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MANAGING STRATEGIC CHANGE: THE DUALITY OF CEO PERSONALITY

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Using the five factor model (FFM) of personality, we delineate two distinct roles of CEO personality in managing strategic change: initiating strategic change and determining the performance effects of strategic change implementation. Based on data from 120 small- and medium-sized enterprises (SMEs) in Ecuador, we found that some FFM traits of CEOs influenced initiation only (extraversion and openness), others similarly influenced initiation and performance effects of implementation (emotional stability and agreeableness), and still others had opposing effects on initiation and effective implementation (conscientiousness). These results point to a dual role of CEO FFM of personality in managing strategic change, and they indicate the differences in CEO FFM traits needed to initiate strategic change and those needed to improve the performance effects of strategic change implementation. Copyright © 2013 John Wiley & Sons, Ltd.

INTRODUCTION

The study of CEO personality has emerged as an important topic in strategic management (Chatterjee and Hambrick, 2007; Chin *et al.*, 2013; Hiller and Hambrick, 2005). As chief cognizer and attention regulator, the CEO has the primary responsibility for setting strategic directions and plans for the firm, as well as the responsibility for guiding actions that will realize those plans (Calori, Johnson, and Sarnin, 1994; Gioia and Chittipeddi, 1991). Because CEOs have a disproportionate, sometimes nearly dominating influence on firm activities (Finkelstein and Hambrick, 1996), their personalities have a major influence on strategic behaviors (Peterson *et al.*, 2003). As Hambrick, Finkelstein, and Mooney (2005: 503) state, 'Indeed, we can imagine no more fertile terrain in the organization sciences today than the study of executive personality . . . Executives are finite, flawed human beings. But they reside in jobs where the stakes associated with their humanness—both positive and negative—are enormous.' CEO personality traits such as locus of control (Miller and Toulouse, 1986), narcissism (Chatterjee and Hambrick, 2007), and core self-evaluation (Resick *et al.*, 2009; Simsek, Heavey, and Veiga, 2010) have been shown to influence strategic actions and outcomes.

Despite these promising insights, scholars still possess only a limited understanding of the strategic implications of CEO personality. Prior studies have mainly examined narrow components of overall personality assessment (e.g., locus of control) and concepts that lack psychological and methodological rigor (e.g., hubris) (Hiller and Hambrick, 2005). Strategy scholars are increasingly urging researchers to employ broad, rigorous,

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and valid frameworks that provide a fundamental assessment of CEO personality (Carpenter, 2011; Hambrick, 2007). One such framework, the five factor model (FFM), has emerged as a comprehensive and robust approach to personality assessment *(* McCrae and Costa, 1987*)*. However, studies examining the FFM for CEOs are sparse (exceptions are Nadkarni and Herrmann, 2010, and Peterson *et al.*, 2003). Because of this failure to capitalize on the broad and rigorous FFM framework, 'researchers may have understated the contribution that . . . personality can make to explaining top managers' behaviors' (Cannella and Monroe, 1997: 223). 'A myriad of hypothesized relationships exist; however, few have received adequate (if any) empirical exploration' (Peterson *et al.*, 2003: 795).

Paying heed to these calls, we examine the influence of CEO personality on strategic change, which has long occupied an important position in strategic management. It is an 'important phenomenon because it represents the means through which organizations maintain coalignment with shifting competitive, technological, and social environments which occasionally pose threats to their continued survival and effectiveness' (Kraatz and Zajac, 2001: 632). Prior research has mainly examined the firm (structure and resources) and environmental antecedents of strategic change (Audia, Locke, and Smith, 2000; Smith and Grimm, 1987; Zajac and Kraatz, 1993; Zajac, Kraatz, and Bresser, 2000; Kraatz and Zajac, 2001). The few CEO studies of strategy change have examined the influence of CEO demographics such as education and tenure (Datta, Rajagopalan, and Zhang, 2003; Zhang and Rajagopalan, 2010). Studies examining the role of CEO personality in general and FFM in particular in shaping strategy change are noticeably absent. As a result, we know little about how CEO personality influences strategic change and its outcomes.

We address this important gap by examining the role of CEO personality in two distinct aspects of managing strategic change: initiation (discrete changes in the content and scope of a firm's existing strategies in response to environmental changes) (Zajac *et al.*, 2000; Rajagopalan and Spreitzer, 1997) and effective implementation (changes in structures, processes, and incentive systems undertaken to support and carry out initiated strategic changes) (Dutton and Duncan, 1987; Greiner and Bhambri, 1989). We draw on two distinct streams to build our model. First, research on CEO psychology contends that personality attributes shape how CEOs notice, interpret, and respond to environmental stimuli and, therefore, influence their strategic choices (Chatterjee and Hambrick, 2007; Hiller and Hambrick, 2005), i.e., that CEO personality has a main effect on initiation of strategic actions. Second, emerging literature on strategic leadership suggests that CEO personality may enhance or hinder the performance effects of strategic implementation by shaping the individual relationships that CEOs develop with proximal employees (e.g., top and middle managers) and the organizational environment that they create (e.g., structures, processes, and incentive systems) (Boal and Hooijberg, 2000; Kaiser and Hogan, 2007; Kaiser, Hogan, and Craig, 2008; Peterson *et al.*, 2003; Resick *et al.*, 2009). Thus, CEO personality may determine the performance implications of strategic change implementation. By integrating these two streams, we theorize that CEO FFM traits will have differential effects in initiating strategic change and in maximizing the performance effects of strategic change implementation. We test these predictions using a sample of 120 SMEs from Ecuador.

Our results contribute to existing literature in several ways. First, to the best of our knowledge, our study is the first to examine the role of CEO personality in strategy change. The promising results of our study highlight the importance of CEO personality in managing strategy change. Second, research examining the strategic change-firm performance relationship has yielded inconsistent findings (Zajac and Kraatz, 1993; Naranjo-Gil, Hartmann, and Maas, 2008; Zajac and Kraatz, 2000). Our results lend conceptual clarity to this relationship by specifying the CEO personality moderators that enhance or hinder the performance effects of strategic change implementation. Third, our study suggests the differential roles of CEO personality traits (FFM) in initiating strategic change and in determining the performance effects of strategic change implementation. Our results not only point to a more nuanced and complex role of CEO personality in firm strategies and outcomes than has been previously theorized, but also provide prescriptions on the unique CEO personality profiles needed to manage different aspects of strategic change.

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THEORY DEVELOPMENT

Review of literature on strategic change

Research on strategic change has progressed along two distinctive streams: *initiation of strategic change* and *performance implications of strategic change*. Initiation of strategic change, defined as discrete changes in the content and scope of a firm's existing strategies in response to environmental changes, subsumes initial activities where 'the knowledge of the need to change is built and a decision to make a change is made' (Dutton and Duncan, 1987: 108). Most research in this stream has adopted a normative approach to conceptualize initiation of strategic change as a rational process undertaken to adapt to environmental changes (Zajac *et al.*, 2000; Zajac and Kraatz, 1993; Zajac and Shortell, 1989) and have examined organizational (e.g., resources and competencies) and environmental (e.g., local competition, regulatory changes, technological changes) antecedents of strategic change initiation (Audia *et al.*, 2000; Kelly and Amburgey, 1991; Kraatz and Zajac, 2001; Smith and Grimm, 1987; Zajac and Kraatz, 1993, 2000).

However, research adopting a 'cognitive lens' contends that initiation of strategic change is tied to how executives subjectively make sense of their environments and use these interpretations to identify concrete change options (Gioia and Chittipeddi, 1991; Rajagopalan and Spreitzer, 1997). Using this cognitive lens, some studies have shown that top management team (TMT) attributes such as education, tenure, and functional background serve as filters in how they notice and interpret environmental stimuli and, in turn, influence strategic change (Boeker, 1997; Wiersema and Bantel, 1992). Other studies have applied the cognitive lens to demonstrate how CEOs shape strategic change. In their case study of a public university, Gioia and Chittipeddi (1991) found that CEO initiative in the form of active efforts to understand the internal organizational and external environmental factors and 'revisioning' or developing a revised conception of the organization enabled initiation of strategic change. Similarly, Datta *et al.* (2003) demonstrated that CEO demographics such as age, education, and organizational tenure promoted greater strategic change.

The second stream considers strategic change to be a double-edged sword for firm performance because of its *adaptive* and *disruptive* effects. On the adaptive side, strategic change can help firms break the stronghold of inertia and allow them to effectively adapt and innovate (Romanelli and Tushman, 1994; Zajac and Kraatz, 2000). However, strategic change can also be disruptive and traumatic for firms, leading to inefficiencies and waste of resources that can hamper firm performance (Zajac *et al.*, 2000). Some empirical studies have found that the relationship between strategic change and firm performance is positive (Smith and Grimm, 1987; Zajac and Kraatz, 1993) or inverted U-shaped (Zhang and Rajagopalan, 2010), while others have found it to be negative (Naranjo-Gil *et al.*, 2008; Zajac and Kraatz, 2000), and still others have found no relationship (Zajac and Shortell, 1989). These mixed results increase the importance of examining potential moderators in the strategic change-firm performance relationship. Research studies have mainly examined environmental and firm-level moderators in this relationship (Audia, *et al.*, 2000; Kraatz and Zajac, 2001; Zajac and Kraatz, 1993; Zajac *et al.*, 2000).

Process studies have emphasized that performance effects of strategic change are tied to strategic change implementation, which entails supportive changes in structures, processes, communication, and incentive systems to carry out and complete the initiated strategic changes (Dutton and Duncan, 1987; Greiner and Bhambri, 1989; Huy, 2002, 2011; Nutt, 1987; Rajagopalan and Spreitzer, 1997). A creative and innovative strategic change with high potential can ultimately fail and result in firm performance losses if it is not properly implemented (Dutton and Duncan, 1987). Effective implementation can increase the adaptive effects and reduce the disruptive effects of strategic change by minimizing resistance, garnering the necessary organization-wide support to push the strategic agenda, and allowing efficient use of available resources in timely completion of strategic change (Burgelman, 1984; Nutt, 1987). However, improper implementation can evoke conflicts, resistance, delays, and inefficiencies in resource allocations that harm the adaptive benefits and amplify the disruptions in strategic change (Rajagopalan and Spreitzer, 1997). Thus, implementation of strategic change is a central driver of performance consequences.

Although sparse, some studies have suggested the role of CEOs in determining the performance effects of strategic change implementation. In their

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case study, Greiner and Bhambri (1989) found that CEOs who developed appropriate structures and communicated a clear and positive vision for the future were able to mobilize the resources and support necessary to ensure implementation success. Fiss and Zajac (2006) found that how CEOs framed and communicated initiated strategic changes to key stakeholders determined stock performance following these changes. Finally, Zhang and Rajagopalan (2010) found that CEO tenure moderated the relationship between strategic change and firm performance. Together, these studies imply that CEOs are likely to play a critical role in determining the performance effects of strategic change implementation.

However, neither stream has recognized the influence of CEO personality. Building on the strategic leadership and personality research, we propose that CEO personality will determine both initiation of strategic change and the performance effects of strategic change implementation.

CEO personality, strategic change, and firm performance

We develop two distinct sets of relationships (Figure 1) to capture the complexity and duality of the role of CEO personality in managing strategic change: (1) main effects of CEO personality on initiation of strategic change; and (2) moderating effects of CEO personality on the relationship between strategy implementation and firm performance. We represent CEO personality by the FFM, which robustly and comprehensively captures fundamental personality differences and their influence on a wide range of behaviors and performance variables (Judge *et al.*, 2002; Judge and Erez, 2007; McCrae and Costa, 1997). The FFM of CEO personality has been shown to drive strategic actions and outcomes (Nadkarni and Herrmann, 2010; Peterson *et al.*, 2003). The FFM comprises five broad and distinct traits (conscientiousness, emotional stability, agreeableness, extraversion, and openness to experience) that have differing patterns of relationships with leader behaviors and effectiveness (Bono and Judge, 2004; Judge and Bono, 2000; Judge *et al.*, 2002).

Research within the cognitive lens of strategic change recognizes that initiation of strategic change is tied to the CEO's propensity to change (Datta *et al.*, 2003; Rajagopalan and Datta, 1996; Teece, 2007). CEOs with broad information processing capabilities (Gioia and Chittipeddi, 1991; Rajagopalan and Spreitzer, 1997), divergent thinking and creativity (Datta *et al.*, 2003), high tolerance for ambiguity, and motivation to combat inertial forces (Kisfalvi, 2000; Teece, 2007) are more likely to recognize the need for strategic change and to push the strategic change agenda than CEOs that lack these abilities. Personality research has found that these individual capabilities are tied to the FFM traits. Some FFM traits (e.g., conscientiousness) dispose individuals to follow established rules and become intolerant of ambiguity, hindering their capacity to change (Goldberg, 1990; LePine, Colquitt, and Erez, 2000). Other FFM traits dispose individuals to be adaptable (e.g., emotional stability), to engage in divergent thinking, and to actively seek and enjoy change (e.g., openness to experience and extraversion) (Bono and Judge, 2004; McCrae and Costa, 1987). Thus, some CEO

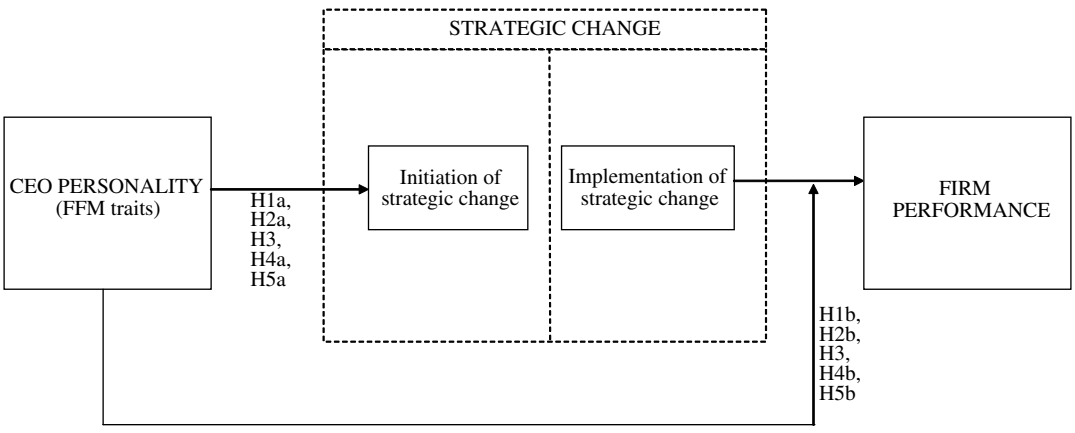

Figure 1. Theoretical model of CEO personality, strategic change, and firm performance

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FFM traits may foster strategic change, whereas other traits may promote status quo.

The strategic leadership literature proposes that CEO personality traits determine strategic outcomes through two sets of mechanisms: *proximal* and *distal*. Personality shapes how CEOs communicate with, reward, motivate, and mobilize proximal employees (e.g., TMT members and middle managers) (Peterson *et al.*, 2003; Resick *et al.*, 2009) who serve as 'agents of change' and can decide the success or failure of implementation (Floyd and Wooldridge, 1997; Wooldridge, Schmidt, and Floyd, 2008). Some FFM traits dispose leaders to instill strong direction, task focus, and achievement (e.g., conscientiousness) or to encourage flexibility and risk taking among proximal employees (e.g., emotional stability), all of which foster successful goal accomplishment (Judge *et al.*, 2002; Peterson *et al.*, 2003). Other FFM traits foster passivity and conflict avoidance (e.g. agreeableness) or dominance (e.g., extraversion) (LePine *et al.*, 2000; Grant, Gino, Hofmann, 2011), hindering implementation success. Thus, FFM traits of CEOs can enhance or hamper performance by creating adaptive or disruptive conditions for strategic change implementation.

Personality of CEOs may also have a distal influence on success or failure of implementation due to the attraction-selection-attrition (ASA) mechanism, which potentially promotes some degree of trait homogenization across different organizational levels (Schneider, 1987; Schneider, Goldstein, and Smith, 1995). Personality shapes how CEOs define strategic vision and goals (Boal and Hooijberg, 2000; Kaiser *et al.*, 2008), in turn determining 'the personality of people attracted to, selected, and retained by the organization' who may further recruit and assign prominent roles to employees with similar personality (Schneider *et al.*, 1995: 753). Westphal and Zajac (1995) found that CEOs select demographically similar top executives. Giberson, Resick, and Dickson (2005) found significant correlations between CEO personality and modal organizational personality for agreeableness and conscientiousness. This evidence suggests that FFM traits of CEOs are likely to have a cascading effect in enabling or hindering the performance consequences of strategic change implementation across different organizational levels.

Building on these diverse streams of literatures, we propose that the FFM traits of CEOs will have differential relationships with initiation of strategic change and performance effects of strategic change implementation. Traits fostering (or hindering) propensity to change may relate to initiation of strategic change, whereas traits reflecting a strong goal-achievement and performance motivation (or lack thereof) may enhance (or hamper) firm performance effects of strategy implementation. Figure 1 depicts our model. In what follows, we develop each hypothesis.

HYPOTHESES

Conscientiousness

We propose that conscientiousness may inhibit the CEO's propensity to change, but may enhance the performance effects of strategic change implementation. Conscientious individuals are cautious, deliberate, and intolerant of ambiguity (Bono and Judge, 2004; Costa and McCrae, 1996). They have a need to control their environment (Costa and McCrae, 1988). Conscientious CEOs' intolerance for ambiguity and strong need for control and structure dispose them to follow established rules rather than change (Peterson *et al.*, 2003). LePine *et al.* (2000) found a negative relationship between individual conscientiousness and adaptability. CEO conscientiousness has also been found to be positively associated with legalism (following rules) in the TMT (Peterson *et al.*, 2003) and negatively associated with strategic flexibility (Nadkarni and Herrmann, 2010).

These attributes associated with conscientiousness are likely to inhibit strategic change. High levels of strategic change typically entail significant deviations from past strategies and necessitate restructuring different parts of the organization (Finkelstein and Hambrick, 1990; Lant, Milliken, and Batra, 1992). To undertake major strategic change, executives need to engage in bold thinking, experimentation, and risk taking (Zhang, 2006). In undertaking strategic change, 'established ways of conducting business are abandoned in favor of making commitments to strategic directions for which payoffs are not guaranteed' (Wiersema and Bantel, 1992: 93). Therefore, executives should be willing to embrace ambiguity and operate outside of established structure and rules (Datta *et al.*, 2003). In contrast, reliance on established norms and tried-and-true strategies can

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misdirect search and hinder the ability to notice and adapt to environmental changes (Kraatz and Zajac, 2001). These arguments suggest that the need for structure and intolerance of ambiguity preferred by conscientious CEOs may make them prone to status quo rather than change.

Hypothesis 1a (H1a): CEO conscientiousness will be negatively related to initiation of strategic change.

Despite the lack of propensity to change, conscientious individuals work hard to accomplish goals (Costa and McCrae, 1996; Goldberg, 1990), and achieve higher levels of performance (Barrick and Mount, 1991). Conscientious leaders have a strong sense of direction, self-discipline, persistence, and performance motivation (Bono and Judge, 2004). They show initiative and perseverance in realizing difficult decision choices despite resistance and conflicts (Judge *et al.*, 2002) by closely and continuously monitoring deviations from set standards and promoting intensive communication (Judge and Bono, 2000).

Such perseverance and resolve of conscientious CEOs may enhance the adaptive effects and reduce the disruptive effects of strategic change implementation. For successful implementation, it is essential to create a broad acceptance and commitment for change across diverse divisions that typically have conflicting interests and stakes in the change (Burgelman, 1984; Dutton and Duncan, 1987; Huy, 2002, 2011). Without CEOs' willingness to persevere in the face of challenges such as resistance, conflicts, communication failures, and inadequate resources, implementation efforts can get derailed and result in disruptions and losses (Elenkov, Judge, and Wright, 2005; Greiner and Bhambri, 1989). Conscientious CEOs' motivation to take initiative and persevere in goal accomplishment despite setbacks and challenges (Judge and Bono, 2000; Judge *et al.*, 2002) may help them overcome the potential disruptive effects of implementation by engaging in strong conflict resolution tactics through intensive communication. Moreover, conscientious CEOs' need for structure and intolerance of ambiguity, which inhibits initiation of strategic change, may provide clarity and direction in communicating change across the organization. Such active monitoring and clear structure may allow the CEOs to get everyone on the same page so that disruptions due to conflicts and resistance in implementation that could potentially harm performance are minimized.

Hypothesis 1b (H1b): CEO conscientiousness will positively moderate the relationship between implementation of strategic change and firm performance.

Emotional stability

Emotional stability reflects the ability of individuals to adjust their emotional state to varied situational demands and to remain calm, level headed, and self-confident in stressful situations (McCrae and Costa, 1997). Emotionally stable individuals tend to experience positive emotions, which enhance their information processing ability as well as their creativity and motivation in solving difficult problems (Judge, Erez, and Bono, 1998). Empirical studies have found that CEOs with a more internal locus of control (a trait that is strongly related to emotional stability) engage in greater strategic changes spanning new products, R&D, and methods of service or production (Miller, Kets de Vries, and Toulouse, 1982; Miller and Toulouse, 1986) than CEOs with external locus of control who favor relatively narrow strategies. Similarly, CEO core self-evaluation (which includes emotional stability) (Judge *et al.*, 2002) was related to firm proactiveness and openness toward risk in creating new strategic initiatives (Simsek *et al.*, 2010).

Both information processing capacity and creativity are critical in promoting strategic change. Broad information processing allows timely recognition of environmental changes and increases variety of response options (Kraatz and Zajac, 2001; Lant *et al.*, 1992). Increased information processing capacity enhances the search for information, evokes the perception that change is feasible, and creates the necessary momentum for change (Dutton and Duncan, 1987; Wiersema and Bantel, 1992). Because strategic change is a departure from established and well-known strategies toward novel and untested actions, both creativity in problem solving and risk taking are key in fostering strategic change (Datta *et al.*, 2003; Wiersema and Bantel, 1992; Zhang and Rajagopalan, 2010). Based on this research, we expect that:

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Hypothesis 2a (H2a): CEO emotional stability will be positively related to initiation of strategic change.

Emotionally stable CEOs may also create a context that enhances the adaptive effects and reduces the disruptive effects of implementation of change on firm performance. Strategic change arouses strong feelings of fear, stress, and anxiety that reduce middle managers' receptivity to and acceptance of change (Huy, 2002, 2011; Teece, 2007). As middle managers are 'agents of change,' their lack of support due to emotional stress can derail implementation efforts and increase the chances of failure (Floyd and Wooldridge, 1997; Wooldridge *et al.*, 2008). Because emotionally stable leaders remain calm and composed in difficult and uncertain situations, they can successfully mitigate such employee fears and doubts and motivate employees to remain goal focused (Bono and Judge, 2004). Peterson *et al.* (2003) found that emotionally stable CEOs promoted strong commitment to organizational goals as well as cooperation and contributions to the welfare of the firm among proximal employees (TMT members). Such cooperation and commitment can remove conflicts, resistance, and bottlenecks and improve the chances of success in implementing strategic change (Boal and Hooijberg, 2000; Floyd and Wooldridge, 1997; Wooldridge *et al.*, 2008).

Hypothesis 2b (H2b): CEO emotional stability will positively moderate the relationship between implementation of strategic change and firm performance.

Extraversion

The principal component of extraversion is dominance or surgency (Goldberg, 1990; Judge and Bono, 2000; Trapnell and Wiggins, 1990), which makes extraverts assertive, influential, talkative, and forceful in communicating their opinions (Costa and McCrae, 1996; Judge *et al.*, 2002). Because of their ambition and enthusiasm, extravert leaders 'tend to seek out and enjoy change' (Bono and Judge, 2004: 902). The directive and dominance of extravert CEOs in strategic decision making (Peterson *et al.*, 2003) combined with their need for excitement and change may allow them to defeat naysayers and proponents of the status quo and create the momentum necessary for initiating strategic change. Recently, Nadkarni and Herrmann (2010) found that CEO extraversion related positively with strategic flexibility. Together, this research suggests that:

Hypothesis 3 (H3): CEO extraversion will be positively related to initiation of strategic change.

The role of CEO extraversion in determining the performance effects of strategic change implementation is tenuous. On the one hand, dominance or surgency of extraverted CEOs generates positivity, confidence, and enthusiasm among employees (Bono and Judge, 2004; Judge *et al.*, 2002), which may boost the adaptive effects and reduce the disruptive effects of implementation by appeasing the anxiety and fears among employees typically generated by strategic change. Meta-analytic evidence points to the positive influence of extraversion on transformational leadership behaviors (Judge and Bono, 2000) and leader effectiveness (Judge *et al.*, 2002).

On the other hand, recent studies have argued that the consistent relationship of extraversion with leader effectiveness may be due to the 'halo effect' created by the charisma of the extraverted leaders rather than their ability to foster superior behaviors and performance (Grant *et al.*, 2011). This research suggests that extraverted leaders are effective when their dominance is complemented by obedience and submissiveness from other employees (Barrick, Stewart, and Piotrowski, 2002; Anderson *et al.*, 2001). Extraverted leaders feel threatened by upward influence from employees and engage in conflicts and unconstructive behaviors when faced with proactive behaviors from lower employees (Ames and Flynn, 2007). Recently, Grant *et al.* (2011) found that extraverted leaders were less receptive to suggestions, initiatives, and upward influence from lower-level employees than introverted leaders. This lack of receptivity to upward influence resulted in lower unit-level performance.

Strategy implementation literature has stressed that such lack of acceptance of upward influence may amplify the disruptive effects of implementation by creating significant delays

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in identifying and addressing bottlenecks in implementation and evoking significant resistance from middle and lower managers who are central in implementing strategic change (Floyd and Wooldridge, 1997; Wooldridge *et al.*, 2008). In contrast, receptivity to upward feedback and suggestions from lower-level employees can facilitate development of broad support and commitment for change across the organization and increase the chances of implementation success (Dutton and Duncan, 1987; Wooldridge and Floyd, 1990). Given these conflicting arguments and evidence, we do not propose a formal hypothesis for the moderating effect of CEO extraversion in the relationship between implementation of strategic change and firm performance.

Agreeableness

Agreeable individuals are altruistic, empathetic, kind, cooperative, trusting, gentle, and modest. They value social affiliation with others (Bono and Judge, 2004). Although the empathy of agreeable leaders potentially fosters open, cooperative, and trust-based relationships with employees (Judge and Bono, 2000), it also gives rise to passivity, in which leaders avoid conflicts at all costs, act modest, and are more concerned about the welfare of the employees than about accomplishing task goals (Langan-Fox and Grant, 2007). The adverse effects of agreeableness are especially pronounced in situations of ambiguity and conflict (LePine and Van Dyne, 2001), prevalent in both the initiation and implementation of strategic change (Augier and Teece, 2009; Elenkov *et al.* 2005; Teece, 2007). Evidence suggests that because agreeableness disposes leaders to easily surrender their views to those of others and avoid voicing opinions and suggestions that upset others, it inhibits decision effectiveness and is detrimental to adaptability and change (LePine and Van Dyne, 2001). To initiate strategic change, CEOs need to be assertive and proactive in overcoming inertial forces that can undermine diffusion of new ideas (Augier and Teece, 2009). The caring and empathetic orientation of agreeable leaders inhibits such aggressive behaviors (Zhao and Seibert, 2006).

Hypothesis 4a (H4a): *CEO agreeableness will be negatively related to initiation of strategic change*.

Implementing strategic change involves diverse departments with very different stakes. As a result, it typically evokes conflicts between different divisions (Burgelman, 1984). Often, such conflicts can slow down and even paralyze strategic implementation unless the CEO exerts strong and assertive influence tactics to foster managerial motivation and commitment to strategic change at all levels of the firm (Elenkov *et al.*, 2005). Because of their concern for others, agreeable leaders typically lack assertiveness and a focus on goal accomplishment (LePine and Van Dyne, 2001). Such passivity and hesitance of agreeable CEOs in exerting strong influence and interventions in championing strategic change may result in misunderstandings, tensions, and resistance across different divisions that amplify the disruptive effects of strategic change on firm performance.

Hypothesis 4b (H4b): CEO agreeableness will negatively moderate the relationship between implementation of strategic change and firm performance.

Openness to experience

Openness to experience promotes unusual thought processes, divergent thinking, and risk taking (McCrae and Costa, 1987). Several aspects of openness to experience promote a strong propensity to change (Goldberg, 1990; McCrae and Costa, 1997). Open individuals actively seek out information about the world, are open to new and unusual experiences, identify more creative integrative solutions to problems, and are less predictable and stable in behaviors (Tetlock, 1983, 1984; Tetlock, Peterson, and Berry, 1993). Leadership studies have emphasized that open leaders actively seek, embrace, and enjoy change (Bono and Judge, 2004; Judge and Bono, 2000; Judge *et al.*, 2002). LePine *et al.* (2000) found that individual openness was positively related to decision quality for dynamic tasks involving unforeseen changes. Tetlock *et al.* (1993) showed that open mindedness related positively with creativity and negatively with conventionality. CEO openness is related with intellectual flexibility in the TMT (Peterson *et al.*, 2003) and strategic flexibility (Nadkarni and Herrmann, 2010). Recently, Shane *et al.* (2010) found that entrepreneurs higher in openness were better able to recognize and seize opportunities than those lower in openness. Because strategic change

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involves abandoning established strategies, receptivity to change and identification of creative solutions are essential for initiating strategic change (Wiersema and Bantel, 1992). Open CEOs' receptivity to novel and divergent information is likely to allow them to sense environmental changes and find response strategies more aggressively than closed CEOs. Thus,

Hypothesis 5a (H5a): CEO openness to experience will be positively related to initiation of strategic change.

CEO openness may also improve the performance effects of strategy implementation. Open individuals are able to understand and adapt to others' perspectives because they are good listeners, even to points of view they find distasteful (Costa and McCrae, 1996). Open individuals also hold balanced and nuanced positions in controversial situations and display greater independence of judgment when social pressures toward conformity are imposed on them (Tetlock, 1983, 1984; Tetlock *et al.*, 1993). The leadership literature emphasizes that open leaders encourage expression of ideas and stimulate employees to develop new perspectives and ways of doing things (Judge and Bono, 2000); they also value discourse and debate (Finkelstein and Mooney, 2003). Peterson *et al.* (2003) found that open CEOs rewarded managerial behaviors that were intellectually flexible and open.

The strategy implementation literature has stressed that building broad acceptance and commitment to change requires executives to be receptive to opposing perspectives and to encourage middle- and lower-level employees to voice their concerns freely (Floyd and Wooldridge, 1997; Wooldridge *et al.*, 2008). Such open communication can help CEOs understand the causes of employee dissatisfaction and address issues in a timely manner (Dutton and Duncan, 1987). Thus, open CEOs' ability to understand multiple viewpoints can help them minimize employee resistance and improve the performance effects of strategy implementation.

Hypothesis 5b (H5b): CEO openness to experience will positively moderate the relationship between implementation of strategic change and firm performance.

METHODS

Ecuadorian small- and medium-sized enterprise (SME) context

We used small- and medium-sized enterprises (SMEs) from Ecuador to test our hypotheses for several reasons. First, because Ecuador is an emerging economy with a relatively turbulent financial, economic, and political climate (Jaramillo and Schiantarelli, 2002), fluctuations in inflation rates, availability of financial capital, and employment levels have created considerable uncertainties in the business environment for incumbent firms (Falconí-Benítez, 2001). Research suggests that strategic change is central to survival and success in such uncertain environments (Shimizu and Hitt, 2004; Zajac and Kraatz, 2000). Also, the executive discretion literature suggests that environmental uncertainty (inherent in the Ecuadorian business climate) offers greater executive discretion and increases the manifestation of CEO personality in strategic actions (Hambrick and Finkelstein, 1987; Hambrick *et al.*, 2005). Therefore, not only is strategic change important for Ecuadorian firms, but CEO personality is also likely to influence strategic change decisions.

Second, the FFM has been found to have a similar meaning and a similar pattern of relationships in the Ecuadorian context as compared to the U.S. context. In a sample of 139 Hispanic adults that included Ecuadorian subjects, Benet-Martínez and John (1998) found no substantial differences in the personality structure of the FFM. In a comparative study of Hispanic (that included Ecuadorian subjects) and American adults, Benet-Martinez and John (1998) found no substantial differences in the personality structure of the FFM across the two samples. They concluded that 'there is little evidence for substantial cultural differences in personality structure at the broad level of abstraction represented by the Big Five dimensions' (Benet-Martinez and John, 1998: 729). Given this consistency in the meaning and pattern of relationships of FFM, we expect our theoretical predictions of the FFM of CEO personality to apply to the Ecuadorian context.

Third, due to the small size of operations and privately held governance mechanisms, CEOs of SMEs enjoy a much greater discretion in shaping and changing strategy and setting the climate of

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firms through their personality styles than do CEOs in large, public firms (Finkelstein and Hambrick, 1996; Kets de Vries and Miller, 1984). As CEOs, and consequently their personalities, are likely to be central to undertaking strategic changes in SMEs, we consider the SME context of the Ecuadorian firms to be suitable for examining our theorized relationships.

Sample and data collection

Following prior studies (Arend, 2006) and U.S. Small Business Administration (SBA), we defined SMEs as firms with less than 500 employees. We requested participation from 155 randomly selected firms from the list of SMEs registered in the Chambers of Commerce in Quito and Guayaquil, the two largest cities in Ecuador. Using established practices (Dikova and van Witteloostuijn, 2007), we translated the survey instrument from English to Spanish and then back to English to ensure accurate translation. We pilot tested the survey with CEOs of 10 Ecuadorian SMEs (not in the main sample) to improve the face validity of our instrument.

Previous survey-based CEO studies have typically suffered from lack of temporal precedence, single informants (Simsek *et al.*, 2010), and CEO changes within the time period of the study (Agle *et al.*, 2006). To overcome these limitations, we used multiple informants, collected data at two points in time, and selected firms in which there were no CEO changes for the entire time period of our study. In the first time period, we collected data on CEO personality and strategic change (both initiation and implementation). Because FFM of personality has been shown to be very stable over time (McCrae and Costa, 1987), we collected personality and strategic change data at the same time. However, we did ask the CEOs to report strategic change initiation and implementation activities undertaken in their firm over the past two years, and we included only those firms where the same CEO was present for this period. To avoid priming effects of CEOs' ratings of past strategic changes on self-reports of personality, we followed previous recommendations (Ortner, 2004; Vandenberg, 2002) and positioned self-report items (FFM) before items that could potentially prime the respondents (strategic change and firm controls). In the second time period, six months later, we collected data on firm performance. This temporal separation reduces common method bias and allows for a stronger test of causality. Personality and individual demographic data was collected from the CEO alone, whereas strategic change, firm performance, and firm control variable data was collected from two separate sources in each firm—the CEO and a top executive who reported directly to the CEO and played a central role in strategic decision making. The CEO recommended the top executive who served as a link between the CEO and middle managers.[1]

Telephone appointments were made with the CEOs and top executives in each time period, and the questionnaires were personally delivered to and collected from each source at the scheduled time. We received usable surveys from 120 SMEs in 10 industries (e.g., agriculture, construction, manufacturing, transport, communication, hotels, and real estate). This sample size is consistent with recent survey-based CEO studies (Agle *et al.*, 2006; Simsek *et al.*, 2010; Tosi *et al.*, 2004; Waldman *et al.*, 2001). Our response rate of 77 percent is much higher than the average response rate of 12 to 14 percent found in other CEO studies (Carpenter, Geletkanycz, and Sanders, 2004). Heckman's (1979) two-step residual estimation for firm size and age between responding and nonresponding firms suggested that the sample did not suffer from response bias (rho: $B = 0.11$, SE: 0.05, n.s.; sigma: $B = 0.\ 04$, $SE = 0.02$, n.s.; Lambda/inverse Mill's ratio: $B = 0.15$, $SE = 0.12$, n.s.).

Measures

CEO personality

We measured the FFM of personality by using the Spanish version of the 60-item revised NEO

[1] To assess the potential similarity bias resulting from the CEOs' recommendation of top executives, we examined the correlations between the CEO personality and the top executive personality. These correlations were significant for conscientiousness ($r = 0.30$, $p < 0.05$) and extraversion ($r = 0.29$, $p < 0.05$, but not for emotional stability: ($r = 0.18$), agreeableness ($r = 0.12$), and openness to experience ($r = 0.07$). Although significant, the magnitude of correlations for conscientiousness and extraversion are considerably below the levels (0.70) needed to justify a strong convergence in personality (Hofmann and Jones, 2005). Additionally, we included the Euclidean distance between the CEO's personality and the top executive's personality as a control in the regressions. Entering this personality distance variable as a control did not alter the results, which confirms that the similarity bias did not confound our results.

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Five-Factor Inventory[2] (12 items for each factor) (Costa and McCrae, 1999). This instrument has been shown to serve as an efficient, reliable, and factorially valid measure of FFM for research on Spanish-speaking individuals (Manga, Ramos, and Moran, 2004). Examples of items include 'I often feel inferior to others' (emotional stability), 'I like to have a lot of people around me' (extraversion), 'I am pretty good about pacing myself so as to get things done on time' (conscientiousness), 'I spend time reflecting on things' (openness to experience), and 'I am interested in people' (agreeableness). All items were scored on a 1 (strongly disagree) to 5 (strongly agree) Likert scale. We reverse coded the ratings on emotional stability to improve the interpretation of results. Alpha reliabilities were 0.79 for emotional stability, 0.74 for extraversion, 0.81 for conscientiousness, 0.72 for agreeableness, and 0.70 for openness to experience.

Initiation and implementation of strategic change

Because of a lack of subjective scales to measure strategic change, we developed scales based on existing measures of strategic change. Although several approaches exist for measuring strategic change, Virany, Tushman, and Romanelli's (1992) multifaceted framework is particularly prominent and has been used extensively in prior studies (Gordon *et al.*, 2000; Lant *et al.*, 1992; Romanelli and Tushman, 1994). This framework comprehensively captures the actual actions undertaken by firms in key strategic initiation and implementation domains. Five categories in this framework explicitly capture changes in strategic domains (initiation of strategic change) (Hitt, Ireland, and Hoskisson, 2010; Porter, 1986): (1) entries/exits in international markets; (2) additions and eliminations of product lines or segments; (3) new mergers and acquisitions completed; (4) buying and selling of properties, plants, and equipment; and (5) increases or decreases in R&D expenditures. It also includes changes in structures, processes, and incentive systems undertaken to support changes in initiated strategies (implementation of strategic change): (1) change in organizational structure (e.g., increase/decrease in centralization/decentralization); (2) restructuring or process changes (e.g., increase or decrease in steps to perform an activity); (3) increase or decrease in number of employees; (4) changes in distribution of executive team members' titles (e.g., functional, product, geographical, or hybrid); and (5) changes in formal incentives granted to executives.

We adapted Virany *et al.*'s (1992) approach in two ways. First, this approach identifies change activities using archival data (e.g., 10-K forms, annual reports), which was not available for our privately held SMEs. Therefore, we used key informants as a source to elicit data on strategic change activities. Key informants are considered to be appropriate in eliciting strategic information that is not available from other sources (Huber and Power, 1985; Kumar, Stern, and Anderson, 1993) and has been used extensively in strategy research (Huber and Sutcliffe, 1998; Plambeck and Weber, 2009). However, using key informants for strategic data suffers from hindsight bias and incomplete respondent memories, which can taint the elicited data (Salancik and Meindl, 1984). To address these biases and increase the reliability of reports, querying multiple informants (Bagozzi, Yi, and Phillips, 1991; Golden, 1992) who have first-hand knowledge of the strategic event (Huber and Power, 1985) is recommended. The methodological benefits of multiple-informant studies are well documented (Kumar *et al.*, 1993). Accordingly, we used two key informants (CEO and top executive) who were closely involved in strategic changes for the entire two-year period.

Second, Virany *et al.* (1992) and subsequent studies (Gordon *et al.*, 2000) reduced strategic change to its extreme form as a dichotomous (0 = strategic persistence, 1 = strategic reorientation) variable. Moreover, 'the number of changes used to distinguish between convergence and reorientation is somewhat arbitrary'[3] (Lant *et al.*, 1992:

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[3] There are considerable differences in the criteria used to dichotomize strategic change into strategic persistence (0) and strategic reorientation (1). Virany *et al.* (1992) defined strategic reorientations as changes in the three domains of strategy, structure, and control. Gordon *et al.* (2000) defined strategic reorientations as changes in two out of the three domains. Lant *et al.* (1992) added a fourth dimension—change in executive power—and defined strategic reorientation as change in the domain of strategy (requirement for strategic change) and at least two other domains.

592). Such dichotomization is somewhat inconsistent with the conceptual definition of initiation and implementation of strategic change as a continuous level of change in the content and scope of firm strategies (Rajagopalan and Spreitzer, 1997). Several studies have measured strategic change as a continuous variable (Datta *et al.*, 2003; Zhang and Rajagopalan, 2010). Dichotomizing continuous variables also substantially reduces power in detecting relationships and 'has only negative consequences and should be avoided' (Irwin and McClelland, 2003: 366). Maxwell and Delaney (1993) and Vargha *et al.* (1996) showed that after dichotomization, the multivariate relationships among predictor variables can be obscured—predictor variables can appear significant when they are not significant in the original data.

Based on these recommendations, we asked the respondents to identify whether a change occurred in each of the four strategic initiation categories in the past two years. Following this, we asked the subjects to identify changes in the five implementation categories they undertook to support and carry out initiated strategic changes. Two years is an adequate time span for strategic changes to be initiated and implemented and for their outcomes to become apparent (Gordon *et al.*, 2000; Virany *et al.*, 1992). We instructed the respondents to include increases as well as decreases in activity in a particular category (Virany *et al.*, 1992) to ensure that the responses to initiation items capture change in a specific strategic category rather than the tendency to pursue actions in a specific category (e.g., greater internationalization, greater diversification, greater downsizing).

The strategic change initiation and implementation measures (each ranging from 0 to 5) were computed by adding the total number of categories in which the change occurred. The higher the initiation score, the more the initiated changes across many strategic categories and the higher the implementation score, the greater the efforts in supportive areas to facilitate and carry out the initiated changes. Such aggregation of strategic categories rather than individual actions is consistent with strategic change studies (Lant *et al.*, 1992; Romanelli and Tushman, 1994; Virany *et al.*, 1992) and better captures the content-free scope of strategic change. Confirmatory analysis (CFA) using MPlus 6.11 confirmed that two distinct factors subsumed the nine measures ($\chi 2\ (19) = 21.2$, RMSEA = 0.03; CFI = 0.97; TLI = 0.95; standardized loadings: 0.69 to 0.97). We used a weighted least squares estimator, which yields a more robust analysis for categorical observed indicators than maximum likelihood (Muthén and Muthén 1998-2011).

We pilot tested the scale on 10 CEOs (not included in the sample). For the main study, the Intraclass Correlation Coefficients (ICC) (LeBreton and Senter, 2007) for single measure was .72 and the average (CEO and top executive) ICC was .85. Therefore, we averaged CEO and the top executive responses to strategic change in our main analysis. Using only the top executive's ratings of strategic change initiation and implementation did not alter the results.

Firm performance

Because most SMEs are privately held, they do not publicly disclose their financial data. For such firms, the use of subjective measures of performance, which correlate strongly with objective performance measures, is recommended (Dess and Robinson, 1984; Geringer and Hebert, 1989). Therefore, we used the average performance ratings (1-to-5 Likert scale) of the CEO and the top executive on a six-item scale adapted from Brouthers, Brouthers, and Werner (2003)—sales growth, net earnings growth, return on capital, market share, return on assets, and return on sales (alpha reliability: 0.86). We administered the firm performance scale six months after collecting CEO personality and strategic change data. This temporal separation between strategic change and firm performance measures improves causal inference and avoids common method bias.

CFA confirmed the unidimensionality of the six performance measures ($\chi 2\ (18) = 42.716$, RMSEA = 0.10; CFI = 0.96; TLI = 0.94; standardized loadings: 0.75 to 0.91). The single measure ICC was 0.75 and the average measure of CEO and top executive ICC was 0.86. Results based only on top executive performance ratings were consistent with our main results. So, we averaged the z scores of CEO and top executives' responses to the six items. Using multiple informants increases the reliability of firm-level variables (Huber and Power, 1985; Kumar *et al.*, 1993).

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Control variables

We controlled for industry, firm, TMT, and CEO demographic variables. Manufacturing and service industries present very different challenges for incumbent firms, and the costs and benefits associated with initiation and implementation of strategic changes vary across the two contexts (Song, Benedetto, and Zhao, 1999). Therefore, we created dummy variables for firms in service (1) industries and firms in manufacturing (0) industries. Results using a separate dummy variable for each of the 10 industries were consistent with our main results.

Larger and older firms face stronger inertial forces in initiating and implementing strategic changes than do smaller and younger firms (Boeker, 1997). We measured *firm size* by the natural logarithm of the average number of employees and *firm age* by the number of years since the founding date (Boeker, 1997). High *past performance* reinforces the value of existing strategies and promotes status quo, whereas low performance creates a motivation to change (Greve, 1998). We asked subjects to rate performance in the year prior to strategic change (Brouthers *et al.*, 2003).

TMT size and *change* can affect the skills, perspectives, and diversity of thinking among top managers and can influence how strategic changes are precipitated (Tushman and Rosenkopf, 1996). Consistent with previous TMT research (Judge and Miller, 1991), we measured TMT size by asking each CEO to name the key managers who actively participated in the strategic decisions. This operationalization of TMT size is based on the premise that the outcomes of a strategic decision are largely a function of who participates in the decision-making process. We measured TMT changes as the sum of entering and exiting members of this pool of top managers who actively participated in strategic decision making in the previous two years (Tushman and Rosenkopf, 1996).

Older CEOs are rigid and resist change, whereas younger CEOs undertake aggressive strategic change (Wiersema and Bantel, 1992). CEOs with longer tenures develop set habits, rely on past experience, and commit to status quo more than CEOs with shorter tenures (Finkelstein and Hambrick, 1996, Wiersema and Bantel, 1992). We measured *CEO tenure* by two measures—the number of years the CEO had in the firm and in the CEO position at the time of data collection (Herrmann and Datta, 2002). Because the two measures of tenure were highly correlated ($r = 0.86$), we combined them into a composite measure (e.g., Miller, 1991; Shen and Cannella, 2002; Simsek, 2007). Previous studies suggest that CEO high education levels increase CEO receptivity to change in corporate strategy (Wiersema and Bantel, 1992). *CEO education level* was assessed by the number of years of schooling after high school (Herrmann and Datta, 2002). Finally, the founding status of CEOs has been shown to affect the governing power of the CEOs as well as the strategic decisions and firm performance in SMEs (Jain and Tabak, 2008; Nelson, 2003). Therefore, we used CEO only (0) versus founder-CEO (1) (45% founder-CEO) as a control in our analyses. In separate robustness checks, we also tested our models using CEO gender (88% males). Because these results were consistent with our main results, we did not report them.

ANALYSES AND RESULTS

Analyses

Table 1 shows means, standard deviations, and zero-order correlations among study variables. The means of the FFM variables are consistent with recent studies (Nadkarni and Herrmann, 2010). Consistent with Peterson *et al.* (2003), most of the CEOs in our sample (93%, 112 out of 120) were high on more than one trait and a majority of CEOs exhibited more than one trait (53%, 68 out of 120). Only 10 percent of CEOs (12) were low on more than one trait, which could be due to our sample of SMEs rather than large and established firms examined in previous studies (e.g., Peterson *et al.*, 2003). Zhao and Seibert (2006) found that entrepreneurs were significantly higher on most FFM traits than CEOs of large and established firms.

We used hierarchical regression to test the main and moderating effects of CEO FFM traits. We tested the moderation effects of CEO personality in the relationship between strategic change and firm performance in three steps using mean-centered values of predictor variables (Aiken & West, 1991). We included the controls in step one, added CEO personality and strategic change implementation in step two, and added the interaction terms (CEO personality X strategic change implementation) in the

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Table 1. Descriptive statistics and correlations[a]

	Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Controls																			
1	Industry[b]			—																
2	Size	4.04	1.11	−0.25	—															
3	Firm age	17.62	14.66	−0.18	0.32	—														
4	TMT change	0.79	0.52	0.20	−0.10	−0.15	—													
5	TMT size	4.78	2.84	−0.22	0.45	0.24	−0.00	—												
6	CEO age	43.03	10.98	−0.21	0.10	0.25	−0.14	0.15	—											
7	CEO education	5.60	2.55	−0.04	0.16	−0.02	0.07	0.38	0.10	—										
8	CEO tenure	17.28	12.81	−0.15	−0.14	0.54	0.07	−0.05	0.48	−0.02	—									
9	Founder CEO	0.45	0.50	0.11	−0.36	−0.54	−0.01	−0.17	0.11	0.04	−0.01	—								
10	Past performance	3.67	0.91	−0.05	0.19	0.10	0.08	0.15	−0.20	−0.02	−0.03	0.16	—							
	Study variables																			
11	Conscientiousness	4.17	0.46	0.10	0.11	0.15	0.21	0.12	0.10	0.08	0.15	−0.02	0.09	—						
12	Emotional stability	3.48	0.44	−0.04	−0.05	0.01	0.12	0.19	0.04	0.23	0.01	0.00	0.09	0.33	—					
13	Extraversion	3.79	0.41	0.11	0.11	0.15	0.02	0.11	0.11	0.03	−0.14	−0.13	0.03	0.49	0.27	—				
14	Agreeableness	3.62	0.41	0.10	0.11	0.16	0.08	0.14	0.12	0.02	−0.43	−0.15	0.01	0.23	0.33	0.12	—			
15	Openness	3.17	0.47	0.10	0.11	0.17	0.12	0.14	0.11	0.02	−0.06	−0.03	−0.05	0.15	0.21	0.16	0.24	—		
16	Strategic change initiation	2.18	1.13	−0.19	0.37	0.24	0.00	0.28	−0.05	0.09	0.07	−0.26	−0.27	−0.08	0.20	0.16	0.17	0.19	—	
17	Strategic change implementation	2.60	1.15	−0.01	0.24	0.19	0.03	0.14	−0.01	0.03	−0.02	−0.14	0.19	0.07	0.22	0.12	−0.10	0.12	0.49	—
18	Firm performance	3.63	0.94	−0.22	−0.22	0.07	0.02	0.09	−0.20	0.02	0.03	−0.15	0.73	0.12	0.24	0.05	0.10	−0.05	0.28	0.25

[a] Correlations greater than 0.18 at $p < 0.05$, greater than 0.22 at $p < 0.01$, greater than 0.30 at $p < 0.001$
[b] This is a dummy variable to control for manufacturing (79%) and service (21%) firms.

Table 2. Regression results for main effect of FFM of CEO personality on strategic change[a]

Variable	Model 1 (Controls only) β	Model 2 (Main effects) β
Control variables		
Industry	-0.20^{*}	-0.18^{*}
Firm size	0.21^{*}	0.12
Firm age	0.01	0.08
Past performance	-0.17^{+}	-0.20^{*}
TMT size	0.14	0.16
TMT change	0.04	0.09
CEO age	−0.10	−0.02
CEO education	−0.12	−0.10
CEO tenure	0.07	−0.06
CEO founder/nonfounder	0.06	0.04
F	2.96^{**}	
$\triangle R^2$	0.22^{**}	
Independent variables		
Conscientiousness		-0.30^{**}
Emotional stability		0.27^{**}
Extraversion		0.25^{*}
Agreeableness		-0.24^{*}
Openness		0.19^{*}
F		3.94^{**}
$\triangle R^2$		0.15^{**}
Adjusted R^2		0.27

$^{*}p < 0.05$.
$^{**}p < 0.01$.
$^{+}p < 0.001$.
[a] N = 120.

final step. The values of the variance inflation factors (VIF) were all below the recommended level of five (Neter, Wasserman, and Kutner, 1985).

Results

We show the regression results on the main effects of CEO FFM traits on strategic change in Table 2. In Model 1, industry effect ($\beta = -0.20$, $p < 0.05$) suggests that service firms initiated less strategic change than did manufacturing firms. Firm size ($\beta = 0.21$, $p < 0.05$) was positively related with strategic change. As predicted, CEO conscientiousness ($\beta = -0.30$, $p < 0.01$) and agreeableness ($\beta = -0.24$, $p < 0.05$) related negatively, whereas CEO emotional stability ($\beta = 0.27$, $p < 0.01$), extraversion ($\beta = 0.25$, $p < 0.05$), and openness ($\beta = 0.19$, $p < 0.05$) related positively to strategic change initiation. The FFM traits grouping explained significant incremental variance in strategic change initiation ($\Delta R^2 = 0.15$, $p < 0.01$; $F = 3.94$, $p < 0.01$). These results support H1a, H2a, H3, H4a, and H5a.

Table 3 shows the results on the moderation effects of CEO FFM traits. None of the controls except CEO age ($\beta = -0.36$, $p < 0.001$) relate to firm performance. CEO conscientiousness ($\beta = 0.21$, $p < 0.05$) and emotional stability ($\beta = 0.26$, $p < 0.05$) positively moderate the influence of strategic change implementation on firm performance, whereas CEO agreeableness exerts a negative moderation effect ($\beta = -0.26$, $p < 0.01$). Thus, H1b, H2b, and H4b are supported. However, our predicted moderation effect of CEO openness in H5b was not supported ($\beta = 0.10$, n.s.). CEO extraversion ($\beta = -0.14$, n.s.) did not interact with strategy change implementation. The interaction effects explained significant incremental variance in firm performance ($\Delta R^2 = 0.08$, $p < 0.05$; $F = 3.12$, $p < 0.001$). Figure 2 shows the interaction plots. Simple slope analyses confirmed that positive performance effects of strategic change implementation were considerably higher when CEO conscientiousness was higher than lower (high: $\beta = 0.87$, $p < 0.05$; low $\beta = -0.35$, $p < 0.05$) and when CEO emotional stability was higher than lower (high: $\beta = 0.37$, $p < 0.05$; low: $\beta = 0.28$, ns). As predicted, performance effects of strategic change implementation are more negative when CEO agreeableness was higher than when it was lower (high: $\beta = -0.64$, $p < 0.05$; low: $\beta = 0.44$, $p < 0.05$).

Robustness checks

Spurious interactions

To check for spurious interactions (Cortina, 1993), we added six squared terms (strategic change implementation and the FFM traits) to the regression equation from Table 3 before entering the hypothesized interaction terms. The quadratic terms added no unique variance to the model and did not alter the main results, demonstrating that the interactions are not spurious.

Restricted range of FFM traits

Zhao and Seibert (2006) found that entrepreneurs scored much higher than CEOs of established firms

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Table 3. Moderating effect of FFM of CEO personality in the relationship between strategic change implementation and firm performance[a]

Variable	Firm performance		
	Model 1 (Controls only) β	Model 2 (Main effects) B	Model 3 (Interaction effects) β
Control variables			
Industry	−0.10	−0.12	−0.15
Firm size	0.10	0.18	0.20
Firm age	0.06	−0.11	−0.04
TMT size	0.15	0.15	0.07
TMT change	−0.16	−0.04	0.02
CEO age	−0.36***	−0.42**	−0.46***
CEO education	0.07	−0.04	0.06
CEO tenure	−0.02	−0.05	0.01
CEO founder	−0.02	−0.05	0.02
Strategic change initiation	0.18+	0.11	0.15
F	3.57***		
$\triangle R^2$	0.26***		
Main effects			
Conscientiousness		0.18	0.20
Emotional stability		0.05	0.00
Extraversion		−0.24*	−0.23*
Agreeableness		−0.11	−0.05
Openness		−0.07	−0.04
Implementation		0.15	0.16
F		3.09***	
$\triangle R^2$		0.08	
Interaction effects			
Implementation × conscientiousness			0.21*
Implementation × emotional stability			0.26*
Implementation × extraversion			−0.14
Implementation × agreeableness			−0.26**
Implementation × openness			0.10
F			3.12***
$\triangle R^2$			0.08*
Adjusted R^2			0.28

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.
[a] N = 120.

on most FFM traits. Supporting these results, only 10 percent of the CEOs in our sample scored low on more than one trait and 93 percent of the CEOs scored high on more than one trait. Such restricted range of independent variables can create considerable bias in regression estimation and mask potentially significant relationships (Schmidt, Oh, and Le, 2006). We used correction procedures recommended for indirect range restriction (Sackett and Yang, 2000; Schmidt *et al.*, 2006). The corrected estimates for main and moderation effects of FFM traits were consistent with our main results.

Founder-non founder CEO

Because founder CEOs play a greater role and have greater legitimacy in shaping the organizational context than nonfounding CEOs (Schneider, 1987), this variable could be a boundary condition for the CEO FFM traits-strategic change initiation relationship. To assess its confounding effects, we tested the moderating effects of founder/nonfounder CEOs in the CEO FFM traits-strategic change initiation relationship. The insignificant interaction terms of CEO founding

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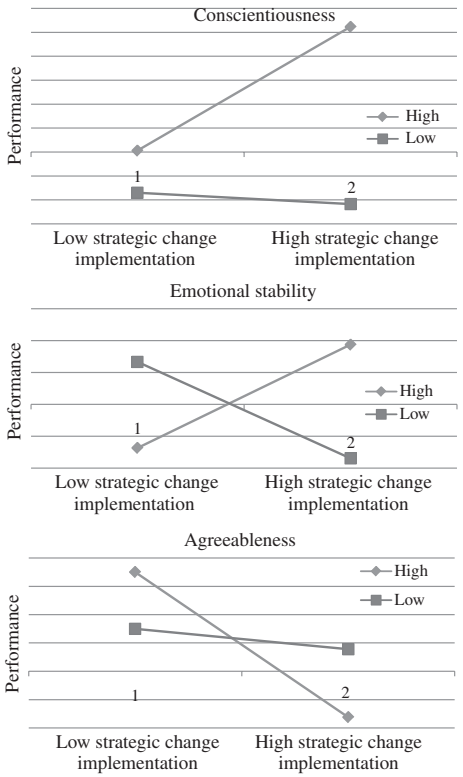

Figure 2. Interaction plots of FFM of CEO personality, strategic change implementation, and firm performance

status with the CEO FFM traits (conscientiousness: $\beta = 0.21$, ns; emotional stability: $\beta = 0.06$, ns; agreeableness: $\beta = -0.06$, ns; extraversion: $\beta = 0.21$, ns; openness: $\beta = 0.13$, ns) confirm the robustness of our results and indicate that our results were not confounded by CEO founding status.

Additionally, we corrected for the reverse causality between strategic change and CEO personality and checked if the CEO's selection of the second executive (with similar personality) artificially inflated the main effects of CEO personality on initiation of strategic change. We explain these checks in detail in the Limitations section.

DISCUSSION

We proposed and tested a complex set of relationships that delineated two distinct facets of the relationship between CEO FFM traits and strategic change—*initiation of strategic change* (main effect) and *performance effects of strategy change implementation* (moderation effect). We found that some CEO FFM traits promoted initiation of strategic change (extraversion and openness), whereas others hindered initiation but improved performance effects of strategy change implementation (conscientiousness), and still others facilitated (emotional stability) or hindered (agreeableness) both initiation and performance effects of implementation. These results point to complex and nuanced relationships between CEO personality, strategic change, and firm performance. In what follows, we discuss the implications of these results.

Theoretical implications

CEO personality and initiation of strategic change

Prior studies on strategic change have predominantly examined the environmental and structural antecedents of strategic change (Audia *et al.*, 2000; Kelly and Amburgey, 1991; Smith and Grimm, 1987; Zajac and Kraatz, 1993, 2000). CEO studies of strategy change are not only sparse, but have mainly investigated CEO demographics such as education and tenure (Datta *et al.*, 2003; Zhang and Rajagopalan, 2010). By employing a comprehensive and fundamental framework of personality assessment (FFM), our study presents a complex and nuanced understanding of how broad and multifaceted components of personality shape strategic change differently. Whereas CEO conscientiousness and agreeableness related negatively with strategic change, CEO openness and emotional stability exerted a positive effect. These effects of CEO FFM traits have important implications in understanding the influence of CEO characteristics on initiation of strategic change.

The role of executive attributes in strategy change has been based predominantly in the 'cognitive lens' of strategy change (Datta *et al.*, 2003; Johnson, 1992; Rajagopalan and Spreitzer, 1997), which has recently come under considerable criticism. Kisfalvi (2000: 616) stressed that 'cognitive approaches alone are insufficient to the task of exploring the subjective elements involved in strategic persistence.' She called for a more complete examination of affective and emotional components of CEO attributes. Paying heed to these calls, we examined FFM of personality, which McCrae and Costa (1997: 832) regard as 'a broad constellation of traits with cognitive and affective manifestations.' Zillig, Hemenover, and

Dienstbier (2002) empirically demonstrated that some FFM traits, such as conscientiousness and openness to experience, have a strong cognitive underlying component, whereas emotional stability, agreeableness, and extraversion are strongly affect-based traits.

Both cognitively oriented traits—openness and conscientiousness—exhibited different patterns of relationships with strategic change. The need for structure, legalism, goal-achievement focus, and receptivity to feedback inherent in CEO conscientiousness inhibited initiation of strategic change, whereas divergent thinking, information seeking, and unusual thought processes associated with CEO openness facilitated strategic change. Affectively rooted traits also exhibited different patterns of relationships with strategic change. Although extraversion, emotional stability, and agreeableness are associated with a tendency to experience positive emotions and to evoke positive emotions in others (Cote and Moskowitz, 1998; McCrae and Costa, 1987; Tan, Foo, and Kwek, 2004), they played different roles in strategic change initiation. Whereas CEO emotional stability and extraversion facilitated initiation of strategic change, CEO agreeableness hindered it.

These results have two important implications. First, our results confirm the importance of CEO cognition (Datta *et al.*, 2003; Johnson, 1992; Rajagopalan and Spreitzer, 1997), but also provide a more refined understanding of the types of cognitive components of personality that facilitate strategic change and those that hinder it. Cognitive aspects of CEO personality such as divergent thinking, information seeking, and intellectual flexibility reflected in CEO openness to experience promoted strategic change, whereas the need for structure and order, and intolerance of ambiguity associated with CEO conscientiousness hindered initiation of strategic change.

Second, these results underscore the need to move beyond purely cognitively rooted explanations of CEO attributes toward the unique influences of affectively rooted traits of CEOs on strategic change. Our results are consistent with recent studies that have demonstrated the influence of CEO positive traits (Peterson *et al.*, 2009) and CEO affective traits (e.g., Delgado-Garcia and de la Fuente-Sabate, 2010) on firm performance. However, our results caution that positively oriented traits (extraversion, agreeableness, and emotional stability) (Barrick and Mount, 1991; DeNeve and Cooper, 1998) are neither universally beneficial nor do they influence strategic change uniformly. It is important to recognize that the positive attitude inherent in these traits (Barrick and Mount, 1991; DeNeve and Cooper, 1998) combines with other subsumed attributes to uniquely influence strategic change. For example, the tendency of emotionally stable CEOs to experience positive emotions combined with emotional adjustment facilitated initiation of strategic change. Similarly, a blend of the tendency to experience positive emotions and dominance in extraversion increased strategic change initiation. However, the tendency to experience positive emotions combined with empathy and altruism in agreeableness hindered strategic change.

CEO personality and effective implementation of strategic change

Previous studies have examined environmental (e.g., turbulence) and firm-level (e.g., size and age) moderators (Smith and Grimm, 1987; Zajac and Kraatz, 1993) to explain inconsistent findings on the relationship between strategic change and firm performance (Audia, *et al.*, 2000; Zajac and Kraatz, 1993, 2000; Kraatz and Zajac, 2001). We focused on implementation of strategic change and proposed a new and unexplored moderator in understanding the strategic change-firm performance relationship—CEO personality. Our results are especially meaningful because the moderating effects of CEO personality were significant after controlling for environmental (industry dummies) and firm-level (size, age, and past performance) explanations. CEO conscientiousness and emotional stability promoted superior performance of strategic change implementation, whereas CEO agreeableness hindered performance effects of strategic change implementation. The moderating effects of CEO extraversion and openness were insignificant. These results have important implications in understanding the strategic change-performance relationship.

These results suggest an expanded role of CEO characteristics in strategic change. CEO studies on strategic change are sparse and have mainly examined how CEO demographics such as education and tenure influence initiation of strategic change (Datta *et al.*, 2003). Studies examining the role of CEO attributes in strategic change implementation are missing. An exception

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is a recent study by Zhang and Rajagopalan (2010), who found that CEO tenure moderates the relationship between strategic change and firm performance. Although this study did not explicitly measure or test implementation, they concluded that the moderation effect was tied to implementation effectiveness. Our study not only reinforces this early evidence on the role of CEO attributes in performance effects of strategic change, but also specifies the CEO traits that enable superior performance of strategic change implementation and those that hinder it.

Our results on the moderating effects of CEO personality are consistent with strategy implementation research, which has emphasized that active efforts by CEOs in building strong communication and relationships with proximal managers are central to successful strategy implementation (Floyd and Wooldridge, 1997; Wooldridge *et al.*, 2008). Our results clarify the aspects of CEO interactions that can enhance or hinder effective implementation of strategic change. CEO conscientiousness, which depicts a strong *task focus* in the form of activities specifically directed toward goal achievement (Barrick *et al.*, 1998; Bono and Judge, 2004; McCrae and Costa, 1987), was associated with effective implementation of strategic change. In contrast, CEO agreeableness and extraversion, which evoke a strong *relationship focus* characterized by warmth, harmony, and social dominance (Barrick *et al.*, 1998), did not yield superior performance from strategic change implementation. These results caution that CEOs' emphasis on empathy and conflict avoidance (agreeableness) without a strong performance focus and task direction may promote passivity and hinder effective implementation. At the same time, a strong CEO dominance or surgency (extraversion) may not yield any benefits in effective implementation. To maximize performance benefits of strategic change implementation, CEOs need to instill a strong task and performance focus (conscientiousness) and employee empowerment and commitment (emotional stability) without being passive (agreeableness).

Differential effects of CEO FFM traits in managing strategic change

Whereas CEO emotional stability and agreeableness exerted consistent effects on initiation and performance effects of implementation of strategic change, CEO conscientiousness had opposing relationships with initiation (negative) and effective implementation of strategic change (positive). CEO extraversion and openness influenced initiation of strategic change, but not implementation. These differential effects of some FFM traits are consistent with research, which suggests that situational cues can activate certain relevant attributes in a trait, but suppress other attributes that are not relevant to that situation (Tett and Guterman, 2000). Initiation of strategic change involves noticing, interpreting, and selecting the right options, whereas implementation involves mobilizing resources and overcoming challenges in successfully achieving strategic change goals (Datta *et al.*, 2003; Zhang and Rajagopalan, 2010). Because they represent different strategic situations, they may have activated different attributes of conscientiousness, extraversion, and openness.

The considerable uncertainty and ambiguity in evaluating the strategic change options may have activated the dependability component (e.g., intolerance of ambiguity, need for structure, and tried-and-true strategies) of CEO conscientiousness, thereby inhibiting strategic change. However, strong and clear external environmental (e.g., regulatory changes, technological changes) and internal firm signals (e.g., very low performance levels) can force CEOs to change (Hambrick and Finkelstein, 1987). This is evident in the correlations of strategic change with the industry ($r = -0.18$, $p < 0.05$) and past firm performance ($r = -0.20$, $p < 0.05$) controls in Table 2. Once the strategic change is initiated, the volition or achievement component may be activated because performance effects hinge on effective implementation. Thus, conscientious CEOs may become proactive and strongly motivated to achieve superior performance in implementing strategic change.

Similarly, the considerable ambiguity, departure from status quo, and risk taking associated with initiation of strategic change may have activated the sociability, excitement seeking, and adventurousness components of CEO extraversion, all of which facilitated greater change. However, the strong interventions and conflict resolution tactics involved in implementation may have amplified the unflattering aspects of extraversion, such as resistance to upward influence. Therefore, extravert CEOs initiated more strategic change but

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did not contribute to improving the performance effects of strategic change.

Finally, the hypothesized moderating effect of CEO openness in the strategic change-firm performance relationship were not supported. This lack of support can be explained by research, which points to the unflattering side of open individuals as 'excessively intellectual, impractical, and indecisive'(Tetlock *et al.*, 1993: 502). Open individuals fail to recognize that little is gained and a lot is lost from obsessing over pros and cons of various issues, which delay and disrupt effective decision implementation (Tetlock and Boettger, 1989). Oversensitivity to trade-offs and counter arguments can effectively paralyze implementation and create excessive anxiety (Suedfeld and Tetlock, 1991). Moreover, because of their emphasis on unconventionality, open individuals are prone to frequently take the devil's advocate role, which can annoy proximal employees, rub people the wrong way, and create an appearance of being contentious and uncooperative (Tetlock, 1992). Tetlock *et al.* (1993) found that open mindedness related negatively with outcomes such as employee achievement, performance-reward, and work motivation. Our results suggest that this unflattering side of openness manifests itself in strategic change implementation rather than in initiation. It could be that the flattering aspects of openness, such as divergent thinking and unconventional thoughts, that are essential in initiating strategic change may offset the unflattering aspects. In strategy implementation, where perseverance and a strong performance motivation are essential, the unflattering aspects may neutralize the flattering aspects of openness. Future studies could explicitly explore the mediational mechanisms in these relationships of openness with strategic change.

Limitations and directions for future research

The results of our study are bound by the limitations inherent in our research design. First, our use of the Ecuadorian context and SMEs limits the generalization of our results to turbulent and uncertain contexts that are typically weak and provide greater executive discretion (e.g., transitional economies, emergent industries, dynamic and fast-changing environments). Replicating our study in more stable and certain contexts (e.g., developed economies, mature industries, large and established firms) with greater executive discretion is an important area for future research.

Second, we used responses from a top executive recommended by the CEO to ensure that the executive was closely involved in and had sufficient knowledge of strategic changes undertaken in the previous two years. Our measures of strategic change initiation and implementation were computed by averaging the ratings of CEO responses and those of the second executive. It is possible that the CEO may have recommended a second executive whose personality is similar to himself/ herself. Such similarity in personality and, consequently, strategic ratings may inflate the estimates of the relationships between CEO FFM traits and strategic change. To address this potential confound, we tested the moderating effects of the CEO-executive personality distance in the relationship between CEO FFM traits and strategic change initiation. The interaction terms for the overall personality distance ($\beta = 0.03$, ns) and the distance for individual FFM traits (conscientiousness: $\beta = -0.15$, ns; emotional stability: $\beta = 0.08$; agreeableness: $\beta = -0.08$; extraversion: $\beta = 0.06$; openness: $\beta = 0.07$) were insignificant. Thus, CEO-executive personality distance was not a boundary condition for our hypothesized relationships between CEO personality and strategic change initiation.

Third, although FFM variables are stable over time and not easily influenced by contextual factors (Goldberg, 1990; McCrae and Costa, 1997), there is a potential for reverse causality in the relationship between CEO personality and firm strategies. The ASA (Schneider *et al.*, 1995) and CEO selection research (Westphal and Zajac, 1995) posit that a CEO chooses or is selected by firms whose strategic context is conducive to the CEO's personality. Therefore, CEOs whose traits are conducive to the strategic context are likely to be attracted to or selected in these firms and CEOs with incompatible traits may avoid or get rejected.

To address this issue of reverse causality, prior studies of CEO personality have used two-stage least squares (2SLS) regression, which allows researchers to create a proxy variable capturing the confounding effects of strategic context on CEO personality in the first stage and then use this proxy correction variable in the second stage to test the theorized effects in the regressions (e.g., Chatterjee and Hambrick, 2007). Accordingly, in stage 1, we regressed CEO FFM traits on three

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variables making up the strategic context when the CEO entered the firm—firm age one year prior to the current CEO joining the firm, industry (nine dummies), and CEO founding status. Although not exhaustive, these variables capture partially the strategic context that may have trigged ASA and CEO selection mechanisms. We then used estimates from this first-stage equation to create a correction variable that we entered as a control in the second stage to test our model main and moderation effects of CEO personality. The 2SLS results were consistent with the main results.

Fourth, despite the temporal separation in collecting strategic change and firm performance data, our use of subjective performance measures raises the potential for hindsight biases that could artificially inflate the strength of the relationships between CEO personality and strategic change. Although our correction procedures for reverse causality partially account for this bias, we cannot completely rule out the hindsight bias. Future studies could use objective performance measures to improve the robustness of the findings on the CEO personality-strategic change relationships.

Finally, although initiation and implementation represent successive phases in the strategic change process (Dutton and Duncan, 1987; Rajagopalan and Spreitzer, 1997), we retrospectively collected the data on both in the same survey. Future studies could temporally separate initiation and implementation to accurately depict the strategic change phases in data collection to decouple the distinct aspects of each phase and examine the role of CEOs in each phase.

Practical implications

In today's increasingly dynamic business environment with accelerated changes in competition, technologies, and customer preferences, successfully initiating and implementing strategic change is a source of competitive advantage and a means to achieve superior performance for firms. Our results may aid practitioners in their strategic change efforts by pointing to the CEO personality profiles needed for initiating change and maximizing the performance benefits of change implementation. Selecting CEOs with the appropriate personality profile may help firms successfully carry out their strategic change agenda and, in turn, reap the benefits of change efforts.

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