

Organizational Ambidexterity in Small Firms: The Role of Top Management Team Behavioral Integration and Entrepreneurial Orientation

Huy Q. Tran

Department of Business, Accounting and Economics
Albright College
1621 N. 13th Street, Reading, PA 19604
USA

Abstract

This study proposes a conceptual model that explains the relationship between top management team (TMT) behavioral integration in the interaction with the entrepreneurial nature of small firms and the two dimensions of organizational ambidexterity (OA). Furthermore, it suggests that each of the two OA dimensions—balance dimension and combined dimension—has a different impact on firm performance. While the combined dimension of OA positively contributes to firm performance, the balance dimension of OA is more likely to have an inverted U-shaped relationship with firm performance. The present research, therefore, sheds more light on the conceptualization of OA as well as the relationship between OA and its managerial antecedents and organizational consequences.

Keywords: exploration, exploitation, organizational ambidexterity, top management team behavioral integration, entrepreneurial orientation.

1. Introduction

Research on exploration, exploitation, and organizational ambidexterity (OA) has burgeoned for the last two decades (Gupta, Smith, & Shalley, 2006; Lavie, Stettner, & Tushman, 2010; Levinthal & March, 1993; Raisch & Birkinshaw, 2008; Simsek, 2009; Simsek, Heavey, Veiga, & Souder, 2009). While companies try to improve their operational efficiency by exploiting and refining their current capabilities and processes, they must also develop new products/services and expand their market scope in order to create and sustain their competitive advantages. Therefore, being ambidextrous—balancing exploration with exploitation—is crucial for a firm's survival and prosperity (March, 1991).

Although the notion of (OA) is very tempting, the extant literature is fragmented and shows limitations which must be addressed if the literature is to move forward. First, the existence of a wide variety of conceptualizations and operationalizations of OA leads to weak and mixed empirical findings on the relationship between OA and its organizational consequences. Second, the extant literature seems to focus too much on what OA looks like (i.e., the modes of OA) rather than what factors facilitating or impeding OA (i.e., antecedents of OA). In other words, more studies on antecedents of OA are expected to come. Third, while a great deal of research investigates OA in a context of large, publicly traded corporations, there have been few studies focusing on the phenomenon in the context of small businesses. Interestingly, researchers argue that small organizations or divisions of a multi business corporation are suitable units for OA research (Gibson & Birkinshaw, 2004). Finally, the extant literature seems to overemphasize the trade-offs rather than the combination or synergy between exploration and exploitation. Researchers have called for the shift from *either/or* to *both/and* perspective (Gibson & Birkinshaw, 2004; Piao, 2010).

The present study proposes that research on OA in small businesses needs to investigate the role of top management team (TMT) in deciding whether or not the firm pursues or avoids OA. Conceptualizing OA as a multidimensional construct, the present paper further proposes that the entrepreneurial nature of the firm plays a significant role in predicting on which OA dimension should be focused.

The current study also examines the effect of OA on firm performance and, thus, sheds more light on the relationship between OA and organizational outcomes.

2. Theory and Propositions

2.1. Research on Exploration and Exploitation

2.1.1. Definitions of Exploration and Exploitation

Benner and Tushman (2003) classify innovations along two dimensions: (1) how radical the innovation is, compared with current technological trajectory; and (2) the newness of customer groups or markets that innovation is designed to serve. They suggest that *exploitation* involves incremental innovations that are close to the current knowledge base of the firm and innovations designed to meet the needs of current customers or markets. *Exploration*, however, refers to radical innovations or innovations aimed to meet the needs of emerging customers or markets. The present study adopts these definitions of exploration and exploitation which are consistent with Levinthal and March's (1993) perspective on organizational learning: exploration is concerned with "the pursuit of new knowledge, of things that might come to be known" and exploitation refers to "the use and development of things already known" (Levinthal & March, 1993, p. 105).

2.1.2. The Relationship between Exploration and Exploitation

March's (1991) framework implies that there are inherent trade-offs between exploration and exploitation due to the fact that they both compete for the organization's scarce resources. Besides competing for resources, each type of the activities requires a distinct organizational design to maintain the consistency among internal operational processes (Ebben & Johnson, 2005). Furthermore, exploration and exploitation tend to engender different organizational outcomes. According to March (1991), the effects of exploration are less certain, more remote in time, and more distant from the locus of action, compared to those of exploitation. March (1991), therefore, posits that although both types of activities are essential for organizational prosperity, organizations have to make choices between the two. In line with this perspective, some studies have found empirical evidence on the negative association between exploration and exploitation (e.g., Lavie, Kang, & Rosenkopf, 2009; Lavie & Rosenkopf, 2006; Lavie, Stettner, & Tushman, 2010; Lin, Yang, & Demirkan, 2007; Uotila, Maula, Keil, & Zahra, 2009). Lavie and his colleagues (2010) specifically posit that the "distinction between exploration and exploitation is often a matter of degree rather than kind. Accordingly, exploration-exploitation should be viewed as a continuum rather than a choice between discrete options" (p. 114).

Other scholars, however, conceptualize exploration and exploitation as two interrelated, but separate, constructs (e.g., He & Wong, 2004; Menguc & Auh, 2008; Schulze, Heinemann, Abedin, 2008). Although these researchers acknowledge the tensions between exploration and exploitation, they contend that an organization can simultaneously achieve both types of activities at high levels. Therefore, those scholars believe that the difference between exploration and exploitation is a matter of kind rather than degree.

Indeed, such a continuity-versus-orthogonality issue is one of the central questions that need to be addressed in order for the exploration-exploitation literature to progress (Gupta, Smith, & Shalley, 2006). This issue becomes an essential base for research on a balance between exploration and exploitation, or organizational ambidexterity. Gupta and his colleagues (2006) contend that the relationship between exploration and exploitation depends largely on whether the two compete for scarce resources and whether they are investigated within a single or across domains. Consequently, they posit that it is important for researchers to justify their decision on the issue of continuity versus orthogonality on a theoretical and logical basis (Gupta et al., 2006).

2.2. What is Organizational Ambidexterity?

Organizational ambidexterity (OA) was originally studied in situations in which a firm maintains dual structures simultaneously: one focuses on initiating and the other on executing innovations (Duncan, 1976). Such a firm is called an ambidextrous organization. Therefore, structural separation has been considered as a traditional means for a firm to achieve OA (Duncan, 1976; Tushman & O'Reilly, 1996). Later, other modes of being ambidextrous, such as contextual ambidexterity (Gibson & Birkinshaw, 2004) and domain separation (Lavie, Kang, & Rosenkopf, 2009), have been investigated. The most salient issue with all of the three approaches is that they focus on a static snapshot of OA, using cross-sectional data. When timing dimension is considered, another form of OA—temporal separation—is introduced.

Drawing on the literature of punctuated equilibrium (Romanelli & Tushman, 1994), temporal separation suggests that in order to avoid the tensions between exploration and exploitation the firm should focus on either of the two at any point in time. Thus, over time the firm can be considered ambidextrous (Lavie et al., 2010).

We, however, need to go further by asking the following questions: what does an exploitation-exploration balance really mean? Does this mean relatively equal amounts of exploitation and exploration in a continuum in which a trade-off between the two occurs (e.g., March, 1991; Lavie et al., 2010)? If this is the case, the balance between exploration and exploitation may locate somewhere in the middle of the continuum. From a different perspective, does the balance mean that the firm can attain high levels of both exploitative and exploratory activities at the same time (e.g., He & Wong, 2004)? Although the organizational learning literature observes both perspectives of the balance between exploitation and exploration, what is missing is how organizations decide which one to pursue in what contingency conditions.

In the extant literature, OA refers to a balance between exploration and exploitation. Exploration and exploitation, in turn, are conceptualized as either two ends of a continuum (Lavie & Rosenkopf, 2006; Lavie et al., 2010; Lin et al., 2007) or two separate, but related, constructs (Menguc & Auh, 2008; Schulze et al., 2008). In accordance with Gupta and his colleagues (2006), the author of the present study believes that one cannot make a universal statement in favor of either continuity or orthogonality associated with exploration and exploitation. In the present research, OA refers to an interaction between exploration and exploitation when the firm pursues both activities simultaneously. This study adopts Cao and his colleagues' (2009) conceptual framework of OA as a meta-construct with two dimensions: *balance dimension* (i.e., exploration and exploitation present direct trade-offs) and *combined dimension* (i.e., exploration and exploitation are orthogonal concepts). In addition, the present research focuses on the co-existence of exploration and exploitation, rather than the transformation between the two over time. It is thought-provoking to see how small businesses—with small sizes and simple organizational structures—pursue exploration and exploitation simultaneously.

2.3. Why Are Small Businesses a Suitable and Interesting Context for OA Research?

Small businesses offer an appropriate and interesting context for organizational ambidexterity research. Researchers argue that small businesses or business-level divisions of a corporation are the suitable level of analysis for OA research (Gibson & Birkinshaw, 2006; O'Reilly & Tushman, 2008). In a large, multi-division company, OA may take the form of structural separation in which each subunit simply focuses on either exploration or exploitation and, thus, at the corporate level the firm achieves ambidexterity because it involves in both exploration and exploitation simultaneously. Consequently, it is possible for large corporations to be ambidextrous just by maintaining structurally independent units, each of which focuses on either exploration or exploitation. Taking dynamic capabilities perspective, O'Reilly and Tushman (2008), however, argue that ambidexterity should not be simply a matter of organizational structure. Furthermore, small businesses typically do not have such a complex organizational structure with multiple divisions to be ambidextrous this way. Small businesses, therefore, offer an intriguing context for organizational ambidexterity research (Lubatkin et al., 2006). Due to lack of resources slack and simple organizational structure, there have been concerns about whether it is possible for small businesses to be ambidextrous and how they attain ambidexterity. The author of the present study argues that a necessary condition for achieving OA in small businesses is that they must have a highly integrated top management team (TMT).

2.4. TMT Behavioral Integration as an Antecedent of Organizational Ambidexterity

Antecedents of OA have been understudied in the extant literature which seems to focus much more on what OA looks like and why it is important rather than where it comes from. Many studies examine the mechanisms of OA such as structural separation (Duncan, 1976; Jansen, Tempelaar, van den Bosch, & Volberda, 2009; Tushman & O'Reilly III, 1996), domain separation (e.g., Lavie & Rosenkopf, 2006), temporal separation (Lavie, Stettner, & Tushman, 2010), and contextual ambidexterity (Gibson & Birkinshaw, 2004; Guttel & Konlechner, 2009). All modes of OA imply a role of the top management in coordinating activities across subsystems (in structural separation and domain separation approaches), over time (in temporal separation), or in a high-performance context (in contextual ambidexterity perspective). Indirectly delineating why top management teams (TMTs) play a critical role in ambidextrous organizations, prior research has provided little insights into what TMTs actually do and how they are doing it to lead their firms toward (or away from) OA.

Only until recently have studies focusing on the direct relationship between TMTs and OA burgeoned (Lubatkin et al., 2006; Nemanich, Keller, & Vera, 2007; Simsek, 2009). Researchers, however, have limited understanding of how TMT processes affect the decision of being organizationally ambidextrous. To address a drawback of prior research that only considers the indirect role of TMT in balancing exploration with exploitation and to focus more on TMT activities and processes rather than on demographic characteristics, the present study examines TMT behavioral integration as a direct antecedent of OA. Behavioral integration is defined as “the degree to which the group engages in mutual and collaborative interaction.” (Hambrick, 1994, p. 188) In the context of TMTs, behavioral integration consists of three elements: (1) the quantity and quality of information exchange among team members, (2) the level of collaborative behavior among team members, and (3) the extent to which team members emphasize joint decision making (Hambrick, 1994; Simsek, Veiga, Lubatkin, & Dino, 2005).

TMT behavioral integration might lead to a balance between exploration and exploitation because through their extensive and intensive interaction, a behaviorally integrated TMT will well recognize the pros and cons of having too much of either exploration or exploitation. They, therefore, will try to avoid being organizationally unbalanced. In addition, being ambidextrous requires the organization to do both kinds of activities simultaneously, and this is a challenging task not only due to the increase in the variation of activities the organization has to carry out at any point in time but also because of the resultant tensions caused by these contradictory activities. Regardless of the mode of ambidexterity a small firm may employ, the organization needs to have a behavioral integrated TMT if it is to achieve OA. Specifically, the TMT needs to share information about various issues such as the goals they are trying to achieve, internal processes and external partnerships that may help them to achieve those goals, and the relationship between their firm’s performance in the short-term and in the long-term. Furthermore, the TMT members must collaborate their behavior effectively and make decisions on both the goals and the overall courses of action the firm will carry out to attain organizational ambidexterity as a mechanism to attain the firm’s goals. The present research proposes a positive association between TMT behavioral integration (Hambrick, 1994; Simsek, Veiga, Lubatkin, & Dino, 2005) and OA. We, therefore, propose that

Proposition 1a. TMT behavioral integration is positively associated with the combined dimension of OA.

Proposition 1b. TMT behavioral integration is positively associated with the balance dimension of OA.

2.5. The Moderating Role of the Firm’s Entrepreneurial Orientation

According to Miller and Friesen (1982), entrepreneurial firms are those which have a natural tendency to innovate. These two authors’ characterization of entrepreneurial firms was based upon notions of prospectors (Miles & Snow, 1978), innovators and entrepreneurs (Miller & Friesen, 1978), and entrepreneurial organizations (Mintzberg, 1973). Highly entrepreneurial firms try to find ways to do both exploration and exploitation simultaneously at high levels while more conservative firms tend to see the relationship between exploration and exploitation as a trade-off. TMT behavioral integration—through exchanging multi-aspect information, considering possible pros and cons, short- versus long-term consequences of alternative options, and acting collaboratively with each other to support their decisions—will facilitate a more balanced view with respect to exploration and exploitation. As entrepreneurial firms are risk taking and proactive in pursuing high-return opportunities (Covin & Slevin, 1991), they tend to work hard to figure out ways to significantly increase exploitation while not compromising too much exploratory activities. We, therefore, propose that

Proposition 2a. The entrepreneurial nature of the firm moderates the relationship between TMT behavioral integration and OA such that highly entrepreneurial firms tend to focus more on the combined dimension than on the balance dimension of OA.

Conservative firms, on the other hand, tend to postpone innovation not only because they are risk averse, but also because their TMT members must be strongly aware of the need for change by effective information processing and decision making processes before any change to be realized. Miller and Friesen’s (1982) notion of conservative firms is in line with that of defenders (Miles & Snow, 1978), stagnating firms (Miller & Friesen, 1978), and adapters (Mintzberg, 1973). Scanning external and internal environmental factors thoroughly, TMT members may recognize that perhaps they currently focus too much on exploitation at the expense of exploration. They, therefore, may decide that the firm needs to involve in more exploratory activities to develop new products or to enter new markets.

In other words, TMT behavioral integration facilitates exploration and helps the firm to attain a more balanced status of exploration-exploitation. However, the conservative nature also acts as a constraint on how the firm balances exploration with exploitation. The TMT does not want to face a risky situation in which the company is stretched too much by both exploration and exploitation. Neither are they likely to think very creatively about possible alternative ways to handle such a high-performance but risky circumstance. Therefore, conservative firms tend to consider exploration and exploitation as trade-offs or, in other words, two ends of a continuum. Drawing on this discussion, we propose that

Proposition 2b. The entrepreneurial nature of the firm moderates the relationship between TMT behavioral integration and OA such that conservative firms tend to focus more on the balance dimension than on the combined dimension of OA.

2.6. The Relationship between Organizational Ambidexterity and Firm Performance

Empirical evidence on the relationship between OA and organizational consequences has been weak and mixed. Some studies find supportive evidence for a positive association between OA and innovation initiatives (O'Reilly & Tushman, 2004), technology commercialization (Ho, Fang, & Lin, 2011), and organizational performance (e.g., He & Wong, 2004; Lubatkin, Simsek, Ling, & Veiga, 2006; Schulze, Heinemann, & Abedin, 2008). Some other studies, however, report a negative relationship between OA and its organizational outcomes (e.g., Ebben & Johnson, 2005; Lin, Yang, & Demirkan, 2007). In addition, some other studies report mixed results on the relationship between ambidexterity and organizational outcomes (e.g., Lavie, Kang, & Rosenkopf, 2009). The author of the present study believes that the relationship between OA and organizational performance is not straightforward due to OA's multidimensional nature. To shed more light into the OA-firm performance relationship debate, the author contends that depending on whether the firm focuses more on either the balance dimension or the combined dimension, OA will have different effects on organizational performance. Gupta and his colleagues (2006) believe that there is no universal argument which can be made in favor of either continuity or orthogonality and that depending on which dimension is emphasized, the test for performance implications of pursuing both exploration and exploitation should be chosen accordingly. Specifically, those researchers suggest that if exploration and exploitation are considered to be orthogonal, then one should test for a positive interaction effect of the two on organizational performance. On the other hand, if exploration and exploitation are deemed to be two ends of a continuum, then "the correct test for the beneficial effects of balance would be to test for an inverted U-shaped relationship between degree of exploration (or exploitation) and organizational performance." (Gupta et al., 2006: 697).

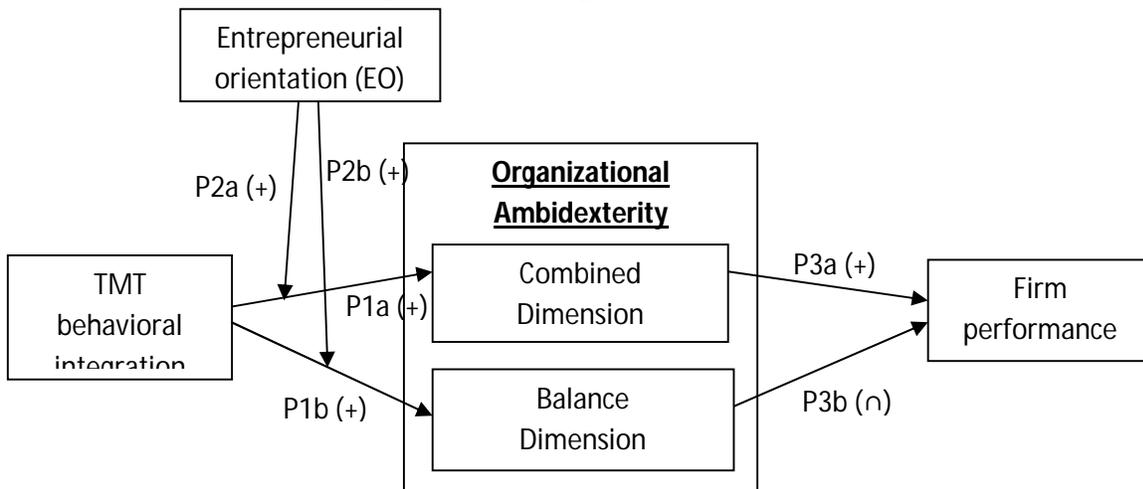
When exploration and exploitation are considered as two separate options, the firm has more flexibility, compared to the situation in which the two are deemed as two ends of a continuum, to pursue the two types of activities. OA may mean that the firm excels in both simultaneously and, thus, pursuing higher levels of both groups of activities is more likely to result in higher organizational performance. Increasingly exploring and exploiting simultaneously may be reflected by the fact that the firm is exploiting current capabilities and actively exploring new ones simultaneously. Another example is that the firm attempts to strengthen competitiveness in its current market segments and, at the same time, aggressively looks for new product-market combinations for further growth opportunities. Therefore, we propose that

Proposition 3a. The combined dimension of OA is positively associated with firm performance.

When exploration and exploitation are considered as trade-offs, the firm has to make a choice between them. That is, in order to increase exploratory activities, the firm must compromise exploitative ones, or vice versa. This may be due to the firm's conservative nature (Miller & Friesen, 1982) or lack of organizational slack (Bourgeois, 1981) so that the firm does not want or is not able to handle both exploration and exploitation at high levels. If the firm is conservative, it focuses more on present procedures, processes, and capabilities and seems to be less creative in finding ways to unlock the tension between exploration and exploitation and, thus, it has to forgo some growth opportunities. This partly explains why Cao and his colleagues (2009) did not find supporting evidence for their hypothesis of a positive (linear) relationship between the balance dimension of ambidexterity and firm performance. We, therefore, propose that

Proposition 3b. The balance dimension of OA has an inverted U-shaped relationship with organizational performance.

Figure 1 below depicts the proposed research model with the above propositions.

Figure 1: The Proposed Research Model

3. Discussion

3.1. Theoretical Contributions

The present research has an important contribution to upper echelons theory. It sheds more light on the relationship between TMT behavior integration and the economic performance of the firm by investigating the mediating effect of OA. In the upper echelons theory, TMT behavioral integration is typically examined as a moderator of the basic upper echelons relationships; that is, TMT characteristics (i.e., personalities, experience, and so forth) predict organizational outcomes only to the extent that TMT behavioral integration exists (Hambrick, 2005). In the present study, however, TMT behavioral integration is investigated as a key antecedent of OA in small business organizations.

The current research examines the moderating effect of the firm's entrepreneurial nature in determining which dimension—balance or combined—of OA should become dominant. The firm's entrepreneurial posture can be reflected using a firm-level entrepreneurial orientation (EO) construct (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Miller, 1983; Zahra, 1993). In this sense, EO plays a role of contextual conditions in which TMT members decide which dimension of OA should be emphasized. Rosenkopf and McGrath (2011) call for more careful consideration of the matching between *mechanisms* (which is TMT behavioral integration in the present research) and *context* (which is the firm's entrepreneurial posture in this study) in examining the novelty of organizational activities. Surprisingly, there has been no research yet on the possible relationship between entrepreneurial orientation (EO) and the firm's propensity toward a balance between exploration and exploitation.

Finally, the present research sheds more light on the controversial relationship between OA and organizational performance. The author believes that such a relationship is not straightforward. The effect of OA on organizational performance is contingent on which dimension of OA is more focused. Depending on the extent to which the firm is entrepreneurial, higher TMT behavioral integration may lead to different manners the firm balances exploration with exploitation. Thus, the entrepreneurial nature of the firm plays an important role in TMT decision making that whether the firm becomes ambidextrous by increasing both exploratory and exploitative types of activities (orthogonality) or by reducing one for the rise of the other (continuity). Future research, therefore, should conceptualize and operationalize OA under the interactive effects of the organization's entrepreneurial characteristics and TMT behavioral integration.

3.2. Practical Implications

The current study has important managerial implications for business practitioners. The most salient message is that the interaction between TMT behavior integration and entrepreneurial nature of the small firm predicts how the firm manages a balance between exploration of new capabilities and/or markets and exploitation of current capabilities and/or markets. Top managers in small businesses need to work as a team in order to achieve and maintain such a balance.

Furthermore, in order to survive and prosper, small firms should bolster their entrepreneurial characteristics so that they are able to pursue high levels of both exploratory and exploitative activities simultaneously.

3.3. Limitations

The present research focuses on the small firm's choice between orthogonality and continuity perspectives of organizational ambidexterity (OA). It emphasizes the interaction between managerial processes (i.e., TMT behavioral integration) and organizational context (i.e., EO) in determining which approach to OA is more likely to be realized. The present study, therefore, does not examine the interaction between the two dimensions of OA and its possible effects on firm performance. Another limitation is the static perspective of OA. The present research does not consider temporal issues of exploration, exploitation, and OA practices over time. Lastly, data are needed to statistically test the suggested propositions.

3.4. Suggestions for Future Research

Future research may investigate the effect of environmental factors such as environmental dynamism and/or munificence on the firm's decision on pursuing OA. In addition, internal resource slack can play some role in deciding how the firm achieves OA. Future research may apply a dynamic capabilities perspective to examine how a firm manages, develops, and reconfigures its resource base in order to create necessary conditions for OA (e.g., O'Reilly & Tushman, 2008).

Future empirical research should use a longitudinal design to better examine the causal relationships among variables in the research model. Furthermore, longitudinal data can also help investigate sequential ambidexterity between exploration and exploitation over time (Piao, 2010; Venkatraman et al., 2007). The extant literature is in need for more longitudinal research on the interaction between exploration and exploitation over time.

References

- Benner, M. J., & Tushman, M. L. 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. *The Academy of Management Review*, 28(2): 238-256.
- Bourgeois, L. J., III. 1981. On the measurement of organizational slack. *The Academy of Management Review*, 6(1): 29-39.
- Cao, Q., Gedajlovic, E., & Zhang, H. 2009. Unpacking organizational ambidexterity: Dimensions, contingencies, and synergistic effects. *Organization Science*, 20(4): 781-796.
- Covin, J. G., & Slevin, D. P. (1989). Strategic Management of Small Firms in Hostile and Benign Environments. *Strategic Management Journal*, 10(1), 75-87.
- Covin, J. G., & Slevin, D. P. 1991. A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship: Theory & Practice*, 16(1): 7-25.
- Duncan, R. B. 1976. The ambidextrous organization: Designing dual structures for innovation. In R. H. Kilmann, L. R. Pondy, & D. Slevin (Eds.), *The management of organization*, Vol. 1: 167-188. New York: North-Holland.
- Ebben, J. J., & Johnson, A. C. 2005. Efficiency, flexibility, or both? Evidence linking strategy to performance in small firms. *Strategic Management Journal*, 26(13): 1249-1259.
- Gibson, C. B., & Birkinshaw, J. 2004. The antecedents, consequences, and mediating role of organizational ambidexterity. *The Academy of Management Journal*, 47(2): 209-226.
- Gupta, A. K., Smith, K. G., & Shalley, C. E. 2006. The interplay between exploration and exploitation. *Academy of Management Journal*, 49(4): 693-706.
- Guttel, W. H., & Konlechner, S. W. 2009. Continuously hanging by a thread: Managing contextually ambidextrous organizations. *Schmalenbach Business Review (SBR)*, 61(2): 150-172.
- Hambrick, D. C. 1994. Top management groups: A conceptual integration and reconsideration of the "team" label. *Research in Organizational Behavior*, 16: 171-213.
- Hambrick, D. C. 1995. Fragmentation and the other problems CEOs have with their top management teams. *California Management Review*, 37(3): 110-127.
- Hambrick, D. C. 2005. Upper echelons theory: Origins, twists and turns, and lessons learned. In K. G. Smith, & M. A. Hitt (Eds.), *Great minds in management: The process of theory development*: 109-127. Oxford, UK: Oxford University Press.

- Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2): 193-206.
- He, Z.-L., & Wong, P.-K. 2004. Exploration vs. exploitation: An empirical test of the ambidexterity hypothesis. *Organization Science*, 15(4): 481-494.
- Ho, Y.-C., Fang, H.-C., & Lin, J.-F. 2011. Technological and design capabilities: is ambidexterity possible? *Management Decision*, 49(2): 208-225.
- Jansen, J. J. P., Tempelaar, M. P., Van den Bosch, F. A. J., & Volberda, H. W. 2009. Structural differentiation and ambidexterity: The mediating role of integration mechanisms. *Organization Science*, 20(4): 797-811.
- Lavie, D., Kang, J., & Rosenkopf, L. 2009. The performance effects of balancing exploration and exploitation within and across alliance domains. *Academy of Management Annual Meeting Proceedings*: 1-6.
- Lavie, D., & Rosenkopf, L. 2006. Balancing exploration and exploitation in alliance formation. *Academy of Management Journal*, 49(4): 797-818.
- Lavie, D., Stettner, U., & Tushman, M. L. 2010. Exploration and exploitation within and across organizations. *Academy of Management Annals*, 4: 109-155.
- Levinthal, D. A., & March, J. G. 1993. The myopia of learning. *Strategic Management Journal*, 14: 95-112.
- Lin, Z., Yang, H., & Demirkan, I. 2007. The Performance Consequences of Ambidexterity in Strategic Alliance Formations: Empirical Investigation and Computational Theorizing. *Management Science*, 53(10): 1645-1658.
- Lubatkin, M. H., Simsek, Z., Ling, Y., & Veiga, J. F. 2006. Ambidexterity and performance in small- to medium-sized firms: The pivotal role of top management team behavioral integration. *Journal of Management*, 32(5): 646-672.
- Lumpkin, G. T., & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1): 135-172.
- March, J. G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2(1): 71-87.
- Menguc, B., & Auh, S. 2008. The asymmetric moderating role of market orientation on the ambidexterity-firm performance relationship for prospectors and defenders. *Industrial Marketing Management*, 37(4): 455-470.
- Miles, R. E., & Snow, C. C. 1978. *Organizational strategy, structure, and process*. New York: McGraw-Hill.
- Miller, D. 1983. The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7): 770-791.
- Miller, D., & Friesen, P. H. 1978. Archetypes of strategy formulation. *Management Science*, 24(9): 921-933.
- Miller, D., & Friesen, P. H. 1982. Innovation in Conservative and Entrepreneurial Firms: Two Models of Strategic Momentum. *Strategic Management Journal*, 3(1): 1-25.
- Mintzberg, H. 1973. Strategy-making in three modes. *California Management Review*, 16(2): 44-53.
- Nemanich, L. A., Keller, R. T., & Vera, D. 2007. Managing the exploration/exploitation paradox in new product development: How top executives define their firm's innovation trajectory. *International Journal of Innovation & Technology Management*, 4(3): 351-374.
- O'Reilly, C. A., & Tushman, M. L. 2004. The ambidextrous organization. *Harvard Business Review*, 82(4): 74-81.
- O'Reilly, C. A., & Tushman, M. L. 2008. Ambidexterity as a dynamic capability: Resolving the innovator's dilemma. *Research in Organizational Behavior*, 28: 185-206.
- Piao, M. 2010. Thriving in the new: Implication of exploration on organizational longevity. *Journal of Management*, 36(6): 1529-1554.
- Raisch, S., & Birkinshaw, J. 2008. Organizational ambidexterity: Antecedents, outcomes, and moderators. *Journal of Management*, 34(3): 375-409.
- Romanelli, E., & Tushman, M. L. 1994. Organizational transformation as punctuated equilibrium: An empirical test. *The Academy of Management Journal*, 37(5): 1141-1166.
- Rosenkopf, L., & McGrath, P. 2011. Advancing the conceptualization and operationalization of novelty in organizational research. *Organization Science*, 22(5): 1297-1311.
- Schulze, P., Heinemann, F., & Abedin, A. 2008. Balancing exploitation and exploration. Paper presented at the Academy of Management Annual Meeting.
- Sidhu, J. S., Commandeur, H. R., & Volberda, H. W. 2007. The multifaceted nature of exploration and exploitation: Value of supply, demand, and spatial search for innovation. *Organization Science*, 18(1): 20-38.

- Simsek, Z. 2009. Organizational ambidexterity: Towards a multilevel understanding. *Journal of Management Studies*, 46(4): 597-624.
- Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. 2009. A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes. *Journal of Management Studies*, 46(5): 864-894.
- Simsek, Z., Veiga, J. F., Lubatkin, M. H., & Dino, R. N. 2005. Modeling the multilevel determinants of top management team behavioral integration. *Academy of Management Journal*, 48(1): 69-84.
- Tushman, M. L., & O'Reilly III, C. A. 1996. Ambidextrous Organizations: Managing evolutionary and revolutionary change. *California Management Review*, 38(4): 8-30.
- Uotila, J., Maula, M., Keil, T., & Zahra, S. A. 2009. Exploration, exploitation, and financial performance: analysis of S&P 500 corporations. *Strategic Management Journal*, 30(2): 221-231.
- Venkatraman, N., Lee, C.-H., & Iyer, B. 2007. Strategic ambidexterity and sales growth: A longitudinal test in the software sector, Unpublished work (an earlier version of this manuscript was presented at the Academy of Management Meetings, 2005).
- Zahra, S. A. 1993. A conceptual model of entrepreneurship as firm behavior: A critique and extension. *Entrepreneurship: Theory & Practice*, 17(4): 5-21.