Journal of Management
Vol. XX No. X, Month XXXX 1–26
DOI: 10.1177/0149206318776775

A Multilevel Integrated Framework of Firm HR Practices, Individual Ambidexterity, and Organizational Ambidexterity

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Research on strategic human resource (HR) management and organizational ambidexterity has assumed that organizational ambidexterity originates from operational managers that pursue both exploratory and exploitative activities. Yet, multilevel insights are absent about how and through which mechanisms HR practices may actually facilitate operational manager ambidexterity and how their ambidexterity may result into organizational ambidexterity. Our multisource and multilevel data from 467 operational managers and 104 senior managers within 52 firms reveals that the top-down effects of ability- and motivation-enhancing HR practices on operational manager ambidexterity are partially mediated by their role breadth self-efficacy and intrinsic motivational orientation. Furthermore, we find that the bottom-up relationship between operational manager and organizational ambidexterity is contingent on firm opportunity-enhancing HR practices. With that, our study provides important new multilevel insights into the effectiveness of strategic HR systems in supporting individual and organizational ambidexterity.

Keywords: *ambidexterity; strategic human resource management; multilevel*

Acknowledgments: We acknowledge the Ministry of Science and Technology of Taiwan for supporting this research (Grant 106-2410-H-011-026-SS2).

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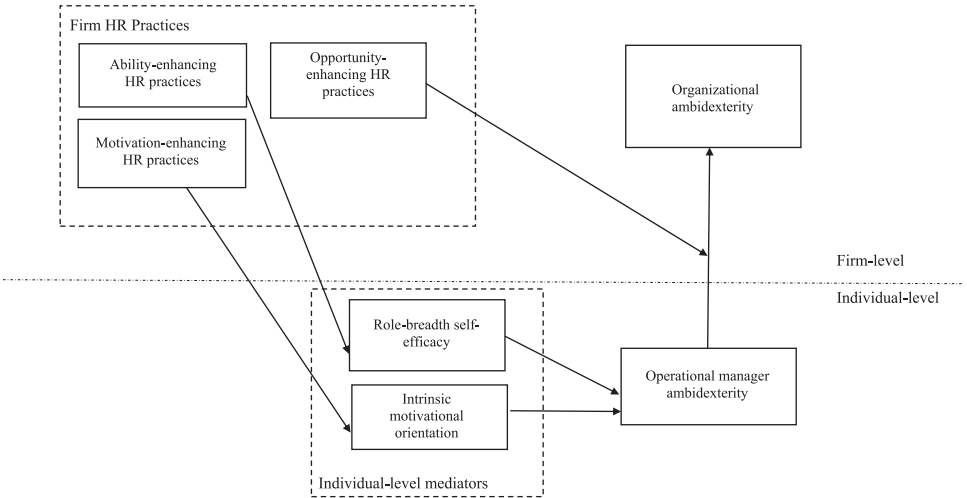
Figure 1
A Multilevel Integrated Framework of Firm Human Resource (HR) Practices, Manager Ambidexterity, and Organizational Ambidexterity



The ability to pursue both exploratory and exploitative innovations (O'Reilly & Tushman, 2004), referred to as *organizational ambidexterity*, has been shown to be important for organizational prosperity and survival (Junni, Sarala, Taras, & Tarba, 2013). Although research has traditionally focused on the role of top management teams, scholars have recently recognized the active role played by operational managers in nurturing organizational ambidexterity (Zimmermann, Raisch, & Cardinal, 2017). Likewise, research on strategic human resource management (SHRM) has recognized employees at the operational level as important sources of competitive advantage and suggested that a system of human resource (HR) practices may enable firms to develop ambidexterity (Patel, Messersmith, & Lepak, 2013; Prieto & Santana, 2012; Swart & Kinnie, 2013). Despite the general assumption that the relationships between HR practices and organizational outcomes such as organizational ambidexterity are fundamentally multilevel in nature (Jiang, Takeuchi, & Lepak, 2013), very few studies have examined them in an integrated framework. To do so, we apply the ability, motivation, and opportunity (AMO) framework (Jiang, Lepak, Hu, & Baer, 2012) to examine top-down effects—how HR practices may drive operational managers' ambidexterity—as well as bottom-up effects—how they may shape the mechanisms through which their behaviors contribute to the emergence of organizational ambidexterity (see Figure 1). As such, we provide the following contributions to earlier research.

First, there is a notable lack of theorizing regarding the distinct effects of HR practices on individual ambidexterity (Birkinshaw & Gupta, 2013; Patel et al., 2013). We build on the AMO framework and draw on self-efficacy theory (Bandura, 1982) to explain how ability-enhancing HR practices affect individual ambidexterity through role breadth self-efficacy (RBSE; Parker, Williams, & Turner, 2006). Similarly, we draw on self-determination theory (Deci & Ryan, 1985) to examine how motivation-enhancing HR practices have an effect on individual ambidexterity through intrinsic motivational orientation (IMO; Tierney, Farmer,

& Graen, 1999). While current research argues for a system in which some HR practices foster exploration and others exploitation, we develop novel insights about operational managers' ability and motivation to engage in both exploration and exploitation and about the unique cross-level mechanisms through which HR practices affect such ambidextrous individual behaviors.

Second, theorizing about how ambidextrous behaviors of operational managers coalesce into the firm-level capacity to pursue exploratory and exploitative innovations simultaneously is very scarce (Ployhart & Moliterno, 2011). Multilevel research suggests that the organizational context may play an important role in shaping the emergence of higher-level phenomena (Kozlowski & Chao, 2012). Given that opportunity-enhancing HR practices may support operational managers' interaction and contribution to achieving organizational outcomes (Jiang, Lepak, Hu, & Baer, 2012), we argue that such practices moderate the bottom-up relationship between operational manager and organizational ambidexterity. Addressing this upward relationship is important because any multilevel theory of SHRM and organizational ambidexterity will be imprecise and incomplete if such relationships remain a black box (Jiang et al., 2013; Wright & Ulrich, 2017).

Overall, our multilevel framework implies that, rather than treating HR practices as a holistic system within ambidextrous organizations (Patel et al., 2013), specific subsets of HR practices need to be identified and examined because they contribute in unique ways to individual and organizational outcomes (Jiang, Lepak, Hu, & Baer, 2012).

Theory and Hypotheses

SHRM and Ambidexterity: A Multilevel Perspective

Scholars have emphasized that organizational ambidexterity is critical for establishing a competitive advantage over time (He & Wong, 2004; O'Reilly & Tushman, 2013). Yet, the coexistence of contradictory behaviors, architectures, and competences creates fundamental challenges and tensions (Jansen, Tempelaar, Van Den Bosch, & Volberda, 2009; Smith & Tushman, 2005). Therefore, firms tend to experience inherent challenges when trying to host portfolios of exploratory and exploitative innovations. Whereas exploration results from experimentation, flexibility, and divergent thinking, exploitation is associated with efficiency, refinement, and focus (March, 1991).

To pursue contradictory demands, scholars have argued that ambidextrous organizations may separate exploratory and exploitative activities into different units (Tushman & O'Reilly, 1996). This approach relies on structural differentiation and senior team integration to buffer the development of new capabilities from ongoing operations (Jansen et al., 2009). Another dominant approach, referred to as *contextual ambidexterity*, suggests that paradoxical demands may be resolved more effectively by providing an organizational context that enables employees to behave ambidextrously (C. Gibson & Birkinshaw, 2004). Contextual ambidexterity may be particularly useful for organizations that lack the size or resources to adopt structural solutions to ambidexterity (Lubatkin, Simsek, Ling, & Veiga, 2006; Zimmermann, Raisch, & Birkinshaw, 2015). Extending this approach, scholars have started to discuss the active role played by operational managers in reconciling tensions between exploration and exploitation among product and market domains (e.g., Birkinshaw & Gupta, 2013; Zimmermann et al., 2017). Rather than having specialized operational managers who

focus on either exploration or exploitation, they suggest that ambidextrous organizations require operational managers who enact emerging opportunities by coordinating and integrating exploration and exploitation activities.

As such, organizational ambidexterity manifests itself as a multilevel phenomenon that results from top-down and bottom-up processes—that is, from an organizational context assisting operational managers in addressing the challenge of conducting both exploration and exploitation and from the sharing and amplification of these behaviors into collective organizational actions for establishing firm-level portfolios of exploratory and exploitative innovations (Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013). Similar to such a multilevel perspective on organizational ambidexterity, multilevel SHRM theory suggests that organizational factors influence firm-level outcomes by affecting the behavior of individuals (Wright & Ulrich, 2017). To better understand how HR practices may do so, recent studies have applied the AMO framework (Jiang et al., 2013). Building on the argument that individual performance is a function of individual ability and motivation (Wright, Kacmar, McMahan, & DeLeeuw, 1995), this stream of research has typically examined ability- and motivation-related paths to explain how specific sets of HR practices affect individual behavior in organizations (Jiang, Lepak, Hu, & Baer, 2012). In addition, scholars have argued for a third component of HR systems—namely, those that provide individuals with the appropriate opportunities to contribute to firm-level outcomes (Lepak, Liao, Chung, & Harden, 2006). Rather than assuming that the components of HR systems have identical impacts on outcomes, scholars have proposed that it might be fruitful to group HR practices according to their main area of influence: ability enhancing, motivation enhancing, and opportunity enhancing (Jiang, Lepak, Hu, & Baer, 2012; Lepak et al., 2006). We draw on these insights to develop multilevel theory about how specific sets of ability- and motivation-enhancing HR practices relate to the ability and motivation of operational managers to behave ambidextrously and, subsequently, how specific opportunity-enhancing HR practices may support ambidextrous operational managers to contribute to achieving organizational ambidexterity.

Top-Down Effects of HR Practices on Operational Manager Ambidexterity

Consistent with earlier research, we conceptualize operational manager ambidexterity as a multidimensional construct that captures the extent to which operational managers engage in both exploitative and exploratory behaviors (Bledow, Frese, Anderson, Erez, & Farr, 2009; Mom, Van Den Bosch, & Volberda, 2009). The former is concerned with achieving higher reliability by refining existing competencies, the latter with increasing variety by searching for and experimenting with new opportunities (March, 1991; Mom et al., 2007). Operational managers may thus conduct both routine and nonroutine activities (Adler, Goldoftas, & Levine, 1999), fulfill administrative and entrepreneurial roles (Probst, Raisch, & Tushman, 2011), and combine short- and long-term views (O'Reilly & Tushman, 2013).

But, importantly, engaging in both exploration and exploitation is inherently challenging for operational managers. Since the returns from exploration and exploitation differ in terms of certainty and proximity in time, they may perceive them to be conflicting alternatives that compete for scarce resources (March, 1991). Also, due to self-reinforcing tendencies, operational managers may focus increasingly on only one of these alternatives (Levinthal & March, 1993). Since exploration often leads to failure that prompts a search for other ideas, it pushes aside attention to reliability and efficiency that is central to exploitation. Similarly,

exploitation often leads to early success, reinforcing exploitation but crowding out the risk-taking and broad search needed for exploration (Gupta, Smith, & Shalley, 2006).

In overcoming these challenges, first, rather than accentuating competition and differences between exploration and exploitation, operational managers have to find solutions that draw on their complementarities and interrelatedness (Martin, 2007). This demands that they show perseverance and creativity and enjoy complex challenges (Bledow et al., 2009; Smith & Tushman, 2005). Second, to not fall into the trap of focusing on only exploration or exploitation, ambidextrous managers adapt to situational demands and shift flexibly between exploratory and exploitative behaviors and roles (Laureiro-Martínez, Brusoni, Canessa, & Zollo, 2014). To do so, they apply their initiative and judgment regarding when to explore or exploit (C. Gibson & Birkinshaw, 2004).

To better understand the top-down effects of HR practices on the behavior of individuals, scholars have suggested studying individuals' psychological characteristics (Jiang et al., 2013; Kehoe & Wright, 2013; Lepak et al., 2006). We draw on self-efficacy (Bandura, 1982) and self-determination theory (Deci & Ryan, 1985) as they may inform us about the ability and motivation of operational managers to show the behavioral complexity, own judgment, perseverance, and creativity to find interrelationships and complementarities between conflicting exploratory and exploitative alternatives and to shift flexibly between them.

According to self-efficacy theory, individuals have a greater tendency to engage in both exploratory and exploitative activities when they perceive themselves as capable of doing so. RBSE may help us to explain why. It refers to the extent to which individuals proactively seek out and engage in a variety of tasks, going beyond core activities, and try to find ways to integrate among them (Parker, 1998). It has been associated with the ability to deal with complex and conflicting situations (Phillips & Gully, 1997) and with the exhibition of a broad repertoire of different behaviors (Parker, 1998).

Drawing on self-determination theory, we investigate how an IMO at work may motivate operational managers to both explore and exploit (Deci, Olafsen, & Ryan, 2017; Deci & Ryan, 1985). IMO refers to individuals' innate propensity to seek out and enjoy complexity and novelty, as well as their desire to seek challenges and opportunities for mastery experience, to extend and exercise their capacities, and to persevere if faced with challenges or negative feedback (Amabile, 1996; Pittman, Emery, & Boggiano, 1982; Ryan & Deci, 2000). Whereas extrinsically motivated individuals prefer activities that are straightforward and easy to complete (Ryan & Deci, 2000), those who are intrinsically motivated may show the excitement, creativity, and perseverance needed to be ambidextrous.

The ability and motivation component of an HR system may consist of several HR practice domains. Depending on the type of behaviors to be stimulated, an organization usually adopts a certain policy for each domain (Jiang, Lepak, Han, et al., 2012). According to self-efficacy theory, self-efficacy develops mostly by enacted mastery, defined as repeated performance accomplishments, and by vicarious experience—that is, modeling the observed behavior of others (Bandura, 1982). Among the ability-enhancing HR practice domains, training and aspects of job design may facilitate mastery and modeling (S. K. Gibson, 2004). We argue that a policy of "comprehensive training" and a policy of "job enlargement" may facilitate the broadness and variety in mastering and modeling needed to develop RBSE. *Comprehensive training* refers to frequent and extended training periods and structured programs to ensure the acquisition and transfer of a variety of skills (Snell & Dean, 1992). *Job*

enlargement refers to broadening the scope of jobs to provide individuals with the possibility to try out and experience a range of roles and tasks (Axtell & Parker, 2003).

According to self-determination theory, factors that enhance feelings of autonomy increase intrinsic motivation because the origin of the motivation is perceived to be internal. Yet, factors which foster feelings of being controlled undermine it. A policy of job enrichment—the expansion of jobs "vertically" to increase decision-making responsibility—increases feelings of autonomy (Hackman & Oldham, 1976). Regarding the other motivation influencing HR practice domains, it seems useful to distinguish between results- and behavior-oriented appraisals (Delery & Doty, 1996) and between control and commitment types of rewards and compensation (Arthur, 1994). Focusing on behavior and commitment, rather than on results and control, may foster IMO because it tends to reduce feelings of being controlled and increase feelings of autonomy by supporting a sense of own choice, personal effectiveness, and relatedness (Deci, Koestner, & Ryan, 1999). Therefore, behavioral appraisals and commitment-oriented rewards and compensation may foster a person's work-related IMO. Behavioral appraisals are oriented toward personal development and progress at work and toward achieving high-quality outcomes (Delery & Doty, 1996). Commitment-oriented rewards and compensation focus on long-term relationships, quality outcomes, and collective achievements (Delery & Doty, 1996).

Firm Ability-Enhancing HR Practices and Operational Manager Ambidexterity

We have argued that the ability-enhancing HR practices of comprehensive training and job enlargement affect operational manager RBSE. First, comprehensive training helps to develop RBSE by allowing managers to experience and accomplish a larger variety of tasks beyond their core job, helping them to develop mastery of a broader range of roles and activities (Bandura, 1982). This type of training complements job-related training by developing interpersonal abilities and skills (Evans & Davis, 2015; Mossholder, Richardson, & Settoon, 2011). This makes it more likely that operational managers will feel more capable of carrying out a range of interpersonal and integrative tasks and going beyond prescribed core tasks (Axtell & Parker, 2003). Second, by enlarging jobs, organizations may broaden operational managers' experience of mastery and provide possibilities for them to experiment with multiple roles and tasks (Bandura, 1997). Job enlargement also offers changes to observe others carrying out different roles and accomplishing a variety of tasks (Humphrey, Nahrgang, & Morgeson, 2007). This will encourage operational managers to develop RBSE because they see others effectively performing a more varied range of tasks and roles (Bandura, 1997).

Hypothesis 1a: There is a positive relationship between firm ability-enhancing HR practices (i.e., comprehensive training and job enlargement) and operational manager RBSE.

Feeling capable of carrying out a broad set of roles and going beyond the formal job description triggers operational managers to explore new roles and tasks (Parker et al., 2006). At the same time, the more confident they are to carry out roles in various areas, the more readily they would see occasions to use their existing insights from one area to refine, improve, and strengthen their competencies in another (Axtell & Parker, 2003), thus enhancing their capacity to integrate exploratory and exploitative efforts across domains. Furthermore, because of their self-efficacy to conduct very different tasks and interact with others performing

diverse tasks, managers with high levels of RBSE may create a deeper understanding about the contradictions and distinctions between explorative and exploitative tasks and roles, as well as how they may fit with more overarching organizational goals (Smith, 2014). Yet, due to their confidence to carry out integrative tasks across very different domains (Parker, 1998) and embrace conflicting perspectives (Batt, 2002), managers with high levels of RBSE are more likely to not treat exploration and exploitation as conflicting but, instead, to identify new linkages between them and come up with integrative solutions that highlight complementarities and interrelationships between exploratory and exploitative domains, which helps them to effectively engage in both (Smith, 2014).

Operational managers with high levels of RBSE are also more confident and proactive about seeking and alternating among opposing tasks, goals, and mind-sets (Phillips & Gully, 1997), which helps them to shift flexibly and quickly between exploration and exploitation activities (Laureiro-Martínez et al., 2014). Due to their familiarity with a broader range of different perspectives, operational managers with heightened RBSE are more confident about, and have greater oversight and awareness of the types of, behaviors that may be best suited to address different situational demands (Bledow et al., 2009). Such a comprehensive understanding as well as a heightened ability to switch and apply their own judgement helps them to avoid the trap of privileging only exploration or exploitation. Instead, as C. Gibson and Birkinshaw (2004) have argued, it helps them to engage in both types of activities as the situation demands, such as delivering value to existing customers and, at the same time, being on the lookout for changes in the task environment. On this basis, we suggest,

Hypothesis 1b: There is a positive relationship between individual RBSE and operational manager ambidexterity.

Firm Motivation-Enhancing Practices and Operational Manager Ambidexterity

We have suggested that job enrichment, behavioral appraisals, and commitment-oriented rewards and compensation affect operational managers' IMO. First, job enrichment empowers operational managers by giving them freedom to decide which goals to pursue and how they may be accomplished. In this way, it nurtures the need for autonomy and contributes to their IMO (Deci et al., 1999). By enriching the jobs of operational managers, senior managers may also send a signal that those involved can be trusted with a more encompassing role (Wood & Wall, 2007). This makes operational managers more appreciative of senior management and strengthens their IMO at work by nurturing their need for relatedness (Deci & Ryan, 2000). Yet, when jobs are controlled more tightly, IMO may be undermined because the perceived locus of control changes from internal to external (Deci et al., 1999).

Second, through the use of behavioral appraisals and feedback systems, organizations provide developmental feedback and acknowledge the skills that individuals have developed. In this way, they may foster IMO by fulfilling the need of operational managers to be perceived as competent (Deci et al., 1999). Moreover, if organizations focus on qualitative rather than quantitative outcomes, they reduce the sense among operational managers that they are being controlled, which helps to increase their intrinsic motivation (Cerasoli, Nicklin, & Ford, 2014).

Third, reward and compensation practices, which focus on developing a long-term relationship (e.g., offering higher-than-average wages or providing job security) signal to operational managers that the organization is both interested in and ready to invest in their career development and personal growth (Walton, 1985). This contributes to their IMO at work because it nurtures a sense of belonging and competence among them (Deci et al., 1999). Egalitarian pay structures that emphasize collective achievements, such as group-based rewards, compressed pay structures, and profit sharing, help to develop IMO among operational managers because they create a mutual and trusted relationship between them and the organization (Gagné & Deci, 2005).

Hypothesis 2a: There is a positive relationship between firm motivation-enhancing HR practices (i.e., job enrichment, behavioral appraisal, and commitment-oriented rewards and compensation) and operational manager IMO.

The curiosity and preference for novelty that characterize intrinsically motivated operational managers energize them to seek out and experiment with new opportunities and to enter new territories when engaging with organizational tasks (Amabile, 1996). At the same time, they have a greater desire to experience mastery of their existing knowledge and skills, as well as to perform better in their current tasks—that is, to increase their exploitative efforts (Pittman et al., 1982). Furthermore, the higher the level of IMO, the higher the preference to engage in complex and challenging organizational issues rather than simple ones that can be completed easily (Pittman et al., 1982). Therefore, we expect operational managers with a high level of IMO to be more eager to seek out and engage with work activities that require exploration and exploitation, rather than to concentrate on either one exclusively (Bledow et al., 2009). Higher levels of IMO have also been associated with individuals being more creative (Tierney et al., 1999) and showing more perseverance (Deci & Ryan, 2000) when solving difficult problems. They are therefore more likely to approach opposing issues at work as an interesting challenge and thus persist in trying to identify ways to resolve it by creatively drawing on insights from both, despite the perceived initial incompatibility. Rather than stressing pertinent differences and competition between exploration and exploitation tasks, we argue that intrinsically motivated managers are more likely to show the creativity and perseverance needed to conduct them both and to experience excitement and enjoyment from searching for nonobvious solutions that reconcile contradictions between them (Martin, 2007).

Managers with higher levels of IMO also have a stronger sense of self-control and are more willing to change or adapt their behaviors in the organization and to do so in a self-starting way (Parker et al., 2006). Therefore, they are likely to have a heightened readiness to switch between exploratory and exploitative behaviors in a flexible way (C. Gibson & Birkinshaw, 2004). Moreover, due to their greater sense of accountability and control, managers with higher levels of IMO tend to feel more responsible for the performance of their tasks and decisions (Deci et al., 1999). This is likely to increase their willingness to understand and work out ways of meeting a larger diversity of organizational and market related needs and opportunities (Mom, Fourné, & Jansen, 2015) and to adapt accordingly in their day-to-day decision making (Bledow et al., 2009). Therefore, we expect that they would be less captive to focus either on exploration or exploitation and be more adaptive to switch between the two in a flexible way.

Hypothesis 2b: There is a positive relationship between individual IMO and operational manager ambidexterity.

Mediation Effects of RBSE and IMO

Organizational psychology and work behavior scholars such as Humphreys and Revelle (1984) and Kanfer (1992) theorized that work environment variables have an effect on behavior via their effect on individual-level characteristics, such as their cognitive-motivational states. Building on this theorizing and by applying the AMO framework, multilevel SHRM studies have argued that HR practices indirectly influence behavior through their impact on individuals' ability and motivation (Jiang et al., 2013; Liao, Toya, Lepak, & Hong, 2009). Extending these arguments, scholars such as Jiang, Lepak, Han, et al. (2012) and Lepak et al. (2006) explained how, by selecting specific policies for HR practices, an organization may stimulate particular behaviors via enhancing specific types of individual-level ability and motivation-related characteristics. Building on this, we argue that the ability-enhancing HR practices in our study influence operational managers' confidence to carry out both exploratory and exploitative activities via fostering RBSE. Similarly, the motivation-enhancing practices increase their intrinsic motivation at work, which in turn fosters their willingness to act ambidextrously.

Hypothesis 3a: RBSE mediates the relationship between firm ability-enhancing practices (i.e., comprehensive training and job enlargement) and operational manager ambidexterity.

Hypothesis 3b: IMO mediates the relationship between firm motivation-enhancing practices (i.e., job enrichment, behavioral appraisal, and commitment-oriented rewards and compensation) and operational manager ambidexterity.

Operational Manager Ambidexterity and the Emergence of Organizational Ambidexterity

Our multilevel framework suggests that individual ambidexterity is the building block for the emergence of organizational ambidexterity (Raisch, Birkinshaw, Probst, & Tushman, 2009). Multilevel theory suggests that the emergence of higher-level collective phenomena is a result of bottom-up processes that explain how and why lower-level behaviors, such as operational manager ambidexterity, coalesce to create a higher-level phenomenon (Kozlowski & Klein, 2000). We follow recent theorizing about the role of operational managers in ambidextrous organizations (Zimmerman et al., 2017) and argue that organizational ambidexterity is created by bringing together different but complementary ways and approaches by which operational managers embed their exploratory and exploitative behaviors in organization-wide innovation streams and decision-making processes. Moreover, the interactions between operational managers and normative influence from senior executives allow perceptions and behaviors to become similar to one another (Fulmer & Ostroff, 2015) so that they become more homogeneous in how they combine exploration and exploitation. We therefore argue that the emergence of organizational ambidexterity is both compilational and compositional in nature (Kozlowski & Klein, 2000; Ployhart & Moliterno, 2011) and suggest that it is shaped by the opportunities given to ambidextrous operational managers to interact with senior executives, to incorporate their exploratory and exploitative behaviors into collective

systems and processes, and to integrate them flexibly across product and market areas within the organization.

Applying a contingency approach, we argue that the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity is contingent on the existence of opportunity-enhancing HR practices. Recent multilevel SHRM models that apply the AMO framework suggest that HR systems not only affect the ability and motivation of individuals to behave in specific ways but also provide ample opportunities to contribute to organizational outcomes (Jiang et al., 2013; Lepak et al., 2006). These practices, such as participation in decision making, information sharing, and providing support for ideas, affect patterns of interaction and provide opportunities for individuals to work toward achieving organizational outcomes (Jiang, Lepak, Hu, & Baer, 2012). We therefore examine how opportunity-enhancing HR practices moderate the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity.

Opportunity-Enhancing Practices, Operational Manager Ambidexterity, and the Emergence of Organizational Ambidexterity

First, *participation in decision making* refers to the extent to which subordinates take part in higher-level decision-making processes (Hage & Aiken, 1967). By taking part in decision-making processes, ambidextrous operational managers may articulate a compelling argument for building a balanced portfolio of exploratory and exploitative innovations. In this sense, they may persuade senior executives to allocate sufficient resources for the implementation of their initiatives to introduce new products and services as well as improve existing ones (Perry-Smith & Mannucci, 2017). In addition, participation in decision making may support ambidextrous operational managers to voice their ideas and establish a shared understanding among senior executives about the potential value of combining exploratory and exploitative efforts. It generates a greater consensus about the importance of combining exploration and exploitation to fulfill organizational goals and results into an enhanced motivation to overcome potential resistance during the implementation process (Ployhart & Moliterno, 2011). Through their interaction within decision-making processes, not only other operational managers but also senior executives become more inclined to engage in exploratory and exploitative behaviors and, as such, are triggered to allocate resources to implementing balanced portfolios of innovation (Roberson & Williamson, 2012). Accordingly, participation in decision making contributes to the emergent process of organizational ambidexterity and strengthens the upward relationship between operational manager ambidexterity and organizational ambidexterity.

Second, *information sharing* refers to the extent to which information is widely shared among vertical and horizontal boundaries within firms (Zacharatos, Barling, & Iverson, 2005). It provides opportunities for learning complex behaviors within organizations and represents an important source for the emergence of higher-level phenomena (Ployhart & Moliterno, 2011). In this sense, others may learn from ambidextrous operational managers about how to deal more effectively with tensions associated with combining exploration and exploitation such that the firm develops the collective behavioral capacity to simultaneously demonstrate exploration and exploitation across the entire organization (C. Gibson & Birkinshaw, 2004). Moreover, through sharing information, ambidextrous operational managers are better able to act as brokers and build internal linkages to access complementary

assets associated with specific organizational areas, such as manufacturing, marketing, and service (Birkinshaw & Gibson, 2004). This enables them to coordinate and align their exploratory and exploitative activities with operational managers from different units and collectively create new opportunities to enrich and expand the exploratory and exploitative efforts within the innovation processes of the organization (Taylor & Helfat, 2009). Hence, knowledge sharing further supports ambidextrous operational managers to realize untapped synergies across functional areas and generate portfolios of exploratory and exploitative innovations.

Third, *support for ideas* refers to the extent to which an organization is receptive to ideas from its operational managers and the extent to which they may share in any subsequent benefits that accrue (Clegg, Unsworth, Epitropaki, & Parker, 2002). It reinforces the recognition of individual efforts in exploiting existing competences while exploring new areas (Rhoades & Eisenberger, 2002). By supporting ideas from ambidextrous operational managers, senior executives may increase the perception among them that they will succeed in converting their efforts into tangible innovative output that can subsequently be diffused and adopted by others within the organization (Perry-Smith & Mannucci, 2017). By supporting ideas, senior executives may act as organizational agents and convey a signal to other operational members that the simultaneous pursuit of exploration and exploitation is important for achieving organizational ambidexterity (O'Reilly & Caldwell, 1985). Supporting ideas from ambidextrous operational managers may thus help senior leaders to synchronize the efforts of individuals to pursue exploration and exploitation and to strengthen the upward relationship between manager ambidexterity and organizational ambidexterity. Overall, we therefore suggest,

Hypothesis 4: Organizational ambidexterity is an interactive function of operational manager ambidexterity and firm opportunity-enhancing HR practices (i.e., participation in decision making, information sharing, and support for ideas) in such a way that the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity is stronger when firm opportunity-enhancing HR practices are higher.

Methods

Sample and Procedure

We collected data from a sample of financial services firms in Taiwan to test our multilevel model. We drew up a list of the 60 largest financial service firms from the Taiwan government's official list of financial service providers and approached top management teams to arrange a meeting with the CEO to explain the purpose of this study and gain the CEO's permission. In total, 55 financial services firms agreed to participate. HR officers at each firm assisted us by randomly assigning questionnaires to 10 operational managers and two senior managers. Operational managers were typically responsible for a team or unit targeted at a specific product or product group, market, or internal process. We considered operational managers in financial services firms to be suitable for our research because they face pressures to explore due to changes in technologies, customer demands, and regulation and pressures to exploit because of short-term competitive pressures and an increased focus on efficiency and cost cutting (Jansen, Simsek, & Cao, 2012). Senior managers were typically responsible for designing and implementing HR systems.

We collected data on the study variables from different respondents at two time points. During Phase 1, we collected responses from two senior managers to measure the sets of HR practices for each firm. We also collected responses from operational managers to assess their RBSE and IMO. The questionnaires were developed in English, then translated into Chinese with the back-translation method (Brislin, 1980). After 4 weeks and three rounds of reminders, we received responses from all the senior and operational managers who had been invited to fill out the questionnaire. One year later, during Phase 2, we approached participating firms again to survey the same senior and operational managers who had responded during the first phase. We used responses from the senior managers to measure organizational ambidexterity. The responses from operational managers were used to assess their ambidextrous behavior during the preceding year—that is, the year between the two data collection points. We chose a period of 1 year because scholars have suggested that HR practices have proximate as well as distal effects on behavior in organizations (Liao et al., 2009). For instance, Frayne and Geringer (2000) found that the effects of HR practices tend to increase over a 12-month period, after which they stabilize. Furthermore, it may be possible that operational managers alternate between the two behaviors over time to engage in both behaviors, and this would become visible—as would its effects on organizational ambidexterity—only when the person's behavior was assessed over a longer period (Mom et al., 2009).

From the original 55 firms that participated in the first phase of data collection, we received complete sets of questionnaires during the second phase from two senior managers from 52 firms. From these firms, 467 operational managers returned their responses. The average age of the operational managers was 37.7 years (SD = 9.3); they had been working for their firm for 4.8 years (SD = 1.5) and had been in their current job for about 4.6 years (SD = 1.3). The average number of their subordinates was 8.5 (SD = 18.3). The average age of the senior managers was 46.1 years (SD = 1.3), and they had an average organizational tenure of 15.7 years (SD = 1.3).

Measurement and Validation of Constructs

We used existing scales ranging from 1 (*to a very small extent*) to 7 (*to a very large extent*).

Operational manager ambidexterity. Following earlier studies (Mom et al., 2009; Wang & Rafiq, 2014), we used a two-step approach to calculate operational manager ambidexterity. First, we assessed the extent to which operational managers had engaged in exploration (α = .87) and exploitation (α = .85) activities during the preceding year. We used two seven-item scales from Mom et al. (2009), who had validated these scales in the financial services industry before. We assessed the construct validity of our scales by comparing their scores with a four-item scale (α = .76) for individual risk propensity (Gomez-Mejia & Balkin, 1989) and an eight-item scale (α = .79) for individual productivity (Flynn, 2003) that were rated by operational managers in the second phase of the data collection approach. As expected, an operational manager's exploratory behavior correlates significantly with risk propensity (r = .44, p = .000) but not with productivity (r = −.02, p = .666). The exploitative behavior of operational managers correlates significantly with productivity (r = .40, p = .000) but not

with risk propensity ($r = .04$, $p = .388$). Overall, these results provide evidence of convergence and discriminant validity of our measurements. Second, in line with our conceptualization of operational manager ambidexterity as a multidimensional construct consisting of both exploratory and exploitative behaviors, we operationalized operational manager ambidexterity as a second-order formative latent variable, with exploratory and exploitative behavior as its two indicators (see also Wang & Rafiq, 2014). Confirmatory factor analysis indicates that a second-order model fits the data well ($\chi^2/df = 1.88$, comparative fit index [CFI] = .99, goodness of fit [GFI] = .99, Tucker-Lewis Index [TLI] = .90, root mean square error of approximation [RMSEA] = .04) and shows a significantly better fit than the alternative one-factor model ($\Delta\chi^2_{(1)} = 20.32$, $p = .000$).

Individual RBSE and IMO. Each operational manager rated the seven-item individual RBSE scale ($\alpha = .87$) from Parker and colleagues (2006), which captures the extent to which respondents feel confident about carrying out a range of interpersonal and integrative activities that extend beyond their prescribed core tasks. We adopted the five-item individual IMO scale ($\alpha = .90$) from Tierney and colleagues (1999), which reflects the extent to which operational managers seek complexity, novelty, and challenge in organizational tasks, as well as whether they enjoy finding solutions to complex problems at work. Respondents were instructed to refer to their personal situation at work when answering the survey questions. This is aligned with Shin and Zhou's (2003) application of the scale, which intends to tap specifically into IMO at work rather than IMO in general. Our two-factor model for individual RBSE and IMO fits the data adequately ($\chi^2/df = 4.05$, CFI = .97, GFI = .96, TLI = .96, RMSEA = .08) and significantly better than the alternative one-factor model ($\Delta\chi^2_{(1)} = 49.68$, $p = .000$). Operational managers were instructed to consider their work context when answering the RBSE and IMO survey questions.

Firm HR practices. For each firm, two senior managers rated items on firm-level HR practices. The ability-enhancing HR practices consisted of comprehensive training and job enlargement. Corresponding to our theorizing, we supplemented Delery and Doty's extensive training scale with items relating to a broader range of competences, such as problem-solving and interpersonal skills and the ability to handle current and future work demands (Evans & Davis, 2015; Mossholder et al., 2011). The final scale contained seven items ($\alpha = .86$). Job enlargement ($\alpha = .70$) was measured with a two-item scale from Parker (1998) that captures the extent to which managers' jobs are broad and require a variety of skills.

We included three firm motivation-enhancing HR practices: job enrichment, behavioral-oriented appraisals, and commitment-oriented rewards and compensation. We used a six-item scale for job enrichment ($\alpha = .72$) that captured the extent to which operational managers have the authority to resolve customer complaints, customize service offerings, and decide how to carry out their job (Liao et al., 2009). Behaviorally oriented appraisals ($\alpha = .78$) were measured with a four-item scale from Liao and colleagues (2009), which assessed the extent to which appraisals are developmental in focus and acknowledge the behaviors, competencies, and quality achieved by operational managers. Following our conceptualization, we measured commitment-oriented rewards and compensation ($\alpha = .70$) using the three-item compensation scale from Liao et al. (2009), supplemented by three items based on Walton (1985). The resulting six-item scale captured the extent to which firms reward and

compensate the collective and long-term achievements, the competencies and high-quality outcomes of operational managers, as well as the extent to which they provide job security and pay above-standard wages.

The three firm opportunity-enhancing HR practices that we looked at were participation in decision making, information sharing, and support for ideas. We adopted three items from Liao et al. (2009) to measure participation in decision making ($\alpha = .84$). The nine-item information-sharing ($\alpha = .88$) scale is based on Liao et al. and Zacharatos et al. (2005) and assessed the extent to which information is widely shared across horizontal and vertical levels within the organization. Support for ideas was measured with a five-item scale ($\alpha = .76$) from Clegg et al. (2002), which assessed the extent to which firms provide support for ideas of managers to introduce new as well as improved ways of doing things in the work environment (West, 1990).

Confirmatory factor analysis indicated that our theorized second-order factor model, consisting of the three sets of HR practices with eight first-order factors, fits the data well ($\chi^2/df = 4.11$, CFI = .97, GFI = .91, TLI = .94, RMSEA = .08). A comparison of a one-factor model with a two-factor model for every pair of first-order factors showed a significant improvement in fit for each possible pair ($\Delta\chi^2_{(1)}$ between 12.4 and 360.2, all significant at $p = .000$), providing evidence of the convergence and discriminant validity of our measurement scales.

Interrater agreement scores showed a high level of agreement among the senior managers in each firm in terms of their assessment of ability-enhancing HR practices (mean $r_{wg(j)} = .88$; intraclass correlation coefficients: $ICC_1 = .23$, $ICC_2 = .37$), motivation-enhancing HR practices (mean $r_{wg(j)} = .93$, $ICC_1 = .18$, $ICC_2 = .31$), and opportunity-enhancing HR practices (mean $r_{wg(j)} = .94$, $ICC_1 = .25$, $ICC_2 = .40$).

Organizational ambidexterity. To calculate organizational ambidexterity, first, senior managers rated their organization's exploratory and exploitative innovations during the second phase of data collection. We adopted two seven-item scales developed by Jansen, Van Den Bosch, and Volberda (2006). Exploratory innovation captured the extent to which a firm departs from existing knowledge and pursues radical innovations to serve emerging customers or markets ($\alpha = .80$). Exploitative innovation captured the extent to which a firm builds on existing knowledge and pursues incremental improvements to meet the needs of existing customers ($\alpha = .87$). Second, given our conceptualization of organizational ambidexterity as a multidimensional construct consisting of both exploration and exploitation, we operationalize organizational ambidexterity as second-order formative latent variable with exploratory and exploitative innovation as its two indicators (Wang & Rafiq, 2014). Confirmatory factor analysis indicates that our second-order model fits the data adequately ($\chi^2/df = 4.55$, CFI = .99, GFI = .99, TLI = .96, RMSEA = .08) and significantly better than the alternative one-factor model ($\Delta\chi^2_{(1)} = 15.06$, $p = .000$). Interrater agreement scores indicated that senior managers had an acceptable agreement about organizational ambidexterity (mean $r_{wg(j)} = .92$, $ICC_1 = .12$, $ICC_2 = .21$).

Control variables. We controlled for confounding variables at both levels in our models. First, we controlled for experience-related factors, including an individual's age, firm tenure, and job tenure, because these may shape the skills and competencies of individuals and, hence, their ability to act ambidextrously (Mom et al., 2015). Second, we controlled for the level of education because it may contribute to more advanced cognitive abilities

and the ability to engage in substantially different activities (Papadakis, Lioukas, & Chambers, 1998). We therefore included a dummy variable for individuals with a master's degree or higher. Third, the task environment may affect managers' level of ambidexterity (Probst et al., 2011), so we controlled for the respondent's number of subordinates and type of function: front office or back office. Fourth, we controlled for firm size and firm age since scholars have argued that larger and longer-established organizations may have more resources available but may lack the flexibility to achieve organizational ambidexterity (Jansen et al., 2012). Finally, when testing our hypotheses, we included the three sets of HR practices in all models.

Results

Table 1 presents means, standard deviations, and correlations. Given the multilevel nature of our data and the inclusion of both top-down and bottom-up relationships in our multilevel model, we tested our hypotheses using Mplus (version 6.0; Muthén & Muthén, 2010) in two separate specifications. First, to examine our top-down mediation model, we followed the one-stage procedure (Croon & van Veldhoven, 2007), which simultaneously estimates the unique contributions of direct and indirect paths. Specifically, firm ability- and motivation-enhancing HR practices were included as independent variables, with individual RBSE and IMO as mediators, and operational manager ambidexterity was considered the dependent variable. We assessed the significance of the mediation hypotheses by testing the statistical significance of indirect effects in our path analysis and their associated confidence intervals (Preacher, Zhang, & Zyphur, 2011). Second, to examine the moderating role of firm opportunity-enhancing HR practices, we tested the significance of their moderating effect on the bottom-up path from operational manager ambidexterity to organizational ambidexterity in a second specification.

As a preliminary step in our multilevel analyses, we assessed the proportion of variance in mediator and outcome variables that resided among individuals: 20% of the variance in individual RBSE, 12% of the variance in individual IMO, and 15% of the variance in operational manager ambidexterity resided among individuals. These scores are within the range typically found in multilevel research (Bliese, 2000). Table 2 presents the main results of our multilevel analyses. Part A pertains to the first model specification ($\chi^2/df = 4.50$, CFI = .90, TLI = .90, RMSEA = .08) and shows the top-down direct and indirect effects among firm HR practices, individual mediators, and operational manager ambidexterity. Part B pertains to the second model specification ($\chi^2/df = 3.75$, CFI = .90, TLI = .90, RMSEA = .07) and shows the estimates regarding the moderating effect of firm opportunity-enhancing HR practices on the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity. In our analyses, we included all control variables and all HR practices. The pattern of results remained similar when these variables were included or excluded.

Hypothesis 1a proposed that ability-enhancing HR practices are positively related to individual RBSE. Findings in Part A of Table 2 support Hypothesis 1a and show that firm ability-enhancing HR practices were significantly related to individual RBSE ($\gamma = 0.87$, $p = .000$). Hypothesis 1b proposed a positive relationship between individual RBSE and operational manager ambidexterity. Findings presented in Part A reveal that individual RBSE was indeed significantly related to operational manager ambidexterity ($\gamma = 0.17$, $p = .000$); Hypothesis 1b is supported. Hypothesis 2a proposes that motivation-enhancing HR practices are positively

Table 1
Means, Standard Deviations, and Correlations

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Operational manager ambidexterity	5.20	0.62														
2. Individual RBSE	5.07	0.98	.34**													
3. Individual IMO	5.01	1.06	.28**	.05												
4. Organizational ambidexterity	5.17	0.29	.31**	.26**	.19**											
5. Firm ability-enhancing HR practices	5.06	0.46	.23**	.22**	.22**	.57**										
6. Firm motivation-enhancing HR practices	5.24	0.37	.25**	.29**	.29**	.62**	.47**									
7. Firm opportunity-enhancing HR practices	5.43	0.31	.24**	.21**	.21**	.59**	.50**	.62**								
8. Firm age	8.92	3.37	.02	.02	.03	−.01	−.00	−.03	−.04							
9. Firm size	10,926	16,065	.03	.04	.05	.13**	.10**	.11**	.04	−.03						
10. Individual age	37.70	9.30	−.05	−.03	−.12**	.01	.06	.03	.07*	−.03	−.03					
11. Individual tenure in the firm	4.83	1.49	−.11**	−.04	−.04	−.05	−.12**	−.05	−.03	.18**	.28**	.18**				
12. Individual tenure in the current job	4.58	1.34	−.03	−.01	.03	.14**	−.06	.18**	.18**	.19**	.01	.20**	.36**			
13. Individual number of subordinates	8.50	18.30	−.05	−.07*	−.03	−.10**	−.13**	−.09*	−.11**	−.01	−.01	−.03	.29**	.05		
14. Education: Master's degree and above	0.70	0.45	.06	.15**	.06	.04	.10**	.15**	.06	.03	−.03	.28**	.01	.08*	−.10*	
15. Individual function: Front office	0.76	0.43	.00	−.05	.04	.03	.03	.01	−.10**	.04	−.02	.08*	−.06	−.06	−.06	.02

Note: $n = 467$ at the individual level, $n = 52$ at firm level. RBSE = role breadth self-efficacy; IMO = intrinsic motivational orientation; HR = human resource.
*$p < .05$.
**$p < .01$.

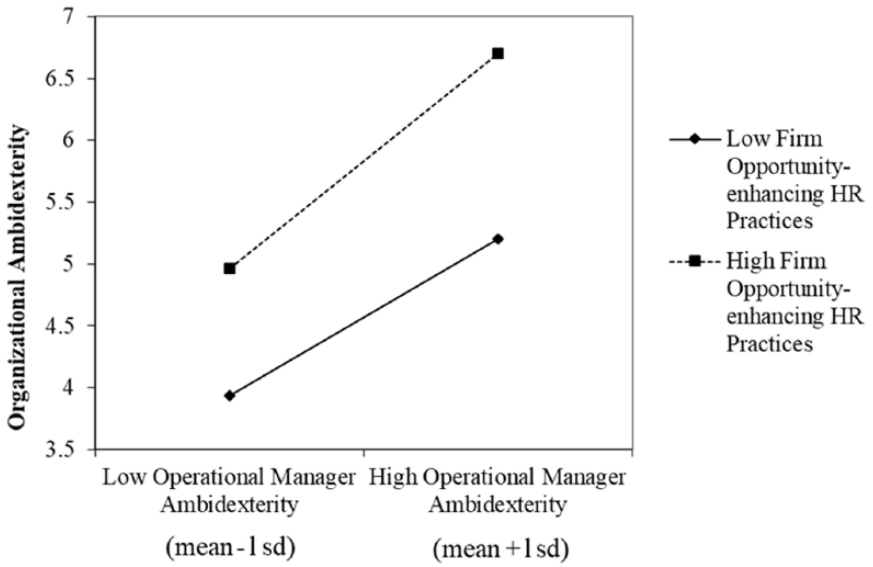
Table 2
Multilevel Results: Paths, Estimates, and Their Significance

	Estimate[a]	*SE*	LLCI	ULCI
Part A: Top-down direct and indirect effects				
Firm ability-enhancing HR practices → operational manager ambidexterity	0.42	0.11	0.24	0.61
Firm motivation-enhancing HR practices → operational manager ambidexterity	0.43	0.09	0.28	0.58
Firm ability-enhancing HR practices → individual RBSE	0.87	0.08	0.74	0.99
Firm motivation-enhancing HR practices → individual IMO	0.56	0.13	0.35	0.77
Individual RBSE → operational manager ambidexterity	0.17	0.03	0.05	0.29
Individual IMO → operational manager ambidexterity	0.22	0.06	0.10	0.33
Firm ability-enhancing HR practices → individual RBSE → operational manager ambidexterity	0.15	0.03	0.10	0.20
Firm motivation-enhancing HR practices → individual IMO → operational manager ambidexterity	0.12	0.02	0.07	0.16
Part B: Bottom-up moderating effect				
Firm opportunity-enhancing HR practices → organizational ambidexterity	0.63	0.06	0.53	0.74
Operational manager ambidexterity → organizational ambidexterity	0.75	0.09	0.60	0.94
Firm Opportunity-Enhancing HR Practices × Operational Manager Ambidexterity → organizational ambidexterity	0.12	0.03	0.05	0.19

Note: $n = 467$ at the individual level, $n = 52$ at the firm level. LLCI = lower level of the 95% confidence interval; ULCI = upper level of the 95% confidence interval; HR = human resource; RBSE = role breadth self-efficacy; IMO = intrinsic motivational orientation.
[a]Standardized estimates are reported. $p = .000$ for each estimate.

related to individual IMO. Findings presented in Part A reveal that firm motivation-enhancing HR practices were significantly related to individual IMO ($\gamma = 0.56$, $p = .000$); Hypothesis 2a is supported. Hypothesis 2b proposed a positive relationship between individual IMO and operational manager ambidexterity. Findings presented in Part A support Hypothesis 2b and reveal that individual IMO was indeed significantly related to operational manager ambidexterity ($\gamma = 0.22$, $p = .000$). Hypothesis 3a suggested that firm ability-enhancing HR practices will have an indirect effect on operational manager ambidexterity through individual RBSE. Findings presented in Part A reveal that individual RBSE mediates the relationship between firm ability-enhancing HR and operational manager ambidexterity (indirect effect = 0.15, $p = .000$, 95% CI [0.10, 0.20]). Hypothesis 3a is supported. The mediation is partial; the direct relationship between ability-enhancing practices and operational manager ambidexterity is positive and significant ($\gamma = 0.42$, $p = .000$). Hypothesis 3b proposed that firm motivation-enhancing HR practices will have an indirect effect on operational manager ambidexterity through individual IMO. Findings presented in Part A provide support for this hypothesis and reveal that individual IMO mediates the relationship between firm motivation-enhancing HR practices and operational manager ambidexterity (indirect effect = 0.12, $p = .000$, 95% CI [0.07, 0.16]). Hypothesis 3b is supported. The mediation is partial; the direct relationship between motivation-enhancing practices and operational manager ambidexterity is positive and significant ($\gamma = 0.43$, $p = .000$).

Figure 2
Moderation Effect of Firm-Level Opportunity-Enhancing HR Practices on the Bottom-Up Relationship Between Operational Manager Ambidexterity and Organizational Ambidexterity



Note: HR = human resource; 1 sd = 1 standard deviation.

Hypothesis 4 proposed that organizational ambidexterity is an interactive function of operational manager ambidexterity and firm opportunity-enhancing HR practices, in such a way that the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity is stronger when firms employ opportunity-enhancing HR practices. Findings presented in Part B provide support for Hypothesis 4; the opportunity-enhancing HR practices moderate the bottom-up relationship (moderating effect = 0.12, $p = .000$, 95% CI [0.05, 0.19]). To further assess this interaction effect, we plotted it following the procedure outlined by Cohen, Cohen, West, and Aiken (2003). Figure 2 shows that the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity is stronger when firm opportunity-enhancing HR practices are high (simple slope test: $p = .000$) than when they are low (simple slope test, *ns*).

Supplementary Analyses

When testing our hypotheses, we also included the alternative paths from motivation- and opportunity-enhancing HR practices to RBSE and from ability- and opportunity-enhancing HR practices to IMO. None of these paths were significant. When testing for mediation, we simultaneously tested the alternative mediation paths from motivation and opportunity practices via RBSE to operational manager ambidexterity and from ability and opportunity practices via IMO to operational manager ambidexterity. None of these were significant. Despite

the notion that sets of ability-, motivation-, and opportunity-enhancing HR practices may correlate, our supplementary analysis confirms our hypothesized model in that RBSE, IMO, and ambidextrous behaviors of operational managers are influenced via unique cross-level paths.

Discussion and Conclusion

We developed a multilevel framework about how different sets of firm HR practices may indirectly affect organizational ambidexterity through unique top-down and bottom-up paths. We found that ability- and motivation-enhancing HR practices contribute uniquely to ambidextrous behaviors of operational managers by increasing either their RBSE or their IMO. Moreover, we showed that opportunity-enhancing HR practices shape the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity. Overall, our multilevel framework provides a novel understanding about how HR practices affect organizational outcomes by supporting individual behaviors to emerge.

Theoretical Implications

Our findings have important implications for multilevel perspectives in research on SHRM and organizational ambidexterity. First, scholars have recognized that employees are a primary source of competitive advantage (Collins & Clark, 2003), and for this reason they have suggested that bundles of HR practices may improve organizational effectiveness through their impact on individual behaviors. Despite the general assumption that these interrelationships are fundamentally multilevel (Jiang et al., 2013), very few studies have examined both top-down and bottom-up effects in an integrated multilevel framework (Wright & Boswell, 2002). Instead, studies have typically used organizational-level mediation models to examine relationships among HR practices, aggregated employee outcomes, and organizational outcomes (Gong, Huang, & Farh 2009; Messersmith, Patel, & Lepak, 2011; Patel et al., 2013) or have focused on uncovering the top-down effects of HR practices on individual outcomes (Liao et al., 2009; Takeuchi, Chen, & Lepak, 2009). In response to calls from prominent scholars (Birkinshaw & Gupta, 2013; Jiang et al., 2013; Lepak et al., 2006; Raisch et al., 2009; Wright & Ulrich, 2017), our study provides a comprehensive framework that relates to one of the fundamental issues in SHRM research: how do firm-level HR practices indirectly affect organizational outcomes by having a top-down influence on individual behaviors and by shaping the upward relationship between individual behaviors and organizational outcomes?

Second, our findings imply that rather than treating HR practices as a holistic HR system, subsets of practices need to be identified and examined because they contribute in different ways to individual and organizational outcomes (Jiang, Lepak, Hu, & Baer, 2012). This study suggests that to understand better how HR practices affect strategic outcomes such as ambidexterity and the mechanisms by which they do so (cf. Jackson, Schuler, & Jiang, 2014), it is useful to apply the AMO framework, identify individual-level mediators and unique cross-level mediation and moderation paths, and specify the HR practices that may affect these paths. For instance, we show that comprehensive training and job enlargement help to develop an individual's RBSE, enabling operational managers to take on a variety of

exploratory and exploitative behaviors. Moreover, we found that motivation-enhancing HR practices, such as job enrichment, behavioral appraisals, and commitment-oriented rewards and compensation, contribute to operational manager ambidexterity by developing IMO. Our findings also showed that opportunity-enhancing practices—namely, participation in decision making, support for ideas, and information sharing—play an important role in shaping the upward relationship between manager and organizational ambidexterity. Overall, our findings suggest that if scholars want to advance our understanding of the relationship between HR practices and organizational outcomes, they need to be more specific about the HR practices and their cross-level effects, as opposed to relying on generic HR systems (Liao et al., 2009; Messersmith et al., 2011).

Third, our findings regarding the cross-level mediating role of RBSE and IMO highlight the importance of considering cognitive and motivational aspects when seeking to understand the microfoundations of organizational ambidexterity. They move research on SHRM and ambidexterity from the dominant idea that organizational ambidexterity requires a set of HR practices in which some are conducive to exploitation and others to exploitation and that it is achieved by integrating the efforts of individuals focused on either exploration or exploitation (e.g., Kang & Snell, 2009; Kehoe & Collins, 2008; Swart & Kinnie, 2013). As such, although earlier research on SHRM and organizational ambidexterity has generated important new insights regarding the role of dual structures (O'Reilly & Tushman, 2004), HR configurations (Kang & Snell, 2009; Patel et al., 2013), and the establishment of a supportive context (C. Gibson & Birkinshaw, 2004), relatively little has been said about the potential cognitive and motivational origins of individuals who both explore and exploit—that is, who are ambidextrous (Jansen, Kostopoulos, Mihalache, & Papalexandris, 2016). Our findings reveal, however, that such factors (i.e., RBSE and IMO) serve as important mediators, explaining the ability and motivation of operational managers to deal with conflicting demands and to facilitate the coexistence and integration of contrasting activities (Smith & Tushman, 2005). Our approach sheds new light on how emergent states of individuals within organizations may help them manage trade-offs between exploration and exploitation. It underscores the importance of having an HR system that includes practices conducive to both exploration and exploitation—that is, that help build an operational manager's ability and motivation to engage in and pursue both types of activities.

Fourth, our findings regarding opportunity-enhancing HR practices suggest that scholars need to explicitly consider such practices if they wish to better understand how employee behaviors may collectively lead to organizational-level outcomes (Jiang et al., 2013; Lepak et al., 2006). While ability and motivation-enhancing HR practices affect individuals' behaviors through top-down effects, our study implies that opportunity-enhancing HR practices are particularly important for shaping collective action and organizational outcomes. This is consistent with prior research suggesting that HR practices can affect organizational outcomes by fostering internal interactions and social relationships (Evans & Davis, 2005; Gittell, Seidner, & Wimbush, 2010). Moreover, while a key assumption in ambidexterity research is that organizational ambidexterity is rooted in ambidextrous behaviors of frontline employees (Birkinshaw & Gupta, 2013; C. Gibson & Birkinshaw, 2004), our study underscores that it is more than the sum of ambidextrous behaviors of operational managers, as it depends also on social interactions as well as the extent to which ambidextrous individuals are given the opportunity to contribute to the achievement of organizational outcomes.

Similarly, our study implies that the determinants of operational manager ambidexterity—and hence indirectly of organizational ambidexterity—are different from those that shape the bottom-up relationship between operational manager ambidexterity and organizational ambidexterity. Although we found that opportunity-enhancing practices matter, future research may investigate whether this effect may be contingent on situational aspects, such as industry- or firm-level aspects.

Managerial Implications

Our findings suggest that one way of increasing an organization's capacity to pursue exploratory and exploitative innovations simultaneously is to improve the ability of operational managers to behave ambidextrously. To do so, senior managers should adopt sets of HR practices that create a work context that allows individuals to manage conflicting demands and divide their time flexibly between exploration and exploitation. Such HR practices should be aimed particularly at developing the appropriate skills and competences as well as the intrinsic motivation to engage in challenging and competing tasks and activities. In addition, our study implies that it is equally important for organizations to implement HR practices that stimulate interaction among ambidextrous operational managers at different locations as well as between such operational managers and senior executives of the organization. All in all, our study suggests that human resources are critical in nurturing the ability of organizations to pursue exploratory and exploitative activities and build a competitive advantage over time.

Limitations and Future Research Directions

Although the present study has important implications, it has its limitations. Our data were collected in a single industry. Yet, competitive dynamics and uncertainty may vary across industries, thus making it more or less difficult for individuals or organizations to attain ambidexterity. It might also be useful to examine whether the importance of individuals in the development of organizational ambidexterity may differ across industries. For instance, the role of operational managers may be more decisive in knowledge-intensive service industries than in manufacturing. Moreover, external factors may shape the effectiveness of specific sets of HR practices in fostering attitudes or behaviors of employees (Wu & Chaturvedi, 2009). Relatedly, as we found partial mediation effects by RBSE and IMO, future studies may investigate the mediating role of other cognitive and motivational factors. Furthermore, while Jiang, Lepak, Hu, and Baer (2012) point to main areas of influence for generic HR practice domains, our results suggest more exclusive areas of influence for bundles of specific HR practices and policies. While we did not investigate interrelationships among practices, future research may do so to create a better understanding about how they may relate in a more or less exclusive way to outcomes (Lepak et al., 2006). Finally, whereas our research focused on operational manager ambidexterity, there is an emerging literature investigating how middle managers may deal with tensions between exploration and exploitation (e.g., Burgess, Strauss, Currie, & Wood, 2015). Future research may address how interactions between ambidextrous managers at different levels may result in organizational ambidexterity and the facilitating role of specific HR practices (Heyden, Fourné, Koene, Werkman, & Ansari, 2017).

Conclusion

With our study, we have put forward ways in which firm HR practices may support the emergence of organizational ambidexterity. We hope that our framework will help others to discover more about the role played by individuals and HR practices in ambidextrous organizations and how organizations can build a collective capacity to look beyond the short term by generating options that ensure longer-term growth and prosperity.

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