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# **REGULATORY FOCUS AS A PSYCHOLOGICAL MICRO-FOUNDATION OF LEADERS' EXPLORATION AND EXPLOITATION ACTIVITIES**

## **ABSTRACT**

In recent years, there has been strong interest in leaders' exploration and exploitation activities, especially because of their positive effects on performance. Most prior research in this area has focused on the organizational antecedents of leaders' exploration and exploitation activities, with less consideration given to the psychological precursors. This paper draws upon insights from the behavioral strategy literature to inform our theoretical perspective on leaders' exploration-exploitation activities. In particular, by conceptually linking leaders' regulatory focus and exploration-exploitation, we provide a theoretical framework to explain these activities from a psychological viewpoint. Moreover, we employ two moderator variables to better understand the different properties and boundaries of this framework. All in all, this paper has a number of implications for strategic leadership theory and practice.

## **REGULATORY FOCUS AS A PSYCHOLOGICAL MICRO-FOUNDATION OF LEADERS' EXPLORATION AND EXPLOITATION ACTIVITIES**

The exploration-exploitation construct can be used to explain and predict leaders' performance levels (e.g., Mom, Fourné & Jansen, 2015; Schultz, Schreyöegg, & von Reitzenstein, 2013). Furthermore, one needs to understand the individual leader's exploration and exploitation activities to better understand their emergence at higher levels of analysis. In this context, 'leader' refers to any individual undertaking a formal or informal leadership role within an organization. Exploration and exploitation activities are important also because some other key constructs, such as ambidexterity, are often characterized in terms of exploration and exploitation (Simsek, Heavey, Veiga, & Souder, 2009, p. 865). These reasons have recently driven researchers to go back to the micro-foundations of the concept at the level of the individual, and made the antecedents of leaders' exploration and exploitation activities an essential area of focus (e.g., Jansen, Vera, & Crossan, 2009; Laureiro-Martinez, Brusoni, & Zollo, 2010; Mom, van den Bosch, & Volberda, 2007, 2009; Rosing, Frese, & Bauch, 2011; Schultz et al., 2013).

Numerous calls have been made for more research in this area (e.g., Gupta, Smith, & Shalley, 2006, p. 703; Jansen, George, van den Bosch, & Volberda, 2008, p. 1002; Lavie, Stettner, & Tushman, 2010, p. 143; Raisch & Birkinshaw, 2008, p. 397). For instance, Gupta, Smith, and Shalley (2006, p. 703) note that "Studies that examine exploration and exploitation at a micro level are relatively scarce," and pose interesting questions for future research to address. Likewise, Lavie, Stettner, and Tushman (2010, p. 143) state that "Also important is the study of exploration and exploitation at the individual and team levels of analysis (Gibson & Birkinshaw, 2004; Jansen, George, Van den Bosch, & Volberda, 2008; Lubatkin et al., 2006; Smith &

Tushman, 2005)”. Following such calls in the literature, a number of papers have been published, especially in the foremost leadership journals, examining the various roles of leaders within exploration and exploitation processes (e.g., Jansen, Vera, & Crossan, 2009; Nemanich & Vera, 2009; Rosing, Frese, & Bauch, 2011; Yukl, 2009). Of the studies to date that have examined the antecedents of leaders’ exploration and exploitation, most have concentrated on the organizational antecedents, and have placed insufficient attention on the psychological antecedents. Given this current gap in the literature, there is value in constructing a psychological/behavioral framework as a complement to organizational and economic theories (Levinthal, 2011; Powell, Lovallo, & Fox, 2011).

The contributions of this paper are twofold. The first of these contributions is highlighting regulatory focus as a key driver of leaders’ exploration and exploitation activities. Regulatory focus theory has been a prominent theory in the psychology literature during the last two decades, and has recently attracted attention in leading strategic management journals (e.g., Das & Kumar, 2011; McMullen, Shepherd, & Patzelt, 2009; Stam, van Knippenberg, & Wisse, 2010; Wanberg, Zhu, Kanfer, & Zhang, 2012; Weber & Mayer, 2011). In particular, regulatory focus is a theory of goal pursuit that examines avoiding pain (prevention focus) and seeking pleasure (promotion focus) as the two distinct but complementary ends an individual may strive for (e.g., Higgins, 1997, 1998; Shah, Higgins, & Friedman, 1998). Prior studies have shown that regulatory focus explains behaviors such as risk-taking and diverging from norms (e.g., Crowe & Higgins, 1997; Liberman, Idson, Camacho, & Higgins, 1999), but studies have not elucidated the correspondence between these concepts and the essential dimensions by which exploration and exploitation are defined. This paper creates a new link between regulatory focus theory and the organizational literature, the importance of which is repeatedly emphasized in both bodies of

literature (e.g., Brockner & Higgins, 2001; McMullen et al., 2009; Wallace, Johnson, & Frazier, 2009). Bringing together these two far apart areas of research with compatible underlying assumptions (Okhuysen & Bonardi, 2011) has three specific benefits for the literature.

First, the majority of current research on exploration-exploitation at the individual level focuses primarily on the organizational antecedents of exploration and exploitation activities (e.g., Mom et al., 2007, 2009), and research on the psychological precursors is impoverished. Without knowledge of the psychological antecedents, we can deduce little about the differences in these individuals' habitual tendencies, which is of crucial importance when selecting individuals for formal leadership roles. By highlighting regulatory focus as a precursor for individuals' exploration and exploitation activities, this paper helps explain and predict the differences in leaders' approaches to these activities. Second, most organizational antecedents can provide insight into the individual's aggregate exploration and exploitation behavior over a period of time (e.g., a year) because the hierarchical structure of a company does not change every day. In contrast, regulatory focus can help explain and predict daily or short-term differences in leaders' exploration and exploitation behaviors because regulatory focus can also be induced temporarily through contextual elements. That is, while one component of the regulatory focus theory can account for chronic tendencies, another can be used to explain temporary changes. Third, in contrast to exploration-exploitation at the individual level, a field that is growing but still underexplored, regulatory focus is a fully-fledged, mature literature in which most of the antecedents and interrelationships are already known. Hence, linking the regulatory focus literature with the literature on exploration-exploitation provides the latter with a well-developed network of conceptual linkages to various psychological constructs, such as the personality antecedents of regulatory focus (e.g., Gorman et al., 2012; Lanaj, Chang, & Johnson,

2012).

The second contribution of this paper is the formulation of a model that can delineate the primary boundaries of the relationship between leaders' regulatory foci and exploration-exploitation activities. We have added two variables moderating the relationship between the regulatory focus and exploration-exploitation concepts. In doing so, we demonstrate that the regulatory focus and exploration-exploitation constructs are conceptually different from each other (the argued link is not tautological), and we provide a theoretical framework upon which future studies can be built. We believe that having such a framework will give future studies a starting point for systematically searching for new variables and relationships, while providing new insights into the existing discussions. The contributions of this paper will be revisited in the discussion section.

## **THEORETICAL BACKGROUND**

### **Conceptualization of Exploration and Exploitation at the Individual Level**

The origins of the concepts of exploration and exploitation lie in the decision and computer sciences (DeGroot, 1970; Holland, 1975). Following March's (1991) preeminent article, exploration and exploitation became integral fields of research within the strategic management literature. March defined exploration as the "things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation" whereas for exploitation he used terms such as "refinement, choice, production, efficiency, selection, implementation, execution" (1991, p. 71). In line with this definition, exploration activities at the individual level include searching for new possibilities, evaluating diverse options, and activities requiring the individual to learn new skills or knowledge (Mom et al., 2009, p. 820). Exploitation

activities at the individual level are activities that the individual performs as if they were routine, activities that the individual clearly knows how to conduct, and activities that the individual can properly conduct by using his or her present knowledge (Mom et al., 2009, p. 820). More specific examples to exploration activities include developing different ways to fulfill customers' unmet needs, meeting new people beyond one's network, and engaging in efforts to invent a novel business model. In contrast, the processing of a standard order, strengthening bonds with existing business contacts, and engaging in the daily maintenance activities of a business unit are examples to exploitation activities.

Both exploration and exploitation activities are associated with the performance of the decision-making entity (i.e., organization, business unit, team, or individual) and its chances of economic survival, albeit in different ways. Exploration allows the decision-making entity to adapt to the changing conditions of the environment, thus ensuring long-term gains, whereas exploitation fits the entity perfectly to its existing environment and maximizes short-term gains (Benner & Tushman, 2003; Tushman & O'Reilly, 1996). An under-emphasis on exploration hampers long-term economic survival through obsolescence and leads to an inability to cope with the restructured environment, whereas insufficient engagement in exploitation reduces the prospects for short-term competitiveness (Levinthal & March, 1993; Volberda & Lewin, 2003).

Originally, March conceptualized exploration and exploitation as the two ends of a unidimensional scale (1991). Alternatively, other researchers view exploration and exploitation as two disparate activities (e.g., Jansen, van den Bosch, & Volberda, 2006; Katila & Ahuja, 2002), both of which are necessary for performance and economic survival. This second group of researchers suggests that the supporters of the unidimensional view fail to account for the potential synergies between the exploration and exploitation constructs. In contrast, the

proponents of the unidimensional view suggest that separation of the two variables is not adequate for addressing the tension between exploration and exploitation that emerges due to the scarcity of resources (Lavie et al., 2010, p. 115). A third group of researchers has attempted to reconcile the two views, either by suggesting that they are “different and often competing” (Simsek et al., 2009, p. 865) or that they are “associated with contradictory, yet integrated tensions” (Smith, Binns, & Tushman, 2010, p. 448). Yet, regardless of how the conceptual definition is formulated, the primary empirical difference between the two views (i.e., the number of dimensions in the operationalization of the scale) remains.

When we scrutinize the discussion at the individual level of analysis, we encounter a similar division in perspectives, although to a lesser extent. The proponents of the unidimensional view of exploration and exploitation at other levels of analysis endorse this view at the individual level, whereas some researchers who argue for the separation of exploration and exploitation at other levels of analysis agree with the idea of unidimensionality at the individual level. For example, Gupta, Smith, and Shalley (2006, p. 696) suggest that “with division of labor and allocation of resources, it may be easier for a group, organization, or larger system to simultaneously excel at exploration and exploitation than it is for individuals to do so.” Nevertheless, studies examining exploration and exploitation as two separate constructs have also found empirical support at the individual level (Mom et al., 2007, 2009). In this conceptual paper, we will follow the reconciliatory view of Smith, Binns, and Tushman (i.e., “associated with contradictory, yet integrated tensions,” 2010, p. 448), which acknowledges both the aspect of competition and the aspect of synergy between the exploration and exploitation constructs.

In the literature, the theoretical concepts of exploration-exploitation are conceptualized in a number of different ways. March (1991) presented a broad definition of exploration and

exploitation, and although Levinthal and March (1993) attempted to limit the scope of exploration and exploitation to the domain of organizational learning, most researchers have continued to use March's earlier definition, which was applicable to a wider range of phenomena (Lavie et al., 2010, p. 110). The most significant of these conceptualizations of exploration and exploitation are as follows.

First, some studies (e.g., Jansen, van den Bosch, & Volberda, 2006) noted that risk is an essential distinction between exploratory and exploitative activities. According to these studies, exploratory activities tend to involve higher risk than exploitative activities. Second, the timeframe is considered to be a distinguishing factor: Tushman and O'Reilly (1996) argued that exploration is associated with long-term goals and exploitation with short-term goals. Third, Levinthal and March (1993) presented a distinction based on experience, in which repetitive actions are associated with exploitation, whereas novel actions are associated with exploration. Fourth, Holmqvist (2004) showed that exploration requires one to be a generalist, especially with respect to the knowledge base, and exploitation requires one to be detail-oriented and specific. Fifth, He and Wong (2004) posited that knowledge creation is a form of exploration, whereas knowledge application is a form of exploitation. Last, Lewin and colleagues (1999) discussed the concepts of stability and change, in which an attempt to transition to better alternatives is defined as exploration, and exploitation is associated with an effort to achieve stability by adapting to the existing situation.

## **THEORETICAL MODEL**

### **Conceptualization of Regulatory Focus and its Components**

In the psychology literature, there are two kinds of ends goals an individual may struggle

to attain – avoiding pain and approaching pleasure – and “this principle underlies motivational models across all levels of analysis in psychology, from the biological to the social” (Higgins, 1998). All people try to achieve both, although to differing extents at different times. In a more prevention-focused state, people try to minimize mistakes by detailed concentration on the threats in the environment and by making themselves fit into the situation they are in (ought self). This kind of orientation is evident in statements such as “I must not get fired from this job” or “I should not appear rude in front of my colleagues.” In contrast, in a more promotion-focused state the individual tries to maximize gains by seizing opportunities in the environment through concentration on the abstract ‘big picture’ and on how he or she aspires to be as an individual (ideal self). This state is exemplified in statements such as “I want to learn as much as possible from this course” or “I want to be a successful person.” The literature on regulatory focus discusses the various factors surrounding this essential principle, which has dramatic effects on many behavioral, emotional, and decision-making tendencies (cf. Brockner & Higgins, 2001; Cropanzano, Paddock, Rupp, Bagger, & Baldwin, 2008; Higgins, 1997).

When we talk of someone being promotion- or prevention-focused, this generally refers to that individual’s ‘chronic’ or ‘trait-like’ regulatory focus, a fairly stable component of an individual’s regulatory focus that is based on upbringing (Higgins, 1998; Wallace et al., 2009). However, although chronic regulatory focus gives a general tendency for the person to act in one way or other, different situations require that person to act in other ways (Friedman & Förster, 2001). For example, in a scenario that contains threat, the individual has to concentrate on making the fewest mistakes possible or ‘minimal goals’, whereas in situations where opportunities are manifest he or she focuses greater effort on maximizing gains or ‘maximal goals’ (Brendl & Higgins, 1996; Pennington & Roese, 2003). This shift in an individual’s

regulatory focus in response to the cues salient in the environment is called 'situational' or 'contextual' regulatory focus effects (Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008; Stam, et al., 2010). The combination of an individual's chronic regulatory focus and the temporary shift caused by situational or contextual effects is called the regulatory state of the individual (Cesario, Grant, & Higgins, 2004; Pham & Higgins, 2005), and the behavior of an individual at a specific point in time is determined by this variable.

In the workplace, there can be two types of contextual effects: first, temporary effects, such as a customer behaving in a certain way (e.g., an angry, shouting customer may shift the individual toward a prevention-focused regulatory state). Alternatively, contextual effects might result from enduring characteristics of the organizational setting, such as the reward and punishment mechanisms of an organization or the building's physical design. The combination of an individual's chronic regulatory focus and the enduring situational or contextual effects of a workplace is called the 'work-specific regulatory focus' of the individual (e.g., Lanaj et al., 2012; Wallace et al., 2009). Prior research suggests a positive significant association between individuals' work-specific regulatory foci and their chronic regulatory foci (Wallace et al., 2009). In sum, regulatory focus theory has several subcomponents (e.g., chronic regulatory focus, work-specific regulatory focus, and the regulatory state). Chronic regulatory focus describes the enduring, intrinsic regulatory focus of the individual; work-specific regulatory focus captures the regulatory focus of the individual in a particular work setting; and the regulatory state encompasses the regulatory focus of the individual at a specific point in time. For instance, if a researcher is interested in examining the exploration-exploitation activities of an individual over time, it may be more suitable to use the chronic or work-specific regulatory focus of the individual, whereas for examining specific decisions about exploration and exploitation, the

regulatory state construct may be more suitable. In other words, choosing the appropriate operationalization of regulatory focus is an important decision when conducting empirical research. However, in this conceptual paper we will simply use the generic term ‘regulatory focus’, for purposes of parsimony.

Another crucial point is that regulatory focus may be endogenous and may depend on other variables (See Antonakis, Day, & Schyns, 2012, p. 647 and Antonakis, Bendahan, Jacquart, & Lalive, 2010 for a discussion on exogenous versus endogenous variables). More specifically, regulatory focus may partially or fully depend on personality-related variables, such as the ones discussed in the Big Five (Digman, 1989) and the Big Six (Ashton et al., 2004) frameworks. Indeed, although the discussion of upstream variables is generally missing in prior regulatory focus research, recent studies suggest that regulatory focus has a number of personality antecedents. For example, in their meta-analysis study, Lanaj, Chang, and Johnson (2012) examine numerous personality antecedents of regulatory focus, including extraversion, neuroticism, conscientiousness, openness to experience, and agreeableness. The fact that some of these personality antecedents appear to be genuine *traits*, in which a trait is generally an exogenous variable (e.g., Antonakis et al., 2012, p. 647), strengthens our belief that regulatory focus may be an endogenous variable.

Considering that regulatory focus is probably endogenous rather than exogenous, this paper does not illuminate a *trait* that explains exploration-exploitation behavior. Instead, the paper highlights regulatory focus as one of the many potential mediatory paths that can channel individuals’ personality traits into their exploration-exploitation behaviors (and it may or may not be the primary path). Because regulatory focus may be an endogenous variable, when designing and testing models involving this construct, it is necessary to thoroughly consider possible

omitted causes stemming from personality (e.g., Antonakis et al., 2012). A failure to test regulatory focus models without taking the relevant personality antecedents into account can negatively affect the validity of the observed results. More specifically, if the effects of the personality antecedents are overlooked, the reported estimates are likely to be biased. In other words, whether regulatory focus is an endogenous or exogenous variable is an essential question future empirical research will need to answer.

The relationships among the different components of the regulatory focus theory are presented in Figure 1.

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Insert Figure 1 about here  
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The concept of regulatory focus has been used in the psychology literature to explain a wide range of phenomena, such as eating habits (Sengupta & Zhou, 2007), responses to anti-smoking campaigns (Zhao & Pechmann, 2007), and tendencies toward some psychological disorders (e.g., Klenk, Strauman, & Higgins, 2011). Within the management subfields, marketing in particular has embraced this construct; the vast majority of regulatory focus articles have been published on this subject (e.g., Herzenstein, Posavac, & Brakus, 2007; Kees, Burton, & Tangari, 2010; Wang & Lee, 2006). This construct has also been applied to the fields of finance and economics, especially because of its relevance to risk-attitude (e.g., Halamish, Liberman, Higgins, & Idson, 2008; Zhou & Pham, 2004). In the strategic management literature, the construct is very new, although interest is strong. For example, Das and Kumar (2011) have applied this construct to corporate alliances; McMullen, Shepherd, and Patzelt (2009) to

managerial attention; and van Dijk and Kluger (2011) to task performance. Although regulatory focus is driven by the individual's need to adapt for economic survival (Friedman & Förster, 2001, p. 1001), which is precisely the same purpose as that of exploration and exploitation activities (Levinthal & March, 1993; March, 1991), this construct has not yet been linked with the emerging exploration-exploitation literature at the individual level, a gap that this paper fills.

Below we discuss the core concepts that regulatory focus has an effect on. Most other higher-level behaviors, such as the ones mentioned above with respect to marketing and management, are explained through the effects of regulatory focus on the following core concepts.

Multiple studies suggest that regulatory focus has a strong association with risk-taking behaviors. Promotion focus is associated with higher risk-taking and maximal goals, whereas prevention focus is associated with lower risk-taking and minimal goals (Crowe & Higgins, 1997; Gino & Margolis 2011, Study 3; Hamstra, Bolderdijk, & Veldstra, 2010). For example, when engaging in a difficult task, promotion-focused participants focus on achieving as many successful attempts as possible, resulting in a risky response bias, whereas prevention-focused participants focus on making the fewest number of errors possible, resulting in a conservative response bias (Crowe & Higgins, 1997, Study 2). Likewise, regulatory focus seems to affect an individual's timeframes, such that a promotion focus causes individuals to concentrate on a distant future, while prevention focus leads to near-future and retrospective thinking (Pennington & Roese, 2003; Theriault, Aaker, & Pennington, 2008). For instance, goal completion estimates are significantly further in the future when an individual is promotion focused rather than prevention focused (Pennington & Roese, 2003, Study 4). Promotion-focused individuals are also more strongly inclined toward novelty, whereas prevention-focused individuals prefer to see

others try an idea before they invest resources in it (e.g., Herzenstein, Posavac & Brakus, 2007).

Individuals' information-processing styles are also influenced by their regulatory foci. For instance, the tendency to concentrate on the details (i.e., a local processing style) is associated with a prevention focus because maintaining a state of security requires individuals to have an in-depth awareness of environmental threats, including subtle cues that may imperil their goals or existence (Förster & Higgins, 2005). In contrast, a search for new opportunities requires an abstract comprehension of the environment, which is gained through a more global processing style. Knowledge creation is associated with promotion focus because reaching maximal goals depends on creativity and unorthodox solutions (Friedman and Förster, 2001; Rietschel, 2011). Prevention focus, in contrast, involves avoiding mistakes and ensuring the flawless application of existing knowledge to meet the demands of minimal goals. Regulatory focus influences the preference for stability versus change. For example, individuals with a promotion focus are more likely than individuals with a prevention focus to engage in endowment and object substitution (Lieberman, Idson, Camacho, & Higgins, 1999).

When the relationships above are compared to the conceptualizations of individuals' exploration and exploitation discussed earlier, the strong link between regulatory focus and individuals' exploration and exploitation becomes clear (See Table 1).

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Insert Table 1 about here  
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### **Propositions**

Regulatory focus is a known antecedent of several concepts that correspond to the

concepts by which exploration and exploitation are defined. In particular, the consequences of the promotion dimension of regulatory focus, including higher risk-taking, long-term orientation, aspiration for novelty, general information-processing, knowledge creation, and willingness to change conform to the original definition of exploration as “things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation” (March, 1991, p. 71). Likewise, the consequences of the prevention dimension of regulatory focus, including lower risk-taking, short-term orientation, preferring alternatives that have been tried over novel ones, detailed information-processing, knowledge application, and a desire for stability conform to March’s definition of “refinement, choice, production, efficiency, selection, implementation, execution” (March, 1991, p. 71). For these reasons, we believe that promotion focus is a primary driver of exploration, and that prevention focus is a primary driver of exploitation. That is, we suggest that in the following multivariate regression models,  $b_1 > 0$  and  $g_2 > 0$ :

$$\text{Exploration} = b_0 + b_1 * \text{Promotion} + b_2 * \text{Prevention} + \text{controls} + e$$

$$\text{Exploitation} = g_0 + g_1 * \text{Promotion} + g_2 * \text{Prevention} + \text{controls} + u$$

This is not to claim that a prevention focus does not generate exploration activities and a promotion focus does not lead to exploitation activities. Both promotion and prevention foci can induce exploration and exploitation, but in most cases, aiming to find the optimum solution in the environment (i.e., the maximal goal, which is relevant for a promotion focus) is likely to require more exploration than aiming to find a solution that satisfies a minimum criteria (minimal goal, which is relevant for a prevention focus) (e.g. Brendl & Higgins, 1996). As a result, both regulatory foci can encourage an individual to engage in exploration activities, but a promotion focus is more likely to emphasize this activity than a prevention focus is. A prevention

focus concentrates on security, details, and flawless execution (Shah, Higgins, & Friedman, 1998, p. 287), and the more flawlessly an individual wants to execute a task, the more exploitation activities he or she needs to engage in. An example of this difference is the case of a marketing manager roughly categorizing customers and placing them into broad categories (e.g., market segmentation) versus a marketing manager precisely categorizing each customer (e.g., micro-marketing), which requires more effort. To capture this aspect of exploitation in his definition, March (1991, p. 71) uses the term ‘refinement’. In conclusion, we expect the effect of a promotion focus to be stronger than the effect of a prevention focus on exploration, and the effect of a prevention focus to be stronger than promotion on exploitation. Returning to the regression models above, we suggest that  $b1 > b2$  and  $g2 > g1$ .

*Proposition 1a: The positive relationship between leaders’ promotion foci and exploration activities is relatively stronger than the one between their prevention foci and exploration activities ( $b1 > b2$ ).*

*Proposition 1b: The positive relationship between leaders’ prevention foci and exploitation activities is relatively stronger than the one between their promotion foci and exploitation activities ( $g2 > g1$ ).*

### **Moderators**

We have explicated the relationship between regulatory focus and exploration-exploitation at the individual level, but the question remains of what the difference is between the regulatory focus and exploration-exploitation constructs. Or is there a difference? To answer this question, in this section we use two moderating variables to further clarify the dissociations between the regulatory focus and exploration-exploitation constructs.

Indeed, the relationship between psychological variables (e.g., characteristics or states)

and behaviors has been a longstanding interest of psychology scholars. Some of these relationships in the literature include the one between attitude and behavior (e.g., Wicker, 1969; Ajzen, 1991) and the one between personality characteristics and behavior (e.g., Mischel, 1977). Extending this line of research, we consider the factors that strengthen and weaken the relationship between a leader's regulatory focus and exploration-exploitation activities. Prior research suggests that engagement in an action is contingent upon three main factors: the psychological tendency to engage in that action, the discretion or capacity to engage in it, and the opportunity to engage in it (e.g., Adler & Kwon, 2002; Blumberg & Pringle, 1982; MacInnis, Moorman, & Jaworski, 1991; Wall, Cordery, & Clegg, 2002).

Building on this idea, we included two variables in our framework that moderate the relationship between regulatory focus and exploration-exploitation activities at the individual level. Leaders' decision-making autonomy was included in the framework as a key variable relating to discretion (Barrick & Mount, 1993), and ambiguity of the environment (e.g., Daft & Weick, 1984) was included as a key variable relating to exploration-exploitation opportunity. One of our primary goals in formulating this model was to better understand how we can select and motivate leaders to engage in exploration and exploitation activities. Thus, we selected our variables in accordance with this goal, such that the three variables in our model all relate conceptually to the strategic leadership literature, particularly to the literature on transactional and transformational leadership. The transformational and transactional leadership activities of upper-level management can influence regulatory foci (e.g., Kark & van Dijk, 2007), decision-making autonomies (e.g., Bass, 1999; Dvir, Eden, Avolio, & Shamir, 2002; Jung, Chow, & Wu, 2003) and the ambiguity of environments (e.g., Porter & Bigley, 2003; Yukl, 1999) of individuals lower down the organization.

***Moderating Role of Decision-Making Autonomy.*** In terms of examining the relationships between psychological variables and behaviors, one of the fundamental discretion-related environmental moderators is ‘situational strength’ (e.g., Barrick & Mount, 1993; Mischel, 1977). Barrick and Mount describe ‘strong’ situations as “...those in which there are considerable demands or pressures to induce conformity” and note that “In such situations the person is restricted in the range of behaviors that she or he may be both willing and able to exhibit” (1993, p. 112). An example of the situational strength phenomenon is an agreement. Once a legal contract is signed, engaging in behaviors inconsistent with the terms becomes less possible (strong situation), whereas transgressing an oral agreement may be easier than transgressing a written one; therefore, an oral agreement presents a weaker situation.

Within the domain of organizational contexts, a key variable that determines the strength of a leader’s situation, and thus the leader’s discretion to engage in an action, is his or her autonomy of decision-making (e.g., Barrick & Mount, 1993, p. 112). When individuals lack decision-making autonomy, regardless of whether they psychologically focus on reaching their maximal goals (promotion focus) or minimal goals (prevention focus), they have to follow the demands of the situation (e.g., their supervisor’s orders). Without any discretion to deviate from the expected behaviors, the engagement in or experimentation with alternative courses of action (i.e., exploration) becomes less possible or impossible (e.g., Damanpour, 1991; Sheramata, 2000). In other words, because alternative actions are not possible, maximizing gains and satisfying a certain benchmark depend on the successful execution of the actions demanded by the strong situation (i.e., exploitation). As a result, when leaders lack decision-making autonomy, the relationship between their promotion foci and exploration is weakened, whereas the relationship between their prevention foci and exploitation activities becomes stronger.

Returning to the regression models,<sup>1</sup>

$$\text{Exploration} = b_0 + b_1 * \text{Promotion} + b_2 * \text{Prevention} + \text{controls} + e$$

$$\text{Exploitation} = g_0 + g_1 * \text{Promotion} + g_2 * \text{Prevention} + \text{controls} + u$$

we posit that  $b_{1_{\text{AutonomyLow}}} < b_{1_{\text{AutonomyHigh}}}$  and  $g_{2_{\text{AutonomyLow}}} > g_{2_{\text{AutonomyHigh}}}$ .

*Proposition 2a: Leaders' lack of decision-making autonomy moderates the relationship between their promotion foci and exploration activities such that when decision-making autonomy is low (or high) the relationship between promotion foci and exploration activities will be weaker (or stronger) ( $b_{1_{\text{AutonomyLow}}} < b_{1_{\text{AutonomyHigh}}}$ ).*

*Proposition 2b: Leaders' lack of decision-making autonomy moderates the relationship between their prevention foci and exploitation activities such that when decision-making autonomy is low (or high) the relationship between prevention foci and exploitation activities will be stronger (or weaker) ( $g_{2_{\text{AutonomyLow}}} > g_{2_{\text{AutonomyHigh}}}$ ).*

***Moderating Role of Ambiguity of the Environment.*** One variable that determines the extent of exploration and exploitation opportunities is the ambiguity level of the environment. Individuals engage in exploration when they are searching for a better alternative, but when the optimal solution within the environment (e.g., Levinthal, 1997) is clear, or at least appears to be so, an individual will simply try to exploit the existing opportunity. A somewhat extreme example will clarify this: Imagine an average individual who learns that he or she holds the winning ticket for the grand prize in the national lottery. Let us assume that this person is interested in making money and that it takes twenty minutes to travel to the lottery office to

claim the money. Provided that the individual has no limitations in terms of discretion/autonomy, what is the likelihood that he or she would spend those twenty minutes searching for a better way of making money rather than redeeming the lottery ticket? The solution within the environment is so clear that even a very promotion-focused individual would simply claim the prize.

Likewise, exploitation requires an individual to have at least something (e.g., an idea, product, or resource) to exploit. If not, even an individual who is only interested in exploitation will first have to conduct some exploratory activities. In other words, there is no opportunity to explore once the whole search-space has been exhaustively explored, and there is no opportunity to exploit when there is simply nothing to exploit. That is, regardless of regulatory focus and internal state (e.g., eager vs. vigilant), when there is absolutely no ambiguity in the environment the individual engages in exploitation, and when there is absolutely no clarity in the environment the individual engages in exploration.

As previously mentioned, prevention-focused individuals will more quickly begin exploiting upon finding a satisfactory solution because they are satisficing in order to reach a minimal goal (Brendl & Higgins, 1996; Pennington & Roese, 2003), and they are more likely to maintain this status quo (Lieberman et al., 1999) as long as the solution still satisfies the minimum criteria. In contrast, because promotion-focused individuals are trying to maximize their gains (Brendl & Higgins, 1996; Pennington & Roese, 2003), they are likely to keep exploring even if they find a solution that fits their minimum criteria. Furthermore, given their greater tendency to switch to better alternatives (Lieberman et al., 1999) even after they have begun to exploit one option, they are likely to spend more resources on continuing to search for others.

However, despite these potential differences in the extent to which individuals explore or exploit, in less ambiguous environments both groups will spend fewer resources on exploration

activities to find a solution that meets their goals (e.g., Levinthal, 1997). In other words, when the environment is more ambiguous, both promotion-focused and prevention-focused individuals will explore more than they would in a less ambiguous environment. Hence, ambiguity moderates the relationship between regulatory focus and exploration-exploitation such that more ambiguous environments prompt individuals to engage in more exploration activities. In less ambiguous environments, less exploration is necessary to find the solution the individual is seeking (i.e., the optimal solution or a solution that satisfies a minimum), and more resources are available for exploitation. Therefore, returning to the regression models,

$$\text{Exploration} = b_0 + b_1 * \text{Promotion} + b_2 * \text{Prevention} + \text{controls} + e$$

$$\text{Exploitation} = g_0 + g_1 * \text{Promotion} + g_2 * \text{Prevention} + \text{controls} + u$$

we posit that  $b_{1\text{AmbiguityHigh}} > b_{1\text{AmbiguityLow}}$  and  $g_{2\text{AmbiguityHigh}} < g_{2\text{AmbiguityLow}}$ .

*Proposition 3a: Ambiguity of the environment moderates the relationship between leaders' promotion foci and exploration activities such that when the ambiguity of the environment is high (or low) the relationship between leaders' promotion foci and exploration activities will be stronger (or weaker) ( $b_{1\text{AmbiguityHigh}} > b_{1\text{AmbiguityLow}}$ ).*

*Proposition 3b: Ambiguity of the environment moderates the relationship between leaders' prevention foci and exploitation activities such that when the ambiguity of the environment is high (or low) the relationship between leaders' prevention foci and exploitation activities will be weaker (or stronger) ( $g_{2\text{AmbiguityHigh}} < g_{2\text{AmbiguityLow}}$ ).*

***Extending this Model to Explain Ambidexterity at the Individual Level.*** This paper primarily contributes to the literature on exploration and exploitation at the individual level, but

its insights may also be useful for the ambidexterity literature. Ambidexterity is most often characterized in terms of exploration and exploitation (Simsek, Heavey, Veiga, & Souder, 2009, p. 865), and to construct a complete and overarching model of organizational ambidexterity, one needs to understand exploration and exploitation at the individual level (Raisch & Birkinshaw, 2008). Understanding the psychological precursors of exploration and exploitation is a necessary but insufficient step in comprehending individuals' ambidexterity. Achieving ambidexterity at the individual level requires balancing exploration and exploitation activities, either simultaneously or over time. Based on the propositions of this paper, it may be argued that simultaneous ambidexterity (e.g., Mom et al., 2009) is associated with an individual having high levels of both promotion and prevention foci. According to Siggelkow & Levinthal (2003), an individual can also become ambidextrous by maintaining a healthy balance of exploration and exploitation over time (temporal ambidexterity). However, to explain the challenge of being ambidextrous over time, an additional mechanism that will act in coordination with the individual's regulatory focus may be necessary.

## **DISCUSSION**

In this paper, we positioned regulatory focus as a central psychological theory for explaining exploration and exploitation activities at the individual level. We demonstrated that two concepts, conceptually linked to the strategic leadership literature, moderate this relationship. Accordingly, the paper has a number of contributions and implications for the strategic leadership literature, especially for research examining the role of individuals in the emergence of exploration and exploitation activities.

## **Contributions and Implications for Theory and Research**

### ***Positioning Leaders' Regulatory Focus as a Driver of their Exploration-Exploitation***

**Activities.** The first contribution of this paper is conceptually establishing a link between leaders' regulatory foci and exploration-exploitation activities. We briefly discussed the three benefits of joining these two areas of research that have compatible underlying assumptions (Okhuysen & Bonardi, 2011), and now we will elaborate on these benefits. First, establishing a relationship between regulatory focus and exploration-exploitation helps explain and predict leaders' dispositions toward exploration and exploitation activities. Until now, research on the personality characteristics that influence an individual's tendency to engage in exploration and exploitation activities has been scarce. As a result, we have limited knowledge of how an individual should be selected for a formal leadership role that requires a particular level of exploration and/or exploitation activities. Chronic regulatory focus (Higgins, 1997, 1998) suggests that leaders' exploration and exploitation involves a stable component that is hardwired into individuals. As an extension of exploration and exploitation research at higher levels of analysis, research at the individual level has primarily concentrated on external variables such as organizational and environmental antecedents, and has not accounted for why individuals behave differently under similar circumstances.

Chronic regulatory focus facilitates an explanation of the persistent dissimilarities in individuals' exploration and exploitation activities. Using regulatory focus theory, this paper offers insight into the question "which leaders are more likely to chronically engage in exploration and/or exploitation activities?" and the interrelated question "through which mediatory paths are the effects of leaders' personality characteristics channeled into leaders' exploration and exploitation activities?" This paper's examination of chronic regulatory focus

suggests that the leaders who score high on both prevention and promotion foci may have a natural inclination toward contextual ambidexterity, which requires a leader to maximize both exploration and exploitation activities (Mom et al., 2009). This inference strongly parallels and confirms prior studies' observations that ambidextrous leaders 'host contradictions' (e.g. Mom et al., 2009, p. 813; Smith & Tushman, 2005).

Second, establishing a relationship between regulatory focus and exploration-exploitation can help us explain and predict variations in a leader's exploration-exploitation behaviors. Most organizational elements in the literature (e.g., formal structure of the organization) and the chronic regulatory focus cannot properly account for the variations in an individual's behavior, as these constructs are fairly stable, especially in the short term. In contrast, the other components of regulatory focus theory, such as the work-specific regulatory focus and regulatory state, allow for a dynamic explanation of leaders' exploration and exploitation activities beyond that of stable constructs. The dynamic components of regulatory focus theory take into account the temporary effects of situational or contextual elements (e.g., Neubert, Kacmar, Carlson, Chonko, & Roberts, 2008; Stam, et al., 2010), which can help explain both momentary short-term variations (i.e., regulatory state) and enduring long-term variations (i.e., work-specific regulatory focus) in a leader's exploration and exploitation activities.

Third, establishing a relationship between regulatory focus and exploration-exploitation increases our understanding of the potential relationships of exploration and exploitation with other psychological constructs. Despite the clear relevance of psychology to individuals' exploration and exploitation behaviors, the psychological perspective is underrepresented in this emerging research area. In contrast, the regulatory focus literature is a mature area of research that spans two decades. As a result, numerous associations among regulatory focus and other

psychological constructs have already been researched. For instance, regulatory focus is conceptually linked and empirically associated with numerous personality antecedents, such as extraversion, anxiety, optimism, neuroticism, positive affectivity, behavioral activation, learning goal orientation, performance-approach goal orientation, neuroticism, negative affectivity, behavioral inhibition, performance-avoidance goal orientation, conscientiousness, openness to experience, agreeableness, self-esteem and self-efficacy (e.g., Gorman et al., 2012; Lanaj, Chang, & Johnson, 2012). Having this network of conceptual linkages to various areas of psychology can benefit the exploration-exploitation literature at the individual level where psychological antecedents are relevant but largely unknown.

***Formulating a Model that can Delineate the Primary Boundaries of the Relationship Between Leaders' Regulatory Foci and Exploration-Exploitation Activities.*** The second contribution of this paper is the formulation of a model that can delineate the primary boundaries of the relationship between leaders' regulatory foci and exploration-exploitation activities. This contribution has three main benefits for the literature. First, formulating such a model complements the first contribution by demonstrating both the associations and dissociations between the regulatory focus and exploration-exploitation constructs. By utilizing two moderating variables, this model illustrates some differences between regulatory focus and exploration-exploitation, which confirms that the explicated link is not tautological.

The second benefit of this contribution is that such a framework allows different studies to build on each other's findings. Several studies have used psychological arguments in their theoretical mechanisms in examining the organizational antecedents of exploration and exploitation at the individual level (e.g., Mom et al., 2009). These arguments were generally

idiosyncratic as they were based on a bricolage of different theories. The literature fragmentation resulting from numerous studies illuminating various psychological antecedents without a unifying framework is an ongoing criticism in the management literatures (e.g., Powell et al., 2011). As a result of this fragmentation, studies cannot build on each other and the interrelations among different constructs are difficult to pinpoint. Our paper enables future studies to build on and complement each other's results, a necessity that is regularly emphasized in the literature (e.g., Powell et al., 2011).

The third benefit of this contribution is that it provides new insights into the existing discussions in the literature. For example, this model can advance the ongoing discussion in *Leadership Quarterly* about the link between transformational-transactional leadership and exploration-exploitation (see Jansen, Vera, & Crossan, 2009). Jansen and colleagues (2009) recently demonstrated a relationship between transformational leadership and exploratory innovation, and between transactional leadership and exploitative innovation. They based their theoretical mechanism on former organizational models (e.g., theories of organizational learning). With the addition of our paper, the regulatory focus literature can now demonstrate the same link using a psychological model with a completely different set of assumptions. Kark and van Dijk (2007) argued that the transformational leadership activities of upper-level management can increase promotion focus and transactional leadership activities to enhance prevention focus within the firm. By highlighting promotion focus as a key driver of exploration activities and prevention focus as a key driver of exploitation activities, our paper extends the results of Kark and van Dijk (2007) to confirm the model of Jansen and colleagues (2009) through a different type of theoretical mechanism. Psychological theories can explain a different part of the variance than economic/organizational theories (Levinthal, 2011; Powell et al., 2011). Hence, one

advantage of confirming Jansen et al (2009) model through a psychological mechanism is that, with the addition of the relevant psychological variables, future empirical studies can possibly explain a larger portion of the observed variance (e.g., a larger r-squared value). Moreover, the insights from this paper may also reveal new ways to further develop the earlier model.

### **Managerial Implications**

This paper has implications for our understanding of how we can select individuals for formal leadership roles and motivate them to increase engagement in exploration and exploitation activities, which is relevant to top management team members and Human Resources professionals, who are responsible for selecting individuals for formal leadership roles and for designing various elements of their work environments. This paper suggests that if a role necessitates a high inclination toward exploration activities (e.g., R&D), the candidates' promotion focus is more important, whereas a prevention focus is more critical for exploitation activities. Our model shows that both the individual's regulatory focus and the external variables can affect the individual's exploration and exploitation activities. The individual's decision-making autonomy and the ambiguity of the individual's environment can result in a different level of exploration-exploitation activities than what the individual's promotion and prevention foci would normally suggest.

Managers should bear in mind the differences among the components of regulatory focus; together, these components can help explain and predict a range of behavioral outcomes. An example scenario is that an individual who regularly engages in exploration activities receives a new formal role that requires a high inclination toward exploration, and she or he suddenly shifts towards exploitation upon undertaking this new role. Resolving such a scenario would first

require us to understand the chronic regulatory focus of the individual. If the individual is chronically promotion-focused, this may suggest that the environmental elements surrounding this role may be influencing his or her work-specific regulatory focus. Alternatively, perhaps the individual's work-specific regulatory focus is the same, but the change in his or her decision-making autonomy or the ambiguity of the environment are causing this variation in behavior (as these variables moderate the link between the individual's regulatory focus and exploration-exploitation activities). Another possibility is that the recent role change is temporarily affecting the regulatory state of the individual. If this is the case, the individual is likely to revert back to his or her normal level of exploration, and probably no intervention will be necessary. Finally, perhaps the former role itself was causing the exploration behavior, in which case the management should consider redesigning the new role. In sum, understanding different components of regulatory focus and the moderating variables can help managers select individuals in line with their goals, predict individuals' behaviors under different circumstances, and solve problems when these individuals act in contrast to expectations.

### **Future Research**

*Testing the Propositions.* As with any other conceptual work, the next step should be testing the general propositions through specific empirical studies, which requires these constructs to be examined under different environmental conditions and with different operationalizations (e.g., chronic vs. contextual regulatory focus). Given the interdisciplinary nature of this research, one crucial and relatively demanding task will be selecting appropriate control variables.

For instance, in this paper, we presented decision-making autonomy as a notable example

of an autonomy-related variable that moderates the link between leaders' regulatory focus and their exploration-exploitation activities. When conducting research using this particular variable, for example, one potential control variable might be the leaders' level of accountability, meaning "the implicit or explicit expectation that one may be called on to justify one's beliefs, feelings, and actions to others" (Lerner & Tetlock, 1999, p. 255). More specifically, in some circumstances, the feeling of power that derives from increased decision-making autonomy may signal to the individual that he or she is less likely to be questioned about his or her actions (the opposite may also be true under other circumstances). This lower expectation of potential negative consequences may signal to the individual that the environment is nurturing (as opposed to threatening), and may then lead to a promotion focus in that particular context. That, in turn, may unnecessarily complicate the relationship between the variables, and cause ambiguous results. Likewise, the aforementioned study by Lanaj and colleagues (2012) suggest that regulatory focus has a number of personality antecedents. That is, regulatory focus may partially or fully stem from personality variables and the interactions among them. Until now, personality-related variables, such as exogenous traits, were not common in either the regulatory focus or exploration-exploitation literature as control variables. However, as discussed previously, including the relevant personality antecedents is vital, particularly when testing models based on this paper.

In sum, especially because we are conducting research that straddles two different literatures, variables that were not common as control variables in previous research may now become relevant. Therefore, when selecting control variables for models based on this framework, future researchers should not only consider the control variables used in past regulatory focus and exploration-exploitation studies, but also the relevant dependent and

independent variables, such as (and especially) the personality antecedents.

### ***Mechanisms Mediating Leaders' Regulatory Foci and Exploration-Exploitation***

**Activities.** Every scientific relationship has a more fine-grained mediating mechanism, and the relationship between regulatory focus and exploration-exploitation at the individual level is no exception. One promising avenue for gaining a more detailed comprehension of the link between regulatory focus and individuals' exploration-exploitation activities lies within the recent neuroscience literature. Within the last decade, studies of brain activity have provided valuable insights about human behavior and . In line with these developments, researchers have begun examining the neurological micro-foundations of the regulatory focus (e.g., Amadio, Shah, Sigelman, Brazy, & Harmon-Jones, 2004) and of exploration-exploitation behaviors (e.g., Laureiro-Martinez, Brusoni, & Zollo, 2010). However, it is not yet pointed out that regulatory focus and exploration-exploitation behaviors may be linked also at a neurological level. As previously discussed, regulatory focus theory is based on the essential principle of avoiding pain (punishment) and seeking pleasure (reward). Laureiro-Martinez, Brusoni, and Zollo (2010) consider the role of the brain's reward and punishment system in the emergence of exploration and exploitation activities, which may signal that regulatory focus and exploration-exploitation are linked at a neurological level. Examining the relationship between regulatory focus and exploration-exploitation from a neurological perspective would help us to further clarify their relationship and enhance the dialogue in the neuroscience literature. For instance, in the future research section of the abovementioned paper, Laureiro-Martinez and colleagues mention that ".....it would be useful to take the dimension of time into account as the exploration-exploitation dilemma encompasses the anticipation of future rewards" (2010, p. 112). In contrast, the relationship between regulatory focus and time is relatively well-examined in the regulatory

focus literature (e.g., Pennington & Roese, 2003; Theriault, Aaker, & Pennington, 2008). In other words, linking regulatory focus and exploration-exploitation at a neurological level can also allow the social science perspective to play a leading role in the development of the natural science perspective.

***The Effects of Leaders' Regulatory Foci on the Wider Organization and the Role of the Followers.*** Yammarino, Dionne, Chun, and Dansereau note that “In the various areas of leadership research, key levels of analysis are individuals or persons (independent human beings), dyads (two-person groups and interpersonal relationships), groups (work groups and teams), and organizations (collectives larger than groups and groups of groups)” (2005, p. 880). One way a leader can affect the exploration-exploitation activities of the collective levels (i.e., dyad, group, and organization levels) is through changing his or her exploration-exploitation activities. In smaller collectives especially, such as dyads, a change in an individual's activities can substantially alter the aggregate amount of activity. However, a leader's resources for achieving a goal are not limited to only his or her individual resources. For instance, when a leader intends to undertake an exploration activity, such as developing a new product, rarely does he or she take on this task alone. More likely, he or she influences other individuals (e.g., superiors and followers) to engage in the required course of action, which allows the leader to have a significant effect on the exploration-exploitation activities of a larger collective. This process of influencing others could be a future research area for extending the framework developed in this paper.

A primary method of influencing superiors' choices is persuasion. Regulatory focus has an important role because it has an effect on an individual's persuasiveness. For instance, McMullen and colleagues (2009) suggest that the persuasiveness of subordinates depends on the

fit or misfit of their regulatory foci with that of their superior. McMullen et al. (2009) use this idea to explain why managers sometimes fail to address pending threats despite the admonitions of their subordinates. These ideas are still at a relatively germinal stage and are not empirically tested; therefore, they present interesting areas of future research.

The issue of followers is more complex, and therefore presents even more areas of future research, as a leader has numerous options for affecting his or her followers. For instance, in the case of a formal leadership position especially, one straightforward method of influencing followers' behaviors is delegation (e.g., Mintzberg, 2011, p. 60). In other words, one way a leader's regulatory focus may have an effect on followers' exploration-exploitation activities is through influencing the leader's tendency to order the followers to engage in a particular combination of exploration and exploitation activities. Moreover, not only the leader's explicit orders, but the leadership style may have an influence on the followers' exploration and exploitation tendencies as well. For instance, Kark and van Dijk (2007) suggest that promotion-focused individuals are more likely to pursue a transformational leadership style, whereas prevention-focused individuals are more likely to engage in a transactional leadership style. Jansen, Vera, and Crossan (2009) found a positive relationship between managers' transformational leadership and the exploratory innovation level of that branch and between managers' transactional leadership and the exploitative innovation level of that branch. Therefore, the leader's regulatory focus may have an effect on the followers' exploration-exploitation activities by orienting the leader toward a particular style of leadership (transformation or transactional), which is likely to increase the followers' exploration or exploitation activities.

Finally, a leader's promotion focus can influence followers' exploration and exploitation

activities by shifting their regulatory focus. Building on insights from self-categorization and social identity theories (e.g., Hogg & Terry, 2000; Tajfel & Turner, 1986), a recent body of research suggests that regulatory focus is part of collective identity schemas (Faddegon, Scheepers, & Ellemers, 2008). In other words, like individuals, collectives can have a regulatory focus as well. Therefore, to the extent that an individual's collective identity is salient – that is, the extent to which the individual defines himself or herself in terms of the group, rather than in terms of the individual self (e.g., Hogg & Terry, 2000) – the individual's promotion and prevention focus will also temporarily change (Faddegon et al., 2008). The individual's regulatory focus will shift toward that of the group, or at least toward what the individual *perceives* as the group's regulatory focus (Faddegon et al., 2008), which means that the exploration and exploitation activities of the individual will likely shift. Research suggests that leaders can influence the self-concepts of their followers (Lord & Brown, 2001) and that followers' regulatory foci tend to shift toward the leader's regulatory focus (Kark & van Dijk, 2007; McMullen et al., 2009). Considered in the light of the first two propositions of this paper, we expect this shift to be reflected in the followers' exploration and exploitation tendencies.

***The Role of Regulatory Fit.*** The body of research within the regulatory focus literature examining 'regulatory fit' may be beneficial for future research on individuals' exploration and exploitation activities. Regulatory fit suggests that a fit between an individual's regulatory focus and the task increases task engagement, perception of task value, and cognitive performance in the task, and therefore improves the individual's task performance, whereas a 'regulatory mismatch' has the opposite effect (Higgins, 2000; Keller & Bless, 2006). As we have discussed, leaders' promotion focus is associated with exploration activities and prevention focus with exploitation activities. Due to the effect of regulatory fit versus mismatch, we expect individuals

and collectives to have a greater tendency to engage in exploration (exploitation) activities when they are in a promotion (prevention) focus, and to show higher levels of performance in the corresponding activities. In contrast, if an individual or collective is compelled to engage in these activities without any change in their regulatory focus, we expect the levels of task performance to be negatively affected.

A better understanding of this link would benefit the literature on leaders' exploration-exploitation activities because most prior research in this area explains only the level of engagement in exploration and exploitation activities without discussing the task performance in those activities. There is an implicit assumption that engaging in exploration and exploitation activities has a direct positive effect on performance, but it is more likely that engagement in exploration and exploitation will increase the overall performance of the individual insofar as the individual performs well on those exploration and exploitation tasks. The regulatory fit concept can make a valuable contribution by showing that individuals engage in varying amounts of exploration and exploitation and perform at different levels depending on their natural tendencies. In other words, regulatory fit can explain why two individuals with similar degrees of exploration and exploitation activities may have different performance levels, which is an important gap in the current literature.

## **CONCLUSION**

In this paper, we conceptually examined the relationship between leaders' regulatory foci and exploration-exploitation activities. In doing so, we highlighted regulatory focus as one of the potential mediatory paths between leaders' personality characteristics and exploration-exploitation activities. Moreover, we have suggested decision-making authority and ambiguity of

the environment as two variables moderating the strength of this path. This paper's findings have theoretical and managerial implications for how individuals should be selected for formal leadership positions and how their exploration-exploitation tendencies may change under different circumstances.

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### **FOOTNOTE**

- 1- We would like to note here that we are hypothesizing using multi-sample models rather than using one regression model with a dummy to be interacted. Hence, we are using the same coefficient symbols as before for purposes of convenience.

**TABLE 1**

A Comparison of Managers' Exploration-Exploitation and Regulatory Focus

Dimensions	Exploration and Exploitation	Regulatory Focus
Risk	Exploration is a high-risk activity, whereas exploitation is a low-risk activity (March, 1991)	Promotion focus is associated with high risk-taking, whereas prevention focus with low risk-taking (Crowe & Higgins, 1997)
Time Frame	Exploration is associated with long-term goals, whereas exploitation with the short-term goals (Tushman & O'Reilly, 1996)	Promotion focus is associated with distant future, whereas prevention focus with near future and retrospective thinking (Pennington & Roese, 2003)
Novel and Tried	Novel activities are associated with exploration, whereas repetitive ones are with exploitation (Levinthal & March, 1993)	Promotion focus is associated with trying new ideas, whereas promotion focus with already tried ones (Herzenstein et al., 2007)
General and Specific	Exploration requires a generalist knowledge base, whereas exploitation requires a specific one (Holmqvist, 2004)	Promotion focus is associated with a global processing style, whereas prevention focus with a local processing style (Förster & Higgins, 2005)
Knowledge Creation and Knowledge Application	Knowledge creation is a form of exploration, whereas knowledge application is a form of exploitation (He & Wong, 2004)	Promotion focus is associated with knowledge creation, whereas prevention focus with flawless and reliable application (Rietzschel, 2011)
Stability and Change	Exploration initiates change, whereas exploitation provides stability (Lewin et al., 1999)	Promotion focus is associated with a willingness for change, whereas prevention focus with keeping the status quo (Liberman et al., 1999)

Elements of Regulatory Focus

FIGURE 1

