106) when they uselessly explore new strategies. Conversely, a highly turbulent competitive environment requires organizations to be mostly exploratory, rather than ambidextrous (*ibid.*). In a highly turbulent competitive environment, new strategy, technology, or customers are continuously explored, since a competitive situation changes too quickly for organizations to fully exploit known competence (D'aventi, 1994). Accordingly, organizational ambidexterity should be beneficial only when the degree of environmental turbulence is neither low nor high, but moderate.

Although some authors argue organizations are more likely to be ambidextrous under a dynamic environment (Jansen, Van Den Bosch, & Volberda, 2005 b), they do not test whether those ambidextrous organizations are more successful by being ambidextrous. The same set of authors also study firms' financial performance under a dynamic environment. They show the association with firm performance is positive for exploratory innovation but negative for exploitative innovation (Jansen, Van Den Bosch, & Volberda, 2006), implying organizational ambidexterity under a turbulent (or dynamic) competitive environment is not particularly beneficial.

> Proposition 2: Organizational ambidexterity is expected to be more beneficial

for organizations competing under a moderately turbulent environment than for organizations under either low or high environmental turbulence.

In addition to the degree of environmental turbulence, organizational size is an important boundary condition of organizational ambidexterity. This is because, relatively speaking, a larger organization is less constrained by the amount of available resources. Thanks to more available resources, larger organizations suffer less from an either-or choice between exploitation and exploration. On the other hand, smaller organizations benefit significantly from being ambidextrous. They are always faced with the difficulty of allocating limited resources to both exploitative and exploratory initiatives. Organizational ambidexterity, contextual ambidexterity in particular, eases this difficulty by enabling smaller organizations to better facilitate cognitive as well as behavioral readiness for such difficulties among organizational members. Accordingly, we state our third proposition as follows.

Proposition 3: Organizational ambidexterity is expected to be more beneficial for smaller organizations.

Even when an organization is small in terms of its absolute size, slack resources (March & Simon, 1958) may enable smaller firms to pursue both exploration and exploitation. Slack resources are the type of resources that can be redeployed for alternative use without significant interruption of current business operation. For example, short-term investment in marketable securities is a typical slack resource. Given that constraints of available resources are one of the major impediments to simultaneously pursuing exploitation and exploration, slack resources should ease managers' challenge with regard to pursuing exploitation and exploration simultaneously, and thus the need to be ambidextrous. Therefore, even among organizations of roughly the same size, the expected benefits of organizational ambidexterity may differ depending on the amount of slack resources.

Proposition 4: Organizational ambidexterity is expected to be more beneficial for organizations with less slack resources.

Given that managerial cognition strongly affects an organization's choice between exploitation and exploration, any conditions that influence managerial cognition should be considered as an important boundary condition of organizational ambidexterity. A degree of risk tolerance is one such condition. Contrary to the general expectation that an organization behaves in a risk-averse manner (i.e., with low risk tolerance), in the case when a future prospect is perceived from the domain

of losses, an organization behaves in a risk-seeking manner (Kahneman & Tversky, 1979). With such increased risk tolerance, managers are expected to be less reluctant to recognize and pursue exploratory initiatives. For example, managers who have just experienced a substantial financial loss would feel more willing to pursue exploratory initiatives since there are some (albeit very small) possibilities of big future gains. Consequently, under the situation where managers evaluate their future prospect from the domain of losses, organizational ambidexterity is less beneficial compared to the situation where managers are in the domain of gains.

Proposition 5 a: Organizational ambidexterity is expected to be more beneficial for organizations more strongly characterized by the domain of gains.

Managerial cognition, as well as managers' resultant behaviors, is also influenced by the amount of organizational slack. More specifically, as the amount of slack resources increases, an organization behaves in a more risk-seeking manner. This argument brings us to the same conclusion as the one we discussed above on organizational slack. However, the underlying reasoning is different. We argued that with more organizational slack, organizations are more exploratory since available resource constraints can be alleviated. In addition to that, organizations with more organizational slack pursue more exploratory initiatives because managers' risk tolerance is increased (Nohria & Gulati, 1996; Singh, 1986). Managers are more willing to explore risky initiatives because organizational slack resolves latent goal conflict between political coalitions in organizations and thus prevents them from being too critical and selective (Cyert & March, 1963). It may also be that organizational slack allows managers to pursue enough exploitative initiatives whose future financial gains compensate for expected negative returns from exploratory initiatives. Whatever the underlying explanation, organizations with more organizational slack behave in a more risk-seeking manner, and thus benefit less from organizational ambidexterity.

Proposition 5 b: Organizational ambidexterity is expected to be more beneficial for organizations with less slack resources.

Given that organizational routines are an obstacle for simultaneous exploitation and exploration, organizations with relatively few organizational routines should benefit less from organizational ambidexterity. Accordingly, organizational age is also an important boundary condition for organizational ambidexterity. Specifically, younger organizations are generally free from a thick accumulation of organizational routines, whereas older organizations rely on an interrelated web of organizational

routines for their reliable and efficient operation. For example, Sørensen & Stuart (2000) show that older organizations customarily rely on recombining their internal knowledge, rather than exploring external new-to-the-firm knowledge. Consequently, we argue that younger organizations benefit less from being ambidextrous, since they are less constrained by organizational routines when they try to search across broader fields of new knowledge. In contrast, organizational ambidexterity is particularly beneficial for larger organizations, since without organizational ambidexterity, exploratory initiatives are crowded out as familiar knowledge is exploited though enactment of organizational routines (Benner & Tushman, 2002, 2003).

Proposition 6: Organizational ambidexterity is expected to be more beneficial for older organizations.

Finally, in a situation where the degree of institutionalization is relatively limited, organizational ambidexterity is expected to be less useful. This is because an organization is less constrained by stakeholders' (suppliers, customers, or regulators) expectations regarding reliable and accountable business operations under such a business context. Consequently, even barely ambidextrous organizations can pursue exploratory initiatives (and exploitative initiatives) without fear of damaging the relationship with stakeholders. According to DiMaggio & Powell (1983), the degree of institutionalization tends to be higher under some conditions than others. Such conditions include substantial interventions by regulators, high perceived uncertainty regarding appropriate competitive behaviors, and a predominance of highly specialized functional professionals. In other words, in business contexts characterized by limited regulators' interventions, low perceived uncertainty regarding appropriate competitive behaviors, and limited roles for highly specialized functional professionals, it is expected that organizations can exploit and explore even without organizational ambidexterity.

Proposition 7 a: Organizational ambidexterity is expected to be more beneficial for organizations competing under more frequent and substantial regulators' interventions.

Proposition 7 b: Organizational ambidexterity is expected to be more beneficial for organizations characterized by higher perceived uncertainty regarding appropriate competitive behaviors.

Proposition 7 c: Organizational ambidexterity is expected to be more beneficial

for organizations where highly specialized functional professionals play more substantial roles.

V. Discussion

Any managerial approach is dependent on contextual factors for its expected benefits. In other words, no managerial theory is universally valid irrespective of the contexts to which the theory is applied. In this manuscript, we try to uncover boundary conditions of an increasingly popular managerial concept, i.e., organizational ambidexterity. Science develops by first identifying a new concept's benefits, that of seeing the world in a new way; then, by appreciating both the benefits and costs of the new concept (Rerup, 2005). We hope this manuscript contributes toward a more nuanced understanding of organizational ambidexterity.

By synthesizing prior works on organizational ambidexterity, as well as other related disciplines including organizational learning, managerial cognition, risk preference, resource dependence, as well as institutionalization, we derived ten propositions on the boundary conditions of organizational ambidexterity. These propositions suggest that though organizational ambidexterity is likely to be associated with business survival and prosperity in most cases, under certain conditions it may not be critical. An ambidextrous organization requires a substantial commitment of resources and managerial efforts. Organizational ambidexterity is useful only if the benefits it affords exceed the costs of those resources and efforts. Particularly, managers of businesses falling outside of these boundary conditions should pay close attention to a cost-benefit comparison of organizational ambidexterity.

We conclude this manuscript by discussing our findings' implications for future research agendas. First, uncovering the boundary conditions of organizational ambidexterity enables us to better explain why and how organizational ambidexterity is beneficial. Understanding boundary conditions entails understanding what types of obstacles or difficulties are resolved by being ambidextrous. Such understanding allows us to discern a mechanism by which ambidextrous organizations more effectively achieve survival and prosperity than their less ambidextrous competitors.

Our findings also inform continuing research on the antecedents of organizational ambidexterity. A better understanding of the boundary conditions of organizational ambidexterity enables us to uncover how organizations may be managed to be more effectively ambidextrous. For example, smaller organizations are advised to choose contextual ambidexterity when they try to be ambidextrous. On the other hand, larger organizations would benefit more by selecting temporal

ambidexterity.

Future research can build on our work by empirically testing interaction effects between those boundary conditions and organizational ambidexterity. Identifying which boundary conditions are more or less influential than others is another fruitful avenue for a practical inquiry, while uncovering reasons for the differing influences addresses theoretical interests. Some boundary conditions may be complementary to others, whereas others are mutually exclusive.

On a more theoretical front, our work contributes to the continuing efforts to clarify the relationship between organizational ambidexterity and dynamic capabilities. Uncovering the contingent nature of organizational ambidexterity, we contend that organizational ambidexterity supports organizations as dynamic capabilities under some conditions discussed in this manuscript. Gaining new organizational capabilities entails learning to do new tasks (or to execute existing tasks in a new way). Such learning requires recombining both existing and new knowledge. Accordingly, under the conditions uncovered in this manuscript, ambidextrous organizations can "integrate, build, and reconfigure internal and external competences" (Teece, Pisano, & Shuen, 1997, p.2011) by simultaneously exploiting existing knowledge and exploring new knowledge. Consequently, we feel it appropriate to define organizational ambidexterity as one type of manifestation of dynamic capabilities, rather than an antecedent of dynamic capabilities. On the other hand, it seems to be very difficult to specify a causal relationship between organizational ambidexterity and dynamic capabilities, since dynamic capabilities may or may not precede organizational ambidexterity. The consequence of integrating, building, and reconfiguring internal and external competence may be exploratory, exploitative, or both. Another difficulty associated with specifying an antecedent-consequence relationship is discerning a hierarchy of organizational capabilities. Are dynamic capabilities located higher than organizational ambidexterity, or vice versa? It seems plausible to assume the existence of such a hierarchy, but clearly defining it is beyond the scope of our manuscript.

Research on organizational ambidexterity entails a promise to solve one of the central issues of organizational learning proposed by March (1991). Since then, many scholars have tried to explain how some organizations reconcile exploitation and exploration more effectively than others. However, our current understanding of organizational ambidexterity is still limited, confused, and sometimes imprecise. We hope the boundary conditions uncovered by our manuscript contribute to advancing this important discipline to a next developmental stage.

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