

## HOW DOES CEO TENURE MATTER? THE MEDIATING ROLE OF FIRM-EMPLOYEE AND FIRM-CUSTOMER RELATIONSHIPS

XUEMING LUO,<sup>1,2\*</sup> VAMSI K. KANURI,<sup>3</sup> and MICHELLE ANDREWS<sup>1</sup>

<sup>1</sup> Fox School of Business, Temple University, Philadelphia, Pennsylvania, U.S.A.

<sup>2</sup> School of Management, Fudan University, Shanghai, P. R. China

<sup>3</sup> Robert J. Trulaske, Sr. College of Business, University of Missouri, Columbia, Missouri, U.S.A.

*While the direct influence of CEO tenure on firm performance has been examined in the strategy literature, the underlying channels of influence have remained largely unexplored. This article draws upon the career seasons paradigm, learning perspectives, and marketing literature to examine whether firm-employee and firm-customer relationships are the pathways through which CEO tenure influences firm performance. Results from the analysis of a large data set reveal that: (1) CEO tenure has a positive and linear association with firm-employee relationship strength but an inverted U-shaped association with firm-customer relationship strength; (2) industry uncertainty intensifies these associations; and (3) firm-employee and firm-customer relationship strength mediate the effects of CEO tenure on firm performance. These findings have implications for a more balanced and nuanced view of CEO tenure. Copyright © 2013 John Wiley & Sons, Ltd.*

### INTRODUCTION

Does CEO tenure matter? According to Hambrick and Fukutomi's (1991) paradigm of CEO tenure seasons, the temporal characteristics associated with CEO tenure can affect firm performance. Fundamentally, the paradigm posits that 'there are discernible phases, or seasons, within an executive's tenure in a position, and [those] seasons give rise to distinct patterns of executive attention, behavior, and ultimately, organizational performance' (Hambrick and Fukutomi, 1991: 719). In particular, depending on the CEO's life cycle seasons, CEO tenure can have *both* positive

and negative effects on firm performance (Miller and Shamsie, 2001).

During their early tenure seasons, CEOs tend to learn rapidly and are willing to take risks. As their tenure progresses, they espouse new initiatives and expand their knowledge and skill repertoires (Wu, Levitas, and Priem, 2005), thus improving firm performance. In their later seasons, however, CEOs myopically commit to obsolete paradigms, become risk averse and stale in the saddle, and tend to adapt less to the external environment (Miller, 1991; Levinthal and March, 1993), thus hurting firm performance. In summary, the relationship between CEO tenure and firm performance over the CEO's life cycle can be visualized as an 'inverted U' (Henderson, Miller, and Hambrick, 2006).

However, recent research suggests that the impact of CEO tenure on firm performance is a complex phenomenon that goes beyond the

Keywords: CEO tenure; employee relationships; customer relationships; firm performance; performance volatility

\*Correspondence to: Xueming Luo, Temple University, Fox School of Business, 1801 Liacouras Walk, Philadelphia, PA 19122, U.S.A.

E-mail: luoxm@temple.edu

simple, direct effects (Simsek, 2007; Souder, Simsek, and Johnson, 2012). To get a holistic view of the causal linkages between CEO tenure and firm performance, it is important to explore the underlying mechanisms that explain *how* CEO tenure matters (Simsek, 2007). Nevertheless, even after several calls (e.g., Wu *et al.*, 2005; Simsek, 2007), our knowledge of the intermediate factors that channel the impact of CEO tenure on performance is surprisingly limited.

The present study aims to bridge this crucial theoretical gap. We propose two novel channels through which CEO tenure influences firm performance. The first channel stems from a firm's relationship with one of its most important *internal* stakeholders—employees. Without the benefit of positive employee relations (Wang, He, and Mahoney, 2009), longer CEO tenure can rarely translate into superior performance automatically. Nevertheless, experienced CEOs can leverage their reservoir of knowledge and learning (March, 1991; Vera and Crossan, 2004) to unify the workforce and strengthen employee identifications with the firm, which can positively affect firm performance (Skaggs and Youndt, 2004; Berger *et al.*, 2002; Hitt *et al.*, 2001). If so, the extent to which CEO tenure affects firm-employee relationships may partially account for the performance impact of CEO tenure.

The second channel we propose is rooted in the firm's relationship with its key *external* stakeholders—customers. Without attracting customers who are satisfied with the firm's product offerings, even seasoned CEOs cannot create competitive advantages for their firms (Day, 1981). Indeed, new CEOs are attuned to the external environment (Hambrick and Finkelstein, 1987). They tend to learn from and adapt to external environments by leveraging diverse market and customer-related information sources (Chaganti and Sambharya, 1987) and championing product innovations (Wu *et al.*, 2005). These activities positively affect the strength of firm-customer relationships (Musteen, Barker, and Baeten, 2006), which subsequently enhance firm performance (Luo and Homburg, 2007; Luo, Raitel, and Wiles, forthcoming). However, as we will elaborate on later, longer-tenured CEOs might depend more on internal knowledge, which can lead to the maladaptive filtering of vital market and customer intelligence, thus weakening firm-customer relationships. As such, the degree to which CEO

tenure affects firm-customer relations may also channel the performance impact of CEO tenure.

To test these distinct channels of influence, we build a large-scale panel data set compiled from several archival data sources. On the basis of robust econometric estimations, our results offer support to these relational pathways for the effects of CEO tenure on firm performance. Theoretically and substantively, we demonstrate how CEO tenure affects multiple stakeholders of a firm from a CEO learning perspective, i.e., learning by the CEO about employees, customers, the firm, and its external environment over the tenure seasons (Cyert and March, 1963; March, 1991; Vera and Crossan, 2004).<sup>1</sup> This perspective leads us to expect that in their early tenure seasons, CEOs seek diverse information and engage in both explorative and exploitive learning via external and internal information sources (Hambrick and Fukutomi, 1991), thus strengthening the firm's relations with employees and customers.

However, in their later seasons, as entrenched CEOs develop more comfortable and reassuring internal networks, CEOs may depend on exploitive learning with internal (local) search (Aguilar, 1967), which can potentially induce divergent outcomes. On the one hand, internal exploitation and local search continue to create a united and committed workforce, thus still strengthening employee relations. On the other hand, increasing reliance on internal information sources alienates CEOs from the external environment and leads them to maladaptively filter vital external market and customer intelligence, thus weakening customer relations. Taken together, the early phases of CEO tenure positively affect a firm's relationship with both employees and customers, while the later phases positively affect employees but negatively affect customers. That is, CEO tenure exhibits a monotonically increasing association with firm-employee relationships, but an inverted U-shaped association with firm-customer relations, painting a more nuanced portrait of the implications of CEO tenure.

Overall, the key contribution of this research is that, conceptually, we theorize two underlying channels (internal employee-based and external

<sup>1</sup> We acknowledge an anonymous reviewer for suggesting this CEO learning-focused logic for the divergent effects of CEO tenure on employee and customer relations and firm performance.

customer-based) to determine *how CEO tenure affects firm performance*. Empirically, we garner a large-scale data set with 3,916 firm-year observations to reveal: (1) a linear association between CEO tenure and firm-employee relationship strength; (2) an inverted U-shaped association between CEO tenure and firm-customer relationship strength; (3) the moderating role of industry uncertainty in these associations; and (4) the mediating role of firm-employee and firm-customer relationship strength in the effects of CEO tenure on firm value creation.

The remainder of this article is organized as follows: first, we draw upon the literature to establish links among CEO tenure, firm-employee relationships, firm-customer relationships, and firm performance. Next, we present the data, estimation procedures, results, and implications.

## THEORETICAL BACKGROUND AND HYPOTHESES

### Distinct routes of CEO tenure's influence from the learning perspective

Rooted in the view of CEO tenure seasons (Hambrick and Fukutomi, 1991), our framework suggests two theoretical pathways through which CEO tenure impacts firm performance: (1) CEO tenure → firm-employee relationships → firm performance; and (2) CEO tenure → firm-customer relationships → firm performance. However, CEO tenure may have differential effects on the employee and customer relational capitals; that is, a linear effect for firm-employee relationships but a curvilinear (inverted U-shaped) one for firm-customer relationships.

Our rationale for such differential effects of CEO tenure stems from the learning literature (e.g., Cyert and March, 1963; March, 1991) regarding how CEOs learn about employees, customers, the firm, and its external environment over the tenure seasons. Several studies have demonstrated how CEOs adopt different learning patterns across their life cycle phases. For instance, Miller and Shamsie (2001: 727) elucidate how an 'executive life cycle begins with the struggle to learn, progresses through increased competency, and, if leaders stay long enough, culminates in complacency and decline.' Echoing this view, Wu and colleagues

(2005) purport that CEOs demonstrate adaptive improvements in their initial periods through learning by doing, but become maladaptive in the later stages by filtering vital market information (Henderson *et al.*, 2006). Similarly, Vera and Crossan (2004: 222) theorize a paradigm of 'strategic leadership and organizational learning.' Mirroring this, Tushman and Rosenkopf (1996) describe an organizational learning approach to CEO strategic reorientation in turbulent environments.

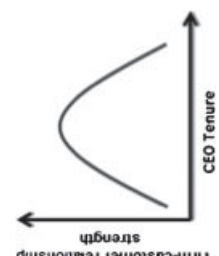
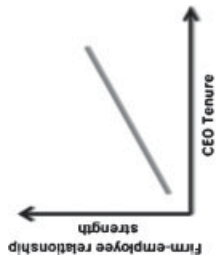
Indeed, in the original paradigm of CEO tenure seasons, Hambrick and Fukutomi (1991: 725) contend that new CEOs quickly acquire 'a great deal of critical knowledge early in the tenure... [and subsequently]... the accumulation of task knowledge tapers off after some period in the job.' These prior studies lead us to expect that CEO learning is instrumental for hypothesizing the associations between CEO tenure and a firm's relationship with employees and customers. Table 1 presents a conceptual flow of the hypothesis logic.

### Hypothesis on CEO tenure and firm-employee relationship strength

We expect CEO tenure to be positively associated with firm-employee relationships. Literature defines firm-employee relationships as the exchange of trust and commitment between the firm and the employee (Mowday, Porter, and Steers, 1982). How CEOs learn over the course of their tenure can affect these relationships. During the early seasons of tenure (i.e., the response mandate and experimentation seasons), new CEOs are highly interested in increasing their initially low knowledge of the executive position, labor relations, and the external environment. To expand their knowledge, CEOs might seek diverse information from external and internal sources and rely on both local and distant search (Hambrick and Fukutomi, 1991). While local search can equip CEOs with firsthand information on employees from internal sources (such as employees themselves) and human resource data, distant search can provide CEOs with information on employees from external sources, such as third-party consultants hired to assess labor relations (Miller *et al.*, 2006; Wang *et al.*, 2009) and investors who are known to monitor employee-firm relationships (Groening and Kanuri, forthcoming). This

Table 1. CEO tenure seasons and firm-employee and firm-customer relationships

Characteristics of CEOs	EARLY SEASONS OF CEO TENURE (Response to mandate, experimentation, and selection of an enduring theme)		LATER SEASONS OF CEO TENURE (Selection of an enduring theme, convergence, and dysfunction)	
	Effects on firm-employee relationship strength	Effects on firm-customer relationship strength	Effects on firm-employee relationship strength	Effects on firm-customer relationship strength
Information diversity (Hambrick and Fukutomi, 1991; Wu <i>et al.</i> , 2005; Henderson <i>et al.</i> , 2006)	(+) Both internal and external information sources and mostly unfiltered	(+) Both internal and external information sources and mostly unfiltered	(+) Only internal information sources and mostly filtered; but still trustworthy sources for internal employees	(-) Only internal information sources and mostly filtered; biased and inaccurate or missing sources for external market trends and customer needs
Organizational learning paradigm (Cyert and March, 1963; March, 1991)	(+) Ambidextrous; exploration and exploitation	(+) Ambidextrous; exploration and exploitation	(+) Exploitation only; selecting and retaining loyal committed workforce	(-) Exploitation only; lost touch with external market demands and customer preferences
Information search (Miller, 1991; March, 1991; Vera and Crossan, 2004; Chaganti and Sambharya, 1987)	(+) Distant and local	(+) Distant and local	(+) Local; because employees are local, they are positively affected by internal focus	(-) Local; because customers are external, they are negatively affected by internal focus
Learning style and pursuit of entrepreneurial initiatives (Miller, Zhao, and Calantone, 2006; Simsek, 2007; Levinthal and March, 1993)	(+) Adaptive and open to new initiatives; risk taking	(+) Adaptive and open to new initiatives; risk taking	(-/+ Maladaptive, myopic, and not open to new initiatives; yet long-serving CEOs remain knowledgeable about employees and continue to receive firsthand information from employees via local search, thus they continue to strengthen employee identifications to the firm	(-) Maladaptive, myopic, and not open to new initiatives; less adaptive and devoted to external new markets and customer taste changes
Net effect	(+)	(+)	(+)	(-)
Total effects of CEO tenure across the seasons	Linear, positive for firm-employee relationships	Curvilinear, inverted U-shaped for firm-customer relationships		





emphasis on information diversity through both explorative and exploitative learning (March, 1991) can help CEOs acquire a more accurate picture of employee needs and constraints. The very fact that CEOs would care to learn about employees can make the employees feel important to the firm, enhance employee self-efficacy, and empower the workforce (Hitt *et al.*, 2001; Hatch and Dyer, 2004), thus boosting employee relations with the company.

As CEOs enter the later career seasons (i.e., selecting an enduring theme, convergence, and dysfunction), they lose touch with the external environment and become internally focused. Their once ambidextrous (both explorative and exploitive) learning shifts to a more exploitive and myopic one (Levinthal and March, 1993). That is, CEOs seek knowledge via local search, experiential refinement, and selection and reuse of existing routines (Baum, Li, and Usher, 2000).<sup>2</sup> Despite this focal shift, long-serving CEOs remain knowledgeable about firm-employee relationships because they continue to receive first-hand information from employees via their local search. Indeed, proximity to their employees helps CEOs stay abreast of firm-employee relationships. Furthermore, over time employees 'form a collective identity based on common experience' (Barnett and Pontikes, 2008), which enables longer-tenured CEOs to create a 'unity of purpose' among them (Souder *et al.*, 2012) and boost employee identification with the firm (Cohen, 1991; Hatch and Dyer, 2004), thereby continuing to cultivate employee relational capital. Hence,

*Hypothesis 1 (H1): Ceteris paribus, CEO tenure is positively associated with firm-employee relationship strength.*

<sup>2</sup> While the later CEO tenure seasons can induce negative effects such as a loss of touch with external market data, overcommitment to obsolete paradigms, and maladaptive information filtering, we do not expect these negative effects to harm employee relations. This is because employees are internal stakeholders and not as affected by these externally related negative effects and because long-serving CEOs remain knowledgeable about employees via local search. Indeed, experienced CEOs are more knowledgeable about selecting and retaining loyal subordinates and employees. Hambrick and Fukutomi (1991: 726) argue that 'over time and experience, key subordinates and staff come to know the format, timing, and even the content of information that the CEO will accept.' Thus, this stream of research leads us to expect a monotonically increasing relationship between CEO tenure and firm-employee relations even when CEOs enter the later career seasons.

## Hypothesis on CEO tenure and firm-customer relationship strength

Next, we expect CEO tenure to have an inverted U-shaped association with firm-customer relationships. During the early seasons of tenure, CEOs are attuned to the external environment (Henderson *et al.*, 2006). They build a track record in pursuing product innovations (Wu *et al.*, 2005) and leveraging local and distant information sources (Miller *et al.*, 2006) that will enhance their knowledge about product markets and, more importantly, the needs of their customers. New CEOs may actively use diverse information sources such as internal customer feedback and external satisfaction data from market research firms to create customer value and sustain customer relationships (Zhou *et al.*, 2008). Indeed, the early seasons in the CEO tenure are often characterized by improving adaptive ability to respond to external market data and customer intelligence (Hult and Ketchen, 2001), thus strengthening firm-customer relationships.

Once CEOs enter the later seasons of tenure, however, firm-customer relationships start to wane. Long-serving CEOs resort to internal conduits and their own paradigms that brought them past success (Hambrick and Fukutomi, 1991). They become risk averse and increasingly insulated from fresh and accurate external market information (Bergh, 2001; Henderson *et al.*, 2006), and their ability to keep up with evolving customer demands decreases. Indeed, according to the prospect theory (Kahneman and Tversky, 1979), people tend to favor avoiding losses over realizing gains. In applying prospect theory to the CEO's later tenure seasons, Simsek (2007: 655) argues that 'the risk of losing prior gains and the CEOs' own past paradigms outweighs the marginal benefit of additional gains.' That is, longer-tenured CEOs become risk averse because 'they have a great deal—psychologically and tangibly—invested in the firm' (Simsek, 2007: 655). This risk aversion leads CEOs to resist changes to the status quo (Hambrick, 2007) and further alienates longer-tenured CEOs away from external market environments and vacillating customer preferences, thus likely weakening customer relations.

Moreover, local search with proximal informants does not necessarily relay accurate customer information to the CEO. Hambrick and Fukutomi (1991: 725) note that 'as the tenure

extends, an increasing reliance on internal sources is aggravated by the tendency for those sources to have learned how to cater to the CEO's information preferences... If the information does not fit the CEO's known acceptance zone, or if it runs counter to his increasingly apparent and entrenched paradigm, the CEO is not likely to receive this information.' Further, local informants have little incentive to report the real causes of customer dissatisfaction and complaints to CEOs because doing so can adversely affect their performance appraisal (Rosenkopf and Nerkar, 2001). Thus, increasing reliance on local information sources can lead longer-tenured CEOs to become myopic and hinder their abilities to foresee accurate new market trends and learn from the ever-changing customer needs (Miller and Shamsie, 2001), thereby weakening customer relations. Taken together, an increase in CEO tenure will enhance firm-customer relations only up to a certain point. Beyond that point, CEO tenure will prove detrimental to firm-customer relations.

*Hypothesis 2 (H2): Ceteris paribus, CEO tenure has an inverted U-shaped association with firm-customer relationship strength.*

### **Hypothesis on the moderating role of industry uncertainty**

We also argue that the links between CEO tenure and firms' employee and customer relations are moderated by industry uncertainty. Formally, industry uncertainty refers to the degree to which a firm operates in industries that are unstable and unpredictable and have short product cycles, fierce competition, and volatile sales responses (Li, Poppo, and Zhou, 2008). Because it indicates how turbulent the industry environment is, industry uncertainty affects CEOs and their strategic choices.<sup>3</sup>

More specifically, the effects of CEO tenure on firm-employee and firm-customer relations will be intensified by industry uncertainty. According

to the integrated view of strategic leadership and organizational learning (Vera and Crossan, 2004: 233), CEOs within turbulent environments best motivate their organizational members to 'overcome their resistance to change and adopt new institutionalized routines through feed-forward and feedback learning processes.' That is, industry uncertainty can induce collective feelings and cohesion among the workforce in learning organizations to tackle external challenges and tap into new environmental opportunities (Waldman and Yammarino, 1999), thereby enabling CEOs to better enhance employee relations and labor relations.

Indeed, Tushman and Rosenkopf (1996) suggest that while stable contexts motivate firms to mainly engage in first-order learning (incremental updating and refinements), turbulent environments breed the more powerful second-order learning (shifts in core assumptions and strategic reorientations) necessary to gain external and internal knowledge for stronger employee and customer relations. Also, Waldman and colleagues (2001) argue that in uncertain environments, CEOs can better generate appeal for their visions of the firm and, thus, more effectively rally the workforce and better deliver customer value. Further, in uncertain environments, CEO tenure plays a more pivotal role in developing the market-sensing capabilities (Porter, 1991; Hult and Ketchen, 2001) that are required to learn from the ever-changing customer demands and strengthen firm-customer relationships. In other words, the more seasoned the CEOs are, the more likely they can steer the ship through the challenging waters, i.e., foster strong employee and customer-based human capitals when industry uncertainty is high rather than low, thus leading to a positive moderating role of industry uncertainty.<sup>4</sup>

*Hypothesis 3 (H3): Industry uncertainty strengthens the associations between CEO tenure and firm-employee and firm-customer relations.*

<sup>3</sup> While studies suggest that CEO tenure has a stronger impact in stable (versus unstable) industries (Henderson *et al.*, 2006; Wu *et al.*, 2005), these studies discuss the direct effects on firm performance. Because our setting involves *indirect* effects with employee and customer relations, we expect varied effects on the basis of an integration of the CEO tenure, strategic leadership, and organizational learning literatures (Vera and Crossan, 2004; March, 1991; Tushman and Rosenkopf, 1996).

<sup>4</sup> Because H2 predicts an inverted U-shaped relationship between CEO tenure and firm-customer relationships, we suggest that the moderating role of industry uncertainty will intensify this relationship (i.e., a more positive, linear and a more negative, nonlinear association). That is, industry uncertainty initially strengthens the associations between CEO tenure and customer relations during the first part of a CEO's tenure, but after a certain point in the CEO's tenure, when firm-customer relations begin to sour, industry uncertainty should intensify this negative association such that customer relations will sour at a faster and deeper rate in high industry uncertainty.

### Hypothesis on CEO tenure's impact as channeled by employee and customer relationships

Thus far, in H1 and H2, we propose that CEO tenure affects firm-employee and firm-customer relationships. The strategy and marketing literatures also suggest that a firm's competency in securing stronger employee and customer relationships should impact firm performance. Indeed, the effect of human capital and employee relationships on firm performance is well documented (e.g., Berman *et al.*, 1999; Hitt *et al.*, 2001; Hatch and Dyer, 2004). Research has shown that positive employee relations decrease a firm's hiring and training costs and increase firm-specific knowledge resources (Wang *et al.*, 2009), which, in turn, may not only boost the magnitude of firm performance but also reduce the uncertainty and vulnerability in performance (Skaggs and Youndt, 2004; Berger *et al.*, 2002). Further, marketing studies suggest that building strong customer relationships provides the firm with higher, faster, and more secured cash flows because committed customers are loyal, engage in positive word-of-mouth, and are less likely to defect to competing firms (see a review in Luo and Homburg, 2007; Hult and Ketchen, 2001).

Therefore, given that CEO tenure affects firm-employee and firm-customer relationships which, in turn, affect performance, we posit a 'chain of effects' starting from CEO tenure to employee and customer relationships and, ultimately, to firm performance. In extending the majority of prior studies that argue in favor of a direct relation in which CEO tenure influences firm performance (e.g., Henderson *et al.*, 2006; Miller, 1991), and in keeping with recent studies that call for testing the intervening outcomes of CEO tenure (Simsek, 2007), we close the missing links with two indirect, mediating factors. Essentially, our understanding of the effects of CEO tenure on firm performance (Hambrick and Fukutomi, 1991) can be enhanced via revealing two underlying channels. That is, the firm value creation role of CEO tenure is path dependent; firm-employee and firm-customer relationships represent the intermediate channels that account for the ultimate effects of CEO tenure on firm performance.

*Hypothesis 4 (H4): The impact of CEO tenure on firm performance will be mediated by firm-employee and firm-customer relationship strength.*

## RESEARCH DESIGN

### Sample setting

Our sampling frame is the universe of publicly traded companies in the United States that have data for all the independent and dependent variables used in our study. We collected data from a variety of sources, including: ExecuComp®, Kinder, Lydenberg, and Domini (KLD), Compustat, and CRSP. After merging all the data sources, our final data set consists of 3,916 firm-year data points for 356 firms, spanning 11 years (2000 to 2010).

The KLD sample covers a broad range of industries and consists of firms that constitute a significant portion of the U.S. economy. Specifically, the sample accounts for all major economic sectors, including manufacturing durables and nondurables, transportation, electronics, computers, and electronic product manufacturing (NAICS industry code = 334), chemical manufacturing (NAICS code = 325), food manufacturing (NAICS code = 311), utilities (NAICS code = 221), merchant wholesales, durable goods (NAICS code = 423), plastics and rubber products manufacturing (NAICS code = 326), mining (NAICS code = 212), miscellaneous manufacturing (NAICS code = 339), and professional, scientific, and technical services (NAICS code = 541), among others. As such, our findings should be generalizable to a diverse set of major industries (Berman *et al.*, 1999; Wong, Ormiston, and Tetlock, 2011).

Further, our data set is unique and can account for common method bias because we compiled the data set from different secondary data sources. Table 2 presents the conceptual variables, measures, and data sources.

### Independent variables

#### *CEO tenure*

We measured CEO tenure as the number of years of CEO experience in the position (Henderson *et al.*, 2006; Simsek, 2007; Souder *et al.*, 2012). CEO tenure acts as a proxy for a CEO's knowledge and influences within the firm and outside the firm (Hambrick, 2007). Table 3 reports the descriptive statistics and correlation matrix for the variables.

*Firm-employee relationship strength.* We used data from KLD to measure the strength of

Table 2. Variables, measures, and data sources

Variables	Measures	Data Sources
Firm-employee relationship strength	Measured as the strength and quality of organizational actions toward internal employees, i.e., how well firms take care of and build long-term relationships with internal stakeholders of employees	KLD
Firm-customer relationship strength	Measured as the strength and quality of organizational actions toward external customers, i.e., how well firms take care of and build long-term relationships with external stakeholders of customers	KLD
Firm performance	Stock price-based firm financial performance in terms of both magnitude (abnormal return) and volatility (idiosyncratic risk)	CRSP COMPUSTAT
CEO tenure	The number of years of experience in the CEO office of a given company	ExecuComp®
CEO stock ownership	Measured as the percentage of shares outstanding owned by the CEO	ExecuComp®
CEO chair	A binary variable, coded as '1' if a firm's CEO is also the chair of its board of directors	ExecuComp® 10-K filings
CEO founder	A binary variable, coded as '1' if a firm's CEO is also the founder of the firm	ExecuComp® 10-K filings
CEO total compensation	The sum of long-term, equity-based compensation and short-term, fixed compensation (salary, bonus, and other fixed annual payments) scaled by firm assets	ExecuComp® 10-K filings
CEO internal	A binary variable, coded as '1' if a firm's CEO has been in the firm before becoming a CEO, as opposed to being from another firm	ExecuComp® 10-K filings
Firm size	The natural log of firms' number of employees	COMPUSTAT
Firm leverage	The ratio of book debt to book value of total assets	COMPUSTAT
Firm advertising	The ratio of advertising expenses to total assets	COMPUSTAT
Firm sales growth	The growth rate of firm sales revenue from year t-1 to year t	COMPUSTAT
Number of segments	Measured as the number of unique business segments in which the firm operates	Compact disclosure
Manufacturing industries	A dummy variable for manufacturing industries versus nonmanufacturing ones	COMPUSTAT
Market concentration	Herfindahl concentration index	COMPUSTAT
Industry uncertainty	The standard deviation of the five-year average sales growth across firms in a given industry	COMPUSTAT

firm-employee relationships. KLD ratings are based on multiple data sources, ranging from annual surveys sent to firms' investor relations offices, firm SEC filings, annual reports, government surveys, and press releases, to academic journal research. The annual KLD index covers more than 650 publicly traded firms including S&P 500 firms and about 150 firms from the Domini Social Index (Coombs and Gilley, 2005; Kacperczyk, 2009). The validity and reliability of KLD have been well established in the strategy literature (e.g., Choi and Wang, 2009; Wong *et al.*, 2011).

The KLD data set was used to measure the strength and quality of corporate actions in building long-term relations with internal

stakeholders—employees.<sup>5</sup> It has 14 dimensions that account for various corporate actions for building relations with employees that include union relations, a no-layoff policy, retirement benefits, cash profit sharing, employee involvement, health and safety, workforce reductions, and others (Coombs and Gilley, 2005). Wang and colleagues (2009: 8) specifically note that 'KLD is the best data available for a comprehensive measure of firm-employee relations.' Using KLD data, Wong and colleagues (2011) recommend averaging the item scores to obtain an overall measure of

<sup>5</sup> Details of the specific items of KLD can be found on the Wharton Research Data Services (WRDS) Web site.



Table 3. Descriptives and correlations

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17
V1. Performance magnitude	1.000																
V2. Performance volatility	-0.130	1.000															
V3. CEO tenure	0.141	-0.094	1.000														
V4. Firm-employee relationship strength	0.186	-0.152	0.165	1.000													
V5. Firm-customer relationship strength	0.167	-0.137	0.112	0.216	1.000												
V6. CEO stock ownership	0.085	-0.125	0.097	0.092	0.094	1.000											
V7. CEO chair	-0.027	0.004	0.068	-0.035	-0.062	0.072	1.000										
V8. CEO founder	0.088	0.091	0.031	0.014	0.011	0.063	0.023	1.000									
V9. CEO internal	-0.006	0.002	0.046	0.007	0.006	0.004	0.025	0.033	1.000								
V10. Firm size	0.135	0.118	0.051	0.085	0.082	0.085	0.001	0.003	-0.002	1.000							
V11. Firm leverage	0.004	0.091	-0.008	-0.023	-0.021	0.057	0.006	0.004	0.006	0.086	1.000						
V12. Firm sales growth	0.128	-0.109	-0.007	0.113	0.109	0.063	0.007	0.009	0.011	0.011	0.022	1.000					
V13. Firm advertising	0.136	-0.097	0.005	0.084	0.088	0.027	0.018	0.007	0.016	0.026	0.063	0.127	1.000				
V14. Manufacturing	0.186	-0.095	-0.016	-0.031	-0.026	-0.008	-0.024	-0.018	0.012	0.023	0.052	-0.078	0.027	1.000			
V15. Number of segments	0.005	-0.038	-0.010	-0.051	-0.033	-0.027	0.003	0.005	0.003	0.007	0.008	-0.016	0.024	0.031	1.000		
V16. Market concentration	0.087	0.042	0.010	-0.028	-0.015	-0.032	-0.001	-0.006	-0.004	-0.002	-0.015	-0.066	0.045	0.052	0.096	1.000	
V17. Industry uncertainty	-0.126	0.095	-0.105	-0.076	-0.088	-0.009	-0.005	-0.002	-0.011	-0.015	-0.023	-0.051	0.028	0.065	0.078	0.093	1.000
Mean	0.118	0.065	7.615	2.317	2.606	0.082	0.045	0.051	0.756	4.284	2.107	16.207	0.062	0.466	2.386	0.216	2.023
Standard deviation	0.327	0.109	6.503	3.084	3.162	0.201	0.207	0.219	0.523	1.092	7.083	7.618	0.081	0.152	1.057	0.128	0.511

Note: correlation values greater than 0.09 are significant at  $p < 0.05$ .

corporate social performance. Also, because Choi and Wang (2009: 898) suggest that 'each KLD dimension should be standardized to make the scores across dimensions directly comparable,' we used the average of the standardized KLD strength scores as our final measure for the firm-employee relationship strength. This procedure is also in line with prior studies using KLD data (Coombs and Gilley, 2005; Wang *et al.*, 2009).<sup>6</sup>

#### *Firm-customer relationship strength*

Similarly, KLD also measures the strength and quality of corporate actions in building long-term relationships with external stakeholders—customers—on the basis of 10 separate dimensions. These dimensions include product quality, benefits to economically disadvantaged customers, product safety, product strengths, R&D or innovation, marketing/contracting concerns, and antitrust issues in the marketplace. This KLD measure of firm-customer relations has been used by prior studies because it can reflect 'corporate attention to primary stakeholders of customers that impact firms' survival and exert considerable influence on corporate strategy' (Kacperczyk, 2009: 269). Similar to employee relations, we used the average of the standardized KLD strength scores as our final measure for firm-customer relationship strength, which gauges the quality of corporate actions in building relations with customers.

#### *Industry uncertainty*

We measured industry uncertainty with the standard deviation of five-year sales growth rates

<sup>6</sup> Per the suggestion of an anonymous reviewer, we conducted additional exploratory factor analyses (EFA) to check whether KLD items actually cohere with the corresponding theoretical constructs (see Sharfman and Fernando (2008) and Mattingly and Berman (2006) for studies that have conducted EFA with KLD data). Specifically, we applied principal component analysis (PCA) with Varimax rotation for the 14 dimensions of employee relations and for the 10 separate dimensions of customer relations. The PCA analyses indeed extracted two underlying factors with eigenvalues larger than one. The items aligned with the original employee and customer relationship constructs. The factor loadings for employee relations range from 0.637 to 0.889, while those for customer relations range from 0.602 to 0.851, all at acceptable levels. We also entered the two underlying factor scores to test the hypotheses. The results with the two PCA factors lead to qualitatively the same conclusion, thus adding more evidence for H1 to H4 (one exception is H3, with an insignificant moderating role of industry uncertainty for the effects of CEO tenure on customer relationship strength).

across firms in an industry. The larger the standard deviation of industry sales growth, the more turbulent and uncertain the industry environment would be (Li *et al.*, 2008).

### **Dependent variables**

#### *Firm performance*

We obtained stock price data from CRSP to derive firm performance. Prior studies in finance suggest that the two most common firm performance measures are magnitude (abnormal returns) and performance volatility (variance in those returns or idiosyncratic risk) (e.g., Anderson, Denrell, and Bettis, 2007; Ferreira and Laux, 2007). Specifically, performance magnitude is measured as the abnormal return beyond what is normally expected from the broad financial markets (Luo, Zhang, and Duan, forthcoming). Performance volatility refers to the firm idiosyncratic vulnerability or risk of financial performance after accounting for the broad market fluctuations. To measure expected return from the broad financial markets, we used the Fama-French-Carhart model (Fama and French, 1993) at the firm level:

$$R_{it} - R_{ft} = \beta_{0i} + \beta_{1i} (R_{mt} - R_{ft}) + \beta_{2i} SMB_t + \beta_{3i} HML_t + \beta_{4i} MOM_t + \varepsilon_{it}, \quad (1)$$

where  $R_{it}$  are returns for firm  $i$  on time  $t$ ,  $R_m$  are average market returns,  $R_f$  is the risk-free rate,  $SMB$  are size effects,  $HML$  are value effects,  $MOM$  are Carhart's momentum effects,  $\beta_{0i}$  is the intercept, and  $\varepsilon_{it}$  is the model residual. We then calculated firm performance magnitude or abnormal stock returns ( $ASR_{it}$ ) as the difference between observed returns and expected returns:

$$ASR_{it} = (R_{it} - R_{ft}) - [\hat{\beta}_{0i} + \hat{\beta}_{1i} (R_{mt} - R_{ft}) + \hat{\beta}_{2i} SMB_t + \hat{\beta}_{3i} HML_t + \hat{\beta}_{4i} MOM_t]. \quad (2)$$

Further, firm performance volatility is the conditional standard deviation of the model residuals from this equation (Ferreira and Laux, 2007; Luo and Bhattacharya, 2009). Data for risk factors and momentum ( $R_m$ ,  $R_f$ ,  $MKT$ ,  $SMB$ ,  $HML$ ,  $MOM$ ) are available at [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

## Control variables

To rule out alternative explanations across multiple dimensions, we included three layers of controls: CEO, firm, and industry level. CEO-level controls include compensation, founder, chair, and internal CEOs. We selected these CEO-level control variables because they are related to the corporate governance structures that can affect firm performance (i.e., ignoring them may introduce endogeneity bias) (Chhaochharia and Grinstein, 2009). For instance, CEO compensation is found to affect firm performance (Bodolica and Spraggon, 2009). In addition, CEO founder, chair, and internal CEOs are found to be relevant for firm performance (Souder *et al.*, 2012; Chhaochharia and Grinstein, 2009).

At the firm level, we controlled for firm size, leverage, advertising, and sales growth. These firm-level control variables account for differences among firm resources, financial strength, marketing spending, and market performance, all of which can affect firm-employee and firm-customer relations and financial performance. Firm size is selected because prior studies have found that 'firm size is related to the complexity and information-processing demands placed on CEOs' (Henderson and Fredrickson, 1996: 577). Firm leverage is controlled for because it reflects the capital structure and financial stress of the firm, which can constrain CEOs' decision making and strategic options (Vincente-Lorente, 2001). We selected advertising because it captures the firm's strategic differentiation, which can affect customer perceptions of products and firm performance (Luo and Donthu, 2006) and the effects of corporate social responsibility on firm value (Luo and Bhattacharya, 2006, 2009). Sales growth is controlled for because it reflects the firm's topline performance as a result of using the workforce to deliver customer value, and it determines the future financial performance of the firm (Luo and Homburg, 2007).

Lastly, at the industry level, we controlled for number of business segments, manufacturing industry, and market concentration. We selected business segments because this variable allows us to account for the diversification effects across industry segments (Hough, 2006). Manufacturing industry is selected because of the fundamental differences between services and goods industries with regard to the organizational architecture and

because of the reputation gaps and performance implication nuances between services and manufacturing sectors (Musteen *et al.*, 2006). Market concentration is selected because it controls for industry competition intensity and the degree of product-market rivalry (Luo and Homburg, 2007; Groening and Kanuri, forthcoming), which may affect firms' customer and employee relations and performance outcomes.

## ANALYSES AND RESULTS

### Analysis approach

We employed a system of equations to simultaneously test the associations between CEO tenure (lagged  $t-1$ ), firm-customer and firm-employee relations, and firm performance. This system of simultaneous equations (see Models 1 to 4 in Table 4) offers two key advantages over separate equations. First, because variables such as firm-customer and firm-employee relations are both independent and dependent variables in different equations, endogeneity problems may arise. Such concern can be alleviated if all models are estimated as a simultaneous system. Second, given the overlapping nature of the models (employee and customer relations are both independent and dependent variables in an endogenous system), the error terms in Models 1 to 4 are likely to be correlated. A simultaneous system can account for correlated errors and produce more efficient estimates with higher statistical efficiency.

We estimated the system of equations with the three-stage least squares model to account for the assumption that the dependent variables are endogenous in the system. Consistent with prior studies on dealing with possible endogeneity bias, we also employed instrumental variables. Specifically, following Arellano and Bond (1991), we used the lagged values of industry-averaged financial performance and lagged firm sales as instruments. Results of Hansen tests of overidentifying restrictions did not reject the null hypothesis of valid instruments for all equations in our modeling system. We also used the generalized method of moments (GMM) estimation technique and found that our hypothesis testing results are robust. The results are substantially consistent with those reported in Table 4.

Table 4. Hypotheses testing results with an endogenous system of equations

	Dependent variables			
	Model 1 Firm-employee relationship strength	Model 2 Firm-customer relationship strength	Model 3 Performance magnitude (abnormal return)	Model 4 Performance volatility (idiosyncratic risk)
CEO tenure	2.156**	2.068* * *	2.653*	-0.705
CEO tenure <sup>2</sup>	-0.003	-0.216**	-0.169	0.008
<i>Moderating effects</i>				
CEO tenure x industry uncertainty	0.057**	0.061**	0.043*	-0.022
CEO tenure <sup>2</sup> x industry uncertainty	-0.001	-0.053**	0.004	0.005
Firm-employee relationship strength			0.338**	-0.281* * *
Firm-customer relationship strength			0.215*	-0.102
Firm-employee relationship strength x firm-customer relationship strength			0.185*	-0.177**
<i>Controls</i>				
CEO stock ownership	0.763**	0.729**	0.928*	1.152**
CEO chair	-0.105	-0.128	-0.151	-0.162
CEO founder	0.459	0.424	0.725*	0.706*
CEO total compensation	0.317*	0.306*	0.023	0.031
CEO internal	-0.129	-0.133	-0.108	-0.084
Firm size	0.172*	0.156*	0.141*	0.155**
Firm leverage	0.017	0.015	0.083	0.081
Firm advertising	0.891*	0.835*	3.172**	-3.144**
Firm sales growth	3.013**	3.492* * *	4.103* * *	-2.668**
Manufacturing industries	0.167	0.182	0.015	0.012
Number of segments	0.025	0.021	-0.032	-0.036
Market concentration	0.031	0.025	-0.218	0.239
Industry uncertainty	-0.077*	-0.062**	-0.126**	0.138**
<i>Incremental changes in R<sup>2</sup></i>				
Controls only	26.1%	25.7%	16.9%	21.2%
+CEO and moderating effects	7.9%	7.8%	4.6%	6.1%
+Firm-employee and firm-customer relations			6.8%	9.5%

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Because cross-sectional time series data may introduce threats such as serial correlation and heteroskedasticity, we used the Newey-West covariance matrix and quadratic hill-climbing optimization method to reduce such threats. This study also controlled for heterogeneity in our data by using a comprehensive set of control variables at the CEO, firm, and industry levels. In addition, we verified a battery of model assumptions with the Jarque-Bera test, Durbin-Watson and White's test, the RESET test, a variance inflation factor test, and the Breusch-Pagan test. None of the assumptions are violated in our data analyses.

### Bayesian mediation analyses

To more rigorously test the mediation hypotheses, we adopt the recently developed Bayesian mediation approach (Zhang, Wedel, and Pieters, 2009). Compared to the standard approach by Baron and Kenny (1986), this Bayesian model offers three advantages in terms of accounting for the omitted variables, measurement error, and inaccurate standard errors of mediated effects for small samples (Hahn and Doh, 2006). In this sense, Zhang and colleagues (2009) provide a more robust technique to test mediation effects than non-Bayesian



approaches. We adopted this Bayesian mediation approach and employed the Markov chain Monte Carlo (MCMC) methods with a Gibbs sampling algorithm and 5,000 draws for burn-in.

### Results on the effects of CEO tenure on firm-employee relationship strength

H1 predicts that with everything else constant, CEO tenure is positively associated with firm-employee relationship strength. As reported in Table 4, we observed a positive and significant effect of CEO tenure ( $b = 2.156$ ,  $p < 0.05$ ) on firm-employee relationship strength. In addition, the effect of the CEO tenure-squared term on employee relationships was not significant ( $p > 0.10$ ), as expected. Therefore, H1 is supported by the data.

### Results on the effects of CEO tenure on firm-customer relationship strength

In H2, we expect that everything else constant, CEO tenure affects firm-customer relationship strength in an inverted U-shape. Results in Table 4 suggest that the effect of CEO tenure on firm-customer relationship strength is positive and significant ( $b = 2.068$ ,  $p < 0.01$ ), while the effect of the CEO tenure-squared term is negative ( $b = -0.216$ ,  $p < 0.05$ ). We find that the optimal point of CEO tenure for firm-customer relationship is 4.8 years ( $= 2.068/2 \times 0.216$ ) for our sample. An initial increase in CEO tenure can improve firm-customer relationship strength, but too long of a tenure after the optimal point is destructive and will lead to lower firm-customer relationship strength. As a result, H2 is also supported.

### Results on the moderating role of industry uncertainty

H3 predicts that the effects of CEO tenure on firm-employee and firm-customer relations are positively moderated by industry uncertainty. The coefficient of CEO tenure  $\times$  industry uncertainty is positive and significant ( $b = 0.057$ ,  $p < 0.05$ ) in Model 1 (Table 4) with employee relationships as the dependent variable. Figure 1 confirms the positive moderating role of industry uncertainty in the association between CEO tenure and firm-employee relationship strength. Thus, H3 is supported in terms of employee relations.

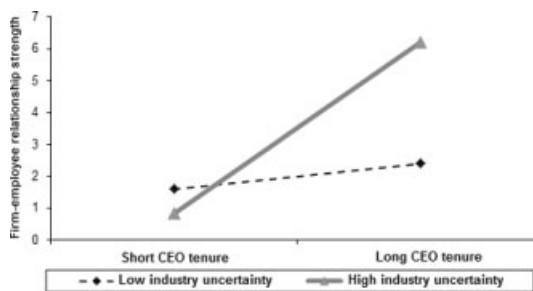


Figure 1. The moderating role of industry uncertainty in the association between CEO tenure and firm-employee relationship strength

In addition, the coefficient of CEO tenure  $\times$  industry uncertainty is positive ( $b = 0.061$ ,  $p < 0.05$ ) and that of CEO tenure-squared  $\times$  industry uncertainty is negative ( $b = -0.053$ ,  $p < 0.05$ ) in Model 2 (Table 4) with customer relationship as the dependent variable, both strengthening the main effects of CEO tenure and CEO tenure-squared on customer relations. Figure 2 presents the combined linear and quadratic terms along with the interaction terms. More specifically, we followed Henderson *et al.* (2006) and calculated the partial derivative:  $\partial \text{customer relations} / \partial \text{CEO tenure}$ . As shown in Figure 2, there is an inverted U-shaped association between CEO tenure and firm-customer relationship strength. As CEO tenure lengthens, there are steeper increases in the firm-customer relationship strength for the high industry uncertainty curve, more so than for the low industry uncertainty curve. Also, when CEO tenure is too long, the 'slippery slope' is more salient: there are more dramatic decreases in the firm-customer relationship strength for

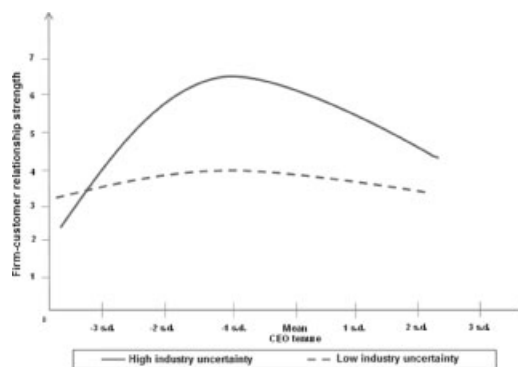


Figure 2. The moderating role of industry uncertainty in the association between CEO tenure and firm-customer relationship strength

the high (versus low) industry uncertainty curve, thus supporting the positive moderating role of industry uncertainty in the association between CEO tenure and customer relationship strength. Overall, H3 is supported.

### Results on the effect of CEO tenure as channeled by employee and customer relationships

In H4, we expect that the effect of CEO tenure on firm performance (magnitude and volatility) will be mediated by firm-employee and firm-customer relationship strength. Following Baron and Kenny (1986) and Zhang and colleagues (2009), in order to establish mediation, CEO tenure must affect employee and customer relationships, and employee and customer relationships must affect firm performance. As discussed previously, CEO tenure affects employee and customer relationships. Also, results in Table 4 suggest that employee and customer relationships both influence performance magnitude and volatility (see Models 3 and 4), except for the effect of customer relationships on performance volatility. As reported in Table 5, entering employee and customer relationships in the model reduces the strength of the effects of CEO tenure on performance magnitude (from 4.728,  $p < 0.01$  to 2.653,  $p < 0.10$  for CEO tenure and from -0.495,  $p < 0.05$  to insignificant for CEO tenure-squared). Thus, our data support a partial mediating role of employee and customer relationships in the case of performance magnitude.

In addition, entering firm-employee and firm-customer relationships reduces the impact of CEO tenure on performance volatility from -2.068,  $p < 0.01$  to an insignificant value, thus supporting a full mediation in the case of performance volatility. However, because the impact of customer relationship on performance volatility was not significant, H4 is only partially supported. As shown in Table 4, adding employee and customer relationships leads to significant increases in the R-squares of 6.8 percent ( $p < 0.01$ ) for the performance magnitude and 9.5 percent ( $p < 0.01$ ) for the performance volatility models.

We also conducted the Sobel test combined with the Bayesian mediation approach in order to gauge whether the indirect mediation effects are statistically significant (Sobel, 1982). The standard Sobel test model is:  $z_{\text{value}} = ab / \sqrt{a^2 s_b^2 + b^2 s_a^2 + s_a^2 s_b^2}$ ,

where  $a$  and  $s_a$  are coefficients and standard errors (estimated from the Bayesian mediation approach by Zhang *et al.*, 2009) for the impact of independent variables on mediators, while  $b$  and  $s_b$  are coefficients and standard errors for the impact of mediators on the dependent variable. We find that Sobel test results are consistently significant (smallest  $z_{\text{value}} = 2.382$ ,  $p < 0.05$ ) for the indirect mediation effects, except for the mediation path of CEO tenure to customer relationship then to performance volatility.

Furthermore, we demonstrate the robustness of our results with the classical Baron-Kenny mediation tests. As shown in Table 6, the non-Bayesian mediation results add more support for our conclusion, reaffirming the partial mediating role of employee and customer relationships in the case of performance magnitude (and not for volatility). Again, H4 is partially supported.

### Testing the direction of causality

The direction of causality can be a concern in data analyses. It is possible that a firm performing better with regard to its relationships with its customers and employees may not experience the pressure to fire the CEO, leading to longer CEO tenure. Thus, we conducted the formal Granger causality tests (Granger, 1969):

$$\begin{cases} Y_t = \sum_{i=1}^n \alpha_i Y_{t-i} + \sum_{j=1}^m \beta_j X_{t-j} + \gamma_t \\ X_t = \sum_{j=1}^m \phi_j Y_{t-j} + \sum_{i=1}^n \omega_i X_{t-i} + \tau_t \end{cases}$$

where  $X$  can be CEO tenure with  $m$  lags (up to six time period lags).  $Y$  refers to firm-employee and firm-customer relationship strength and firm performance with  $n$  lags. In these equations, if all the coefficients are significant, then  $Y$  and  $X$  mutually Granger cause each other. If only the coefficients of  $\beta_j$  are significant, then  $X$  Granger causes  $Y$ . If only the coefficients of  $\phi_j$  are significant, then  $Y$  Granger causes  $X$ . The Wald F test determines the significance of the equations. This test statistics are specified as  $F_{\text{wald}} = [(SSR1 - SSR2)/q]/[SSR2/(n-s)]$ , where  $SSR1$  is defined as the sum of squared residuals in the restricted equation (in which  $\beta_j$  and  $\phi_j$  are restricted to be zero) and  $SSR2$  is the sum of squared residuals in the unrestricted equation. In

Table 5. Bayesian mediation results

	Dependent variables			
	Performance magnitude (abnormal return)	Performance magnitude (abnormal return)	Performance volatility (idiosyncratic risk)	Performance volatility (idiosyncratic risk)
Firm-employee relationship strength		0.338**		−0.281***
Firm-customer relationship strength		0.215*		−0.102
Firm-employee relationship strength × firm-customer relationship strength		0.185*		−0.177**
CEO tenure	4.728***	2.653*	−2.068***	−0.705
CEO tenure <sup>2</sup>	−0.495**	−0.169	−0.029	0.008
<i>Moderating effects</i>				
CEO tenure × industry uncertainty	0.057**	0.043*	0.061**	−0.022
CEO tenure <sup>2</sup> × industry uncertainty	−0.011	0.004	−0.039*	0.005

Note: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ . Results are the average coefficients estimated on the basis of MCMC methods with a Gibbs sampling algorithm and 5,000 draws for burn-in.

Table 6. Non-Bayesian mediation results

	Dependent variables			
	Performance magnitude (abnormal return)	Performance magnitude (abnormal return)	Performance volatility (idiosyncratic risk)	Performance volatility (idiosyncratic risk)
Firm-employee relationship strength		0.325**		−0.307***
Firm-customer relationship strength		0.229*		−0.008
Firm-employee relationship strength × firm-customer relationship strength		0.173*		−0.186**
CEO tenure	4.692***	3.208**	−2.195***	−0.664
CEO tenure <sup>2</sup>	−0.481**	−0.132	−0.037	0.002
<i>Moderating effects</i>				
CEO tenure × industry uncertainty	0.062**	0.045*	0.067**	−0.035
CEO tenure <sup>2</sup> × industry uncertainty	−0.015	0.002	−0.037*	0.003

Note: \* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .

addition,  $q$  = the number of restrictions,  $n$  = the number of observations, and  $s$  = the number of independent variables in the unrestricted equation. The results suggest that the Granger causality tests confirm the impact direction from CEO tenure to firm-employee and firm-customer relationships as well as firm performance (smallest  $F_{\text{wald}} = 13.058$ ,  $p < 0.01$ ). In addition, the reversed impact direction from firm-employee and firm-customer relationships as well as firm performance to CEO

tenure is not statistically significant (all  $p > 0.05$ ). Thus, these results confirm the expected direction of causality, rather than the reversed direction.

## DISCUSSION AND IMPLICATIONS

How does CEO tenure matter? This question has attracted research attention for decades (Hambrick and Fukutomi, 1991; Souder *et al.*,

2012). Our study tackles this question from a unique standpoint by examining how a firm's relationship with two of its most important stakeholders—employees and customers—can mediate CEO tenure's effect on firm value creation. We reveal that: (1) CEO tenure has a positive and linear association with firm-employee relationship strength but an inverted U-shaped association with firm-customer relationship strength; (2) industry uncertainty moderates these effects; and (3) firm-employee and firm-customer relationship strength mediate the effects of CEO tenure on firm performance magnitude and volatility. These findings have important implications for both management theory and practice, on which we elaborate next.

### Implications for strategic management theory

Our key contribution to the strategic management literature is the introduction of two pathways through which CEO tenure affects firm performance. The impact of CEO tenure on performance is a complex phenomenon (Hambrick and Fukutomi, 1991). Demystifying it entails studying the intermediate factors that mediate the relationship between CEO tenure and performance, i.e., routes for the path dependent value creation role of CEO tenure. Our review of the CEO tenure literature revealed only one study—by Simsek (2007)—that explicitly addressed the intermediate factors. While Simsek's article highlights CEOs' propensity to take risks as an intervening factor, we extend this stream of research by demonstrating two intermediate channels with firm-employee and firm-customer relationships.

Moreover, our study depicts a *balanced* view of CEO tenure's effects on firm value. We do not intend to promote a heroic perspective of CEOs, nor argue that CEO tenure is always good. Rather, consistent with the strategic leadership literature (Hambrick, 2007), our understanding of CEO tenure's effects on firm performance can be enhanced via revealing the underlying channels.<sup>7</sup> Prior management and marketing studies

suggest that if longer-tenured CEOs can strengthen employee and customer relations with the firm, then the potential rent-generating role of CEO tenure should be supported. Otherwise, the link between CEO tenure and firm performance would be less concrete (Simsek, 2007). Without fostering superior employee and customer relational capitals, even seasoned or celebrity CEOs (Waldman *et al.*, 2001) may not be able to increase firm financial performance.<sup>8</sup> Extending this stream of research, we explicate that the firm value creation role of CEO tenure is not always positive, but rather depends on: (1) trade-offs between the positive and negative effects of longer CEO tenure; (2) the moderating effects of industry uncertainty; (3) firm valuation metrics in terms of performance magnitude and volatility; and (4) the mediating role of employee and customer relations.

Our study also reveals the importance of CEO tenure for human capital development. Human capital's performance consequences have been well documented (Skaggs and Youndt, 2004; Hitt *et al.*, 2001). However, research has recently acknowledged the need to better understand the drivers of this human relational resource (Wang *et al.*, 2009). We respond to this call by proposing CEO tenure as a crucial driver of human capital relationships. Longer CEO involvement may increase workforce unification and labor relations, thus likely affecting employee commitment, trust, and identification to the firm. Nevertheless, these effects will depend on the uncertainty of the industry environment. Vera and Crossan (2004) indicate that CEOs can use the highly turbulent environments in feed-forward and feedback learning processes to enhance employees' self-efficacy and workforce commitment to the firm. Thus, CEO tenure may be more effective in strengthening employee relations in more (versus less) turbulent environments.

TMT, and performance (e.g., Simsek, 2007; Ling *et al.*, 2008). In particular, readers are encouraged to consult Blettner, Chaddad, and Bettis (2012) to get the complex fit perspective that involves many CEO characteristics not considered here, such as CEO functional experience and entrepreneurial orientation, as well as TMT pay, diversity, and strategic reorientations. Future research may examine the relative and interactive effects of CEOs and TMTs on employee and customer relations.

<sup>8</sup> In this sense, given the literature on CEO celebrity (Hayward, Rindova, and Pollock, 2004; Waldman *et al.*, 2001), we surmise that celebrity CEOs will be more likely to draw support for their visions of the firm from employees when catering to customers, an ability that can also help tap more opportunities embedded in uncertain industries.

<sup>7</sup> One limitation of our study (and an avenue for future research) is that we focus solely on the CEO, as opposed to the entire top management team (TMT). Specifically, there are evidence and arguments in upper echelons theory suggesting that the effects of TMT characteristics (such as tenure) may be expected to be more impactful than those of the CEO alone. Readers are encouraged to refer to prior research on the links among CEO,



Still, long-tenured CEOs may incur divergent outcomes—a linear, positive function with employee relations, but a curvilinear, inverted-U function with customer relations—that create a recipe for variance in CEO tenure-related outcomes. Because the later seasons of CEO tenure can induce negative effects, such as loss of touch with the external markets and maladaptive information-filtering, these negative effects predict an inverted U-shaped association between CEO tenure and customer relations (i.e., a slippery slope). But, these externally related, negative effects are less likely to harm internal employee relations because long-serving CEOs are more likely to remain knowledgeable about employees and continue to receive firsthand information from employees via local search. Thus, longer CEO tenure consistently increases firm-employee relations but, after a certain point, negatively affects firm-customer relations. This outcome divergence of long-tenured CEOs may partially suggest that some CEOs are effective motivators but lousy strategists. In later tenure seasons, they might unify employees around a failing course of action while neglecting external markets and customer trends. In a similar vein, CEOs might rally employees around a set of actions that made sense in the past but no longer do in light of changing external environments and conditions, as suggested by punctuated change theory (Gersick, 1991).

Further, we extend the marketing-management interfaces (Morgan, Vorhies, and Mason, 2009; Zhou *et al.*, 2008) by demonstrating how CEO tenure affects firm-customer relationships and firm value creation. Prior management research has largely focused on employee relations and consequent performance (Hitt *et al.*, 2001) to the exclusion of customer relations. Interestingly, 40 years ago Krishnan (1973: 658) stressed the importance of integrating internal employees and external customers into ‘business philosophy and executive responsibility.’ Later, Lowendahl and Oivind (1998: 755) proposed that because the increasing complexity that firms face altered the relationships between firms and external stakeholders (e.g., customers) and internal stakeholders (e.g., employees), ‘researchers should not focus primarily on one of these dimensions: internal or external in a postindustrial society.’ Rather, both employees and customers should be considered simultaneously. Our study precisely responds to this research strand and calls for future work on the

marketing-management interfaces. Specifically, more studies should explore the interfaces among CEO variables, TMT interactions and diversity (Blettner *et al.*, 2012), customer services, employee sabotage (Wang, *et al.*, 2009), market orientation (Hult and Ketchen, 2001), customer satisfaction (Lev, Petrovits, and Radhakrishnan, 2010), marketing communication efficiency, and firm value (Luo and Donthu, 2006).

In addition, extant research on CEO tenure has primarily focused on performance magnitude (abnormal returns), while largely ignoring performance volatility (variance in those returns). Performance magnitude alone is important but not sufficient because scholars have long believed firm value creation to be dependent on both magnitude and volatility (Kim, Hwang, and Burgers, 1993). Yet, extant knowledge on how strategies in general, and CEO tenure in particular, affect *performance volatility* is remarkably limited. Interestingly, scholars have long considered volatility and magnitude to be equally important dimensions of firm performance (e.g., Kim *et al.*, 1993). In fact, Anderson and colleagues (2007: 407) explicitly note that ‘strategy proposes to have important things to say about both returns and the risks associated with those returns.’ In that regard, we extend the strategy literature by demonstrating the impact of CEO tenure on both the magnitude and volatility of firm performance.<sup>9</sup> Also, our findings reinforce Bowman’s paradox (Bowman 1980). Consistent with this paradox, we demonstrate that

<sup>9</sup> Related to this, Blettner *et al.* (2012) suggest that with specific regards to the concern of statistical artifact, the multiple statistical issues of CEO performance effects give rise to a complex fit perspective. Specifically, they argue that ‘very high performance is more likely for firms engaged in practices that can *ex ante* produce high *variability* in outcomes,’ which implies that it is important to consider both performance magnitude and volatility in analyzing firm performance (Blettner *et al.*, 2012: 2). In considering the contingencies, we also consider the moderating role of industry uncertainty. In addition, we employ panel data to account for unobserved time, firm, and industry heterogeneity affecting both dimensions of firm performance. Of equal importance, Blettner and colleagues (2012: 2) point to ‘the stochastic nature of the TIME SERIES of firm returns’ with random walks theory from finance, which has often been ignored in strategy literature. Our article not only agrees with their observation, but also empirically operationalizes firm performance with the state-of-the-art Fama-French-Carhart model in finance, which uses the time series of firm stock prices and broad markets after accounting for random walks of firm-specific stock prices and the general stock market stock prices (Fama and French, 1993). In this sense, we feel our results offer some useful implications of firm performance evaluations for strategy researchers using stock prices.

firms that achieve stronger employee and customer relationships exhibit higher abnormal returns and lower variance in those returns. Conversely, firms that fail to foster employee and customer relationships experience a decline in returns and an increase in the variance of those returns. Further, we extend Bowman (1980) and Anderson and colleagues (2007) by supporting the moderating role of industry uncertainty in CEO tenure's effects on employee and customer relations which subsequently affect both the magnitude and volatility of firm performance.

### Implications for practice

CEOs are influential and their decisions may affect the entire firm. In that regard, our research helps practitioners gain a broader understanding of stakeholder relationships as CEO tenure increases. For example, to build sustainable competitive advantages (Porter, 1991), CEOs may help devise processes that foster firm-employee and firm-customer relationships, thereby enhancing firm returns and decreasing volatility in those returns (Bowman, 1980).

Further, longer-tenured CEOs may succumb to complacency and maladaptability to eclectic business markets (Hambrick and Fukutomi, 1991; Miller, 1991). To alleviate these problems, we suggest that boards develop appropriate incentive plans for CEOs (Coombs and Gilley, 2005). For CEOs in their later career stages, the corporate board should rely more on customer relationship metrics and external market signals to incentivize the longer-tenured CEOs so that they will not lose sight of external market trends and dynamics.

Moreover, the resource-based theory posits that unique human resources and relationships enhance firm performance. Customer relations may be a valuable resource and pathway for CEO tenure to affect firm value. Thus, failing to develop and maintain customer relations can prove detrimental to the firm. Reed Hastings, founding CEO of Netflix, recently demonstrated this by ignoring thousands of customer complaints while attempting to separate DVD delivery into online streaming and mail businesses. Neglecting its customer relations resulted in a loss of more than 500,000 subscribers for Netflix (*BusinessWeek*, 2011). Developing internal human capital is also vital to a firm's success. Indeed, for Costco's

CEO Jim Senegal, 'pro-worker means profitability' (Goldberg and Ritter, 2006).

In conclusion, this research accounts for CEO tenure's role in firm value creation through firm-employee and firm-customer relationships. This work extends research on the interfaces between strategy, human resources, and marketing literatures. We hope the findings will inspire and serve as a springboard for future research on the underlying channels that delineate CEO tenure's implications for firm performance.

### ACKNOWLEDGEMENTS

We thank management colleagues (Brent Clark, Deepak Datta, Abdul Rasheed, and Christopher S. Tuggle), marketing colleagues (Christopher Groening, Doug Grisaffe, Adwait Khare, Ritesh Saini, Zhiyong Yang, and other seminar participants at the University of Texas at Arlington and Fudan University), the coeditor, and the anonymous reviewers for their insightful comments and constructive feedback.

### REFERENCES

- Aguilar FJ. 1967. *Scanning the Business Environment*. Macmillan: New York.
- Andersen TJ, Denrell J, Bettis RA. 2007. Strategic responsiveness and Bowman's risk-return paradox. *Strategic Management Journal* **28**(4): 407–429.
- Arellano M, Bond S. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies* **58**(2): 277–297.
- Barnett WP, Pontikes EG. 2008. The red queen, success bias, and organizational inertia. *Management Science* **54**(7): 1237–1251.
- Baron R, Kenny D. 1986. The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* **51**(6): 1173–1182.
- Baum JAC, Li XS, Usher JM. 2000. Making the next move: how experiential and vicarious learning shape the locations of chains' acquisitions. *Administrative Science Quarterly* **45**(4): 766–801.
- Berger PD, Bolton RN, Bowman D, Briggs E, Kumar V, Parasuraman A, Terry C. 2002. Marketing assets and the value of customer assets: a framework for customer asset management. *Journal of Service Research* **5**(1): 39–54.
- Bergh DD. 2001. Executive retention and acquisition outcomes: a test of opposing views on the influence of

- organizational tenure. *Journal of Management* **27**(5): 603–622.
- Berman SL, Wicks AC, Kotha S, Jones TM. 1999. Does stakeholder orientation matter? The relationship between stakeholder management models and firm value creation. *Academy of Management Journal* **42**(5): 488–506.
- Blettner DP, Chaddad FR, Bettis RA. 2012. The CEO performance effect: statistical issues and a complex fit perspective. *Strategic Management Journal* **33**(8): 986–999.
- Bodolica V, Spraggon M. 2009. The implementation of special attributes of CEO compensation contracts around M&A transactions. *Strategic Management Journal* **30**(9): 985–1011.
- Bowman EH. 1980. A risk/return paradox for strategic management. *Sloan Management Review* **21**(3): 17–31.
- BusinessWeek. 2011. Netflix to report on earnings, subscribers Monday. 22 October: 21–22.
- Chaganti R, Sambharya R. 1987. Strategic orientation and characteristics of upper management. *Strategic Management Journal* **8**(4): 393–401.
- Chhaochharia V, Grinstein Y. 2009. CEO compensation and board structure. *Journal of Finance* **64**(1): 231–261.
- Choi J, Wang H. 2009. Stakeholder relations and the persistence of corporate financial performance. *Strategic Management Journal* **30**(8): 895–907.
- Cohen A. 1991. Career stage as a moderator of the relationships between organizational commitment and its outcomes: a meta-analysis. *Journal of Occupational Psychology* **64**(3): 253–268.
- Coombs JE, Gilley M. 2005. Stakeholder management as a predictor of CEO compensation: main effects and interactions with financial performance. *Strategic Management Journal* **26**(9): 827–840.
- Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Upper Saddle River, NJ: Prentice Hall.
- Day GS. 1981. Strategic market analysis and definition: an integrated approach. *Strategic Management Journal* **2**(3): 281–299.
- Fama E, French K. 1993. Common risk factors in the returns of stocks and bonds. *Journal of Financial Economics* **33**(1): 3–56.
- Ferreira MA, Laux PA. 2007. Corporate governance, idiosyncratic risk, and information flow. *Journal of Finance* **62**(2): 951–989.
- Gersick CJG. 1991. Revolutionary change theories: a multi-level exploration of the punctuated equilibrium model. *Academy of Management Review* **16**(1): 10–36.
- Goldberg AB, Ritter B. 2006. Costco CEO finds pro-worker profitability. Available at: <http://abcnews.go.com/2020/Business/story?id=1362779#.T6W4oIKs16Y> (accessed 6 May 2012).
- Granger CWJ. 1969. Investigating causal relations by econometric models and cross-spectral methods. *Econometrica* **37**(3): 424–438.
- Groening C, Kanuri VK. 2013. Investor reaction to positive and negative corporate societal events. *Journal of Business Research*. Forthcoming.
- Hahn ED, Doh JP. 2006. Using Bayesian methods in strategy research: an extension of Hansen *et al.* *Strategic Management Journal* **27**(8): 783–798.
- Hambrick DC. 2007. Upper echelons theory: an update. *Academy of Management Review* **32**(2): 334–343.
- Hambrick DC, Finkelstein S. 1987. Managerial discretion: a bridge between polar views of organizational outcomes. *Research in Organizational Behavior* **9**: 369–406.
- Hambrick DC, Fukutomi GDS. 1991. The seasons of a CEO's tenure. *Academy of Management Review* **16**(4): 719–742.
- Hatch NW, Dyer JH. 2004. Human capital and learning as a source of sustainable competitive advantage. *Strategic Management Journal* **25**(12): 1155–1178.
- Hayward MLA, Rindova VP, Pollock TG. 2004. Believing one's own press: the causes and consequences of CEO celebrity. *Strategic Management Journal* **25**(7): 637–653.
- Henderson AD, Fredrickson JW. 1996. Information-processing demands as a determinant of CEO compensation. *Academy of Management Journal* **39**(3): 575–606.
- Henderson AD, Miller D, Hambrick DC. 2006. How quickly do CEOs become obsolete? industry dynamism, CEO tenure, and company performance. *Strategic Management Journal* **27**(5): 447–460.
- Hitt MA, Biermant L, Shimizu K, Kochhar R. 2001. Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective. *Academy of Management Journal* **44**(1): 13–28.
- Hough JR. 2006. Business segment performance redux: a multilevel approach. *Strategic Management Journal* **27**(1): 45–61.
- Hult GTM, Ketchen DJ Jr. 2001. Does market orientation matter? A test of the relationship between positional advantage and performance. *Strategic Management Journal* **22**(9): 899–906.
- Kacperczyk A. 2009. With greater power comes greater responsibility? Takeover protection and corporate attention to stakeholders. *Strategic Management Journal* **30**(2): 261–285.
- Kahneman D, Tversky A. 1979. Prospect theory: an analysis of decision under risk. *Econometrica* **47**(2): 263–291.
- Kim WC, Hwang P, Burgers WP. 1993. Multinationals' diversification and the risk-return trade-off. *Strategic Management Journal* **14**(4): 275–286.
- Krishnan R. 1973. Business philosophy and executive responsibility. *Academy of Management Journal* **16**(4): 658–669.
- Lev B, Petrovits C, Radhakrishnan S. 2010. Is doing good good for you? How corporate charitable contributions enhance revenue growth. *Strategic Management Journal* **31**(2): 182–200.
- Levinthal DA, March JG. 1993. The myopia of learning. *Strategic Management Journal*, Winter Special Issue **14**: 95–112.
- Li JJ, Poppo L, Zhou KZ. 2008. Do managerial ties in China always produce value? Competition,



- uncertainty, and domestic vs. foreign firms. *Strategic Management Journal* **29**(4): 383–400.
- Ling Y, Simsek Z, Lubatkin MH, Veiga JF. 2008. The impact of transformational CEOs on the performance of small- to medium-sized firms: does organizational context matter? *Journal of Applied Psychology* **93**(4): 923–934.
- Lowendahl B, Oivind R. 1998. Challenges to existing strategy theory in a postindustrial society. *Strategic Management Journal* **19**(8): 755–774.
- Luo X, Bhattacharya CB. 2006. Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing* **70**(4): 1–18.
- Luo X, Bhattacharya CB. 2009. The debate over doing good: corporate social performance, strategic marketing levers, and firm-idiosyncratic risk. *Journal of Marketing* **73**(6): 198–213.
- Luo X, Donthu N. 2006. Marketing's credibility: a longitudinal investigation of marketing communication productivity and shareholder value. *Journal of Marketing* **70**(4): 70–91.
- Luo X, Homburg C. 2007. Neglected outcomes of customer satisfaction. *Journal of Marketing* **71**(2): 133–149.
- Luo X, Raithel S, Wiles M. Forthcoming. The impact of brand dispersion on firm value. *Journal of Marketing Research*.
- Luo X, Zhang J, Duan W. Forthcoming. Social media and firm equity value. *Information Systems Research*.
- March JG. 1991. Exploration and exploitation in organizational learning. *Organization Science* **2**(1): 71–87.
- Mattingly JE, Berman SL. 2006. Measurement of corporate social action: discovering taxonomy in the Kinder Lydenburg Domini ratings data. *Business & Society* **45**(1): 20–46.
- Miller D. 1991. Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science* **37**(1): 34–52.
- Miller D, Shamsie J. 2001. Learning across the life cycle: experimentation and performance among the Hollywood studio heads. *Strategic Management Journal* **22**(8): 725–745.
- Miller D, Zhao M, Calantone RJ. 2006. Adding interpersonal learning and tacit knowledge to March's exploration-exploitation model. *Academy of Management Journal* **49**(4): 709–722.
- Morgan NA, Vorhies DW, Mason CH. 2009. Market orientation, marketing capabilities, and firm performance. *Strategic Management Journal* **30**(8): 909–920.
- Mowday RT, Porter LW, Steers RM. 1982. *Employee-Organization Linkages: The Psychology of Commitment, Absenteeism, and Turnover*. Academic Press: New York.
- Musteen M, Barker VL III, Baeten VL. 2006. CEO attributes associated with attitude toward change: the direct and moderating effects of CEO tenure. *Journal of Business Research* **59**(5): 604–612.
- Porter ME. 1991. Towards a dynamic theory of strategy. *Strategic Management Journal, Winter Special Issue* **12**: 95–117.
- Rosenkopf L, Nerkar A. 2001. Beyond local search: boundary-spanning, exploration, and impact in the optical disc industry. *Strategic Management Journal* **22**(4): 287–306.
- Sharfman MP, Fernando CS. 2008. Environmental risk management and the cost of capital. *Strategic Management Journal* **29**(6): 569–592.
- Simsek Z. 2007. CEO tenure and organizational performance: an intervening model. *Strategic Management Journal* **28**(6): 653–662.
- Skaggs BC, Youndt M. 2004. Strategic positioning, human capital and performance in service organizations: a customer interaction approach. *Strategic Management Journal* **25**(1): 85–99.
- Sobel ME. 1982. Asymptotic intervals for indirect effects in structural equations models. In *Sociological Methodology*, Leinhardt S (ed). Jossey-Bass: San Francisco, CA; 290–312.
- Souder D, Simsek Z, Johnson SG. 2012. The differing effects of agent and founder CEOs on the firm's market expansion. *Strategic Management Journal* **33**(1): 23–41.
- Tushman ML, Rosenkopf L. 1996. Executive succession, strategic reorientation and performance growth: a longitudinal study in the U.S. cement industry. *Management Science* **42**(7): 939–953.
- Vera D, Crossan M. 2004. Strategic leadership and organizational learning. *Academy of Management Review* **29**(2): 222–240.
- Vincente-Lorente JD. 2001. Specificity and opacity as resource-based determinants of capital structure: evidence for Spanish manufacturing firms. *Strategic Management Journal* **22**(2): 157–177.
- Waldman DA, Ramírez G, House RJ, Puranam P. 2001. Does leadership matter? CEO leadership attributes and profitability under conditions of perceived environmental uncertainty. *Academy of Management Journal* **44**(1): 134–144.
- Waldman DA, Yammarino FJ. 1999. CEO charismatic leadership: levels-of-management and levels-of-analysis effects. *Academy of Management Review* **24**(2): 266–285.
- Wang HC, He J, Mahoney JT. 2009. Firm-specific knowledge resources and competitive advantage: the roles of economic- and relationship-based employee governance mechanisms. *Strategic Management Journal* **30**(12): 1265–1285.
- Wong EM, Ormiston ME, Tetlock PE. 2011. The effects of top management team integrative complexity and decentralized decision making on corporate social performance. *Academy of Management Journal* **54**(6): 1207–1228.
- Wu S, Levitas E, Priem RL. 2005. CEO tenure and company invention under differing levels of technological dynamism. *Academy of Management Journal* **48**(5): 859–873.
- Zhang J, Wedel M, Pieters R. 2009. Sales effects of attention to feature advertisements: a Bayesian mediation analysis. *Journal of Marketing Research* **46**(5): 669–681.
- Zhou KZ, Li JJ, Zhou N, Su C. 2008. Market orientation, job satisfaction, product quality, and firm performance: evidence from China. *Strategic Management Journal* **29**(9): 985–1000.