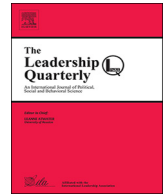




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## Full Length Article

## Jack of all, master of all? CEO generalist experience and firm performance

Mingxiang Li<sup>a,1</sup>, Pankaj C. Patel<sup>b,\*</sup><sup>a</sup> Florida Atlantic University, College of Business, Department of Management, 777 Glades Road, Boca Raton, FL 33431, United States of America<sup>b</sup> Villanova University, College of Business, Management and Operations, 800 Lancaster Avenue, Villanova, PA 19085, United States of America

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## ABSTRACT

Although more generalist CEOs command a significant pay premium and are known for initiating a variety of strategic changes, whether their sought-after experience is associated with higher firm performance remains unexplored. Drawing on instrumental leadership and domain expertise frameworks, we propose a negative association between more generalist CEO experience (across different industries or firms) and firm performance, but one that is alleviated by longer tenure. Based on a sample of 16,158 CEO-firm-year observations from 2243 firms, we find support for a negative association between more generalist CEO experience and firm performance, which is alleviated with longer CEO tenure. These preliminary results have implications for the increasingly common practice of seeking to hire more generalist CEOs in an effort to improve firm performance.

Introduction<sup>2</sup>

The human capital of a CEO influences a variety of firm-related strategic actions and outcomes (Harris & Helfat, 1997; Miller, Xu, & Mehrotra, 2015). A CEO's human capital can be classified as *general human capital* (that is, skills that are transferable across firms and industries) or *firm-specific human capital* (that is, skills that are more valuable at the current firm) (Becker, 1962). Based on Becker's (1962) definition of general human capital and the broader discourse in strategic management on executive work experiences (Finkelstein, Hambrick, & Cannella, 2009), we define the general experience of a CEO as the number of different *industries*, and the number of different *firms*, within which a CEO has worked. A continuum comparing less and more generalist experience refers to the number of different industries or firms in which a CEO has experience prior to their employment at the current firm (Custódio et al., 2013). The conceptualization of CEO generalist experience differs from the intra-functional diversity of a top management team (TMT) member or an executive's experiences in different functional areas (Bunderson, 2003) and from past experiences at various hierarchical levels in the current firm (Nielsen, 2009).

To improve organizational outcomes in the face of increasingly turbulent environments, CEOs with diverse work experiences are in increasingly high demand. Frederiksen and Kato (2017) found “a

significant and positive relationship between the number of roles an individual has experienced in the labour market and his/her odds of career success measured as an appointment to a top management position” (page 23). The preference for generalists is rooted in the logic that corporate leaders must solve a wide range of problems that require diverse career experiences (Lazear, 2012). These sought-after executives are expected to draw on their varied experiences to manage uncertainty and complexity. Murphy and Zbojnik (2007) found that in CEO hiring and compensation decisions, “general managerial ability” (managerial skills critical in leading a complex modern corporation but not specific to any organization) [is preferred over] ‘firm-specific managerial capital’ reflecting skills, knowledge, contacts, and experience valuable only within the organization” (page 2)<sup>3</sup> (Schmidt & Hunter, 2004; Schmidt, Oh, & Shaffer, 2016).

Although CEOs with diverse career experiences initiate a wide range of strategic actions (Crossland, Zyung, Hiller, & Hambrick, 2014; Custódio, Ferreira, & Matos, 2017) and command a significant pay premium (Custódio et al., 2013), theoretically, it is not clear whether more generalist CEO experience is positively or negatively correlated with firm performance. On one hand, based on the domain expertise framework (Ericsson, Krampe, & Tesch-Römer, 1993; Shanteau, 1992), more generalist CEOs gain greater expertise over time with firm-specific resources to enhance their environmental fit (Garicano & Rossi-

\* Corresponding author.

E-mail addresses: [lim@fau.edu](mailto:lim@fau.edu) (M. Li), [pankaj.patel@villanova.edu](mailto:pankaj.patel@villanova.edu) (P.C. Patel).<sup>1</sup> The authors contributed equally.<sup>2</sup> (Bunderson, 2003; Custódio, Ferreira, & Matos, 2013; Lazear, 2004; Nielsen, 2009).<sup>3</sup> In the intelligence literature (Schmidt et al., 2016; Schmidt & Hunter, 2004), ‘general mental ability’ is commonly referred to as ‘general ability,’ therefore to avoid confusion, we use the term more or less generalist CEOs. When citing studies on CEO ability, we use the labels as reported in the cited studies.<https://doi.org/10.1016/j.leaqua.2018.08.006>

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Hansberg, 2006; Tushman & O'Reilly, 2013), improve relationships with investors (Murphy & Zabojsnik, 2007), and facilitate recovery from financial distress (Gilson & Vetsuypens, 1993). Compared to their less general counterparts, more generalist CEOs may draw on their broader strategic repertoire to seek out novel opportunities (cf. Custódio et al., 2013; Murphy & Zabojsnik, 2007). Whether these variegated strategic actions translate into higher firm performance remains unexplored. On the other hand, more generalist CEOs also face ambiguity when attempting to align the external environment and the available resources at their current firm, potentially resulting in lower performance (cf. Wang & Murnighan, 2013). Driven by their varied accomplishments within different firms or industries, more generalist CEOs seek to combine diverse inter-industry and inter-firm experiences but might have limited success at pairing these with firm-specific resources (Powell, 1992). Limited firm-specific human and social capital (cf. Kang & Snell, 2009), as well as shallower knowledge of the internal environment and organizational resources at hand, can lead more generalist CEOs to stretch organizational resources into more distant strategic realms. The literature on managerial human capital also shows that general managerial skills may be less transferable because work in different organizations and industries may not be as relevant in new contexts (Reuber & Fischer, 1997). Generalists may also “unlearn” at a slower rate (Morrison & Brantner, 1992), or have negative learning transfer due to greater reliance on past cognitive maps (Hamori & Koyuncu, 2015). Based on these many factors, CEO generalist experience could either be positively or negatively associated with firm performance.

Through the lens of functional leadership theory (Fleishman et al., 1991; Morgeson, DeRue, & Karam, 2010) and through its more recent full-range model of instrumental leadership (Antonakis & House, 2014), we propose a negative association between more generalist CEO experience and firm performance. Instrumental leadership is defined as “the application of leader expert knowledge on monitoring of the environment and of performance, and the implementation of strategic and tactical solutions” (Antonakis & House, 2014, page 749). Extending the transactional and transformational components of leadership, the instrumental leadership model proposes the importance of expert knowledge in facilitating adaptation and resource allocation to improve performance. Drawing on their expert knowledge, instrumental leaders could better tackle the multidimensional challenges of environmental monitoring, path-goal facilitation, exercising influence, and strategy formulation and implementation (Antonakis & House, 2014). This type of expertise is less likely to reside among generalists. Generalists with lower levels of firm-related expertise – such as that related to the alignment of CEO human capital, external environments, and internal resources – are less likely to be effective instrumental leaders.

Adding further to this supposition, by drawing on the domain expertise framework (Ericsson et al., 1993; Shanteau, 1992), we ask whether the proposed negative association between more generalist CEO experience could be alleviated with longer organizational tenure. Longer organizational tenure improves firm-related domain expertise by providing the knowledge stock and experience necessary for ensuring organizational adaptation (Antonakis & House, 2014, page 765). Through the lens of the cognitive process perspective in the domain expertise literature, CEOs with longer tenure in an organization may be better able to selectively acquire information in less structured environments and are more flexible in how they search for information (Shanteau, 1988). Longer tenure within the organization increases the likelihood of problem-solving based on underlying resources and capabilities compared to problem-solving based on surface features during the early years in the firm (cf. Chi, Feltovich, & Glaser, 1981). A parallel stream of research has found that domain experts armed with domain-specific knowledge engage in fast and sophisticated associations among informational components to improve performance (Dane & Pratt, 2007). Our proposition that domain expertise develops with a longer tenure is indirectly supported by findings that show that repeated and

consistent interactions with domain stimuli provide avenues for domain-specific learning, infuse tacit knowledge (Reber, 1989) and reduce cognitive entrenchment in past knowledge structures (Dane, 2010). Based on the domain expertise lens, with longer tenure, CEOs with more generalist experience may increase their context-specific knowledge of the environment and the organization (Powell, 1992). Tenure may therefore be an important moderating factor for alleviating the negative association between CEO generalist experience and firm performance.

The results that follow our theoretical development and empirical analysis support the proposed negative relationship between CEO generalist experience and firm performance and that longer tenure alleviates this negative relationship. In their robustness checks, Custódio et al. (2013) found a statistically nonsignificant relationship between the *general ability index* – a formative-construct of “(1) [number of] positions, (2) [number of] firms, and (3) industries in which a CEO worked; (4) whether the CEO held an executive position at a different company; and (5) whether the CEO worked for a conglomerate” (Custódio et al., 2013, p. 472) – and firm performance. Unlike their findings, we find support for a significant negative association between the number of firms or the number of industries in which a CEO has previously worked and firm performance. A plausible explanation for our finding is that the operationalization of a more generalist CEO as a formative construct could be psychometrically unsound (Edwards, 2011; Rönkkö, McIntosh, Antonakis, & Edwards, 2016). The indicators of a generalist CEO construct are measured on different scales and develop at different rates over the course of an executive's career. Additionally, some indicators precede the others (e.g., an executive is more likely to become a CEO of a firm before becoming a CEO of a conglomerate), and some career outcomes are more easily realized than others (e.g., intra-industry mobility is easier than inter-industry mobility). Drawing on Edwards (2011), “presumed viability of [a] formative measurement” of a more generalist CEO may be “a fallacy” (page 370). To avoid the potential challenges to using a formative construct, we used two direct measures to capture this measure – the number of industries and the number of firms within which a CEO has worked.

Preference for generalists is highlighted in the executive recruitment literature (Custódio et al., 2013) and is supported in the social psychology (Wang & Murnighan, 2013), creativity (Mietzner & Kamprath, 2013), and innovation (Melero & Palomeras, 2015) literature. Despite the bias toward generalists, at least in the context of CEO generalist experience in our sample, our results support the idea proposed three decades ago that the “for effective execution, different strategies require different skills, knowledge, and values [and] because they are human, individual general managers are limited in the skills, knowledge, and values they bring to their tasks; thus, the notion of generalist general managers is essentially bankrupt” (Gupta, 1986, p. 215–216).

## Theoretical development and hypotheses

Penrose (2009, Chapter 3) proposes two roles of executives – entrepreneurial and managerial. The entrepreneurial role requires strategy formulation and the integration of resources to mitigate industry threats. The managerial role refers to the day-to-day management and implementation of strategies. For more generalist CEOs, experiences in different industries or firms could promote the development of diverse cognitive maps that provide varied interpretations of problems and solutions (Walsh, 1988). CEOs with experience at multiple firms and in multiple industries can assemble and coalesce knowledge that can be leveraged across a range of strategic situations. Based on their ability to draw on these experiences and make divergent strategic diagnoses, more generalist CEOs could better fulfill their entrepreneurial roles than less generalist CEOs (Dutton & Duncan, 1987).

However, the human capital of a more generalist CEO could be weakly embedded in her current firm's resources and routines and could

result in the lower alignment of external knowledge with internal resources and capabilities (cf. Reagans & Zuckerman, 2001). A more generalist CEO's lower commitment to past firm strategies (Hambrick, Geletkanycz, & Fredrickson, 1993) increases strategic deviation, which in turn could lead to lower performance (cf. Deephouse, 1999). By contrast, less generalist CEOs have a clearer understanding of interrelationships between internal capabilities and environmental factors and are more adept at acquiring, assimilating, and integrating diverse knowledge (Brown & Duguid, 1991) to devise effective strategic actions.

Prior studies have found support for a negative relationship between CEO experience and accounting-based firm performance (Hamori & Koyuncu, 2015) or total shareholder returns (Bragaw & Misangyi, 2017). In addition to experience, the *general ability index* is associated with innovation (Custódio et al., 2017), stock volatility (Pan, Wang, & Weisbach, 2015), and financial policies (Custódio & Metzger, 2014). There is also a positive relationship between a CEO's career variety and strategic novelty (Crossland et al., 2014).

#### *CEO generalist experience and lower firm performance*

Based on the functional leadership and instrumental leadership frameworks (Antonakis & House, 2014; Fleishman et al., 1991), limited alignment capabilities could constrain more generalist CEOs in managing characteristic and situational ambiguity (Powell, Lovallo, & Caringal, 2006). Characteristic ambiguity limits the alignment of novel strategies with internal competencies (Powell et al., 2006) because it results from a limited understanding of the interrelationships among firm competencies related to product development (West & Anderson, 1996), resource bundles (Wooldridge, Schmid, & Floyd, 2008), technology (Tyler, 2001) and organizational culture (Peterson, Smith, Martorana, & Owens, 2003). Linkage ambiguity, or “ambiguity among decision-makers about the link between competency and competitive advantage” (King & Zeithaml, 2001, p. 77), limits strategic implementation and control. The lower firm-specific “integrative capacity” (Lawrence & Lorsch, 1967, p. 245) of more generalist CEOs could be negatively correlated with firm performance.

Aware of their general ability, broader cognitive maps, and sought after human capital, more generalist CEOs are also less likely to be risk-averse (Custódio et al., 2013) and therefore are likely to underweight possible negative outcomes in undertaking strategic actions (Sitkin & Pablo, 1992). More generalist CEOs may also generate lower risk-adjusted returns by initiating a variety of strategic actions, or develop organizational resource configurations that deviate both from past configurations and from industry standards, resulting in lower returns from a divergent deployment of resources (cf. Acemoglu & Zilibotti, 1997; Crossland et al., 2014; Deephouse, 1999; Markides, 1995).

Due to their more panoramic view of possible strategic actions – and more panoptic view of internal resources and capabilities – we propose that more generalist CEO experience would be negatively associated with firm performance. Although capable of developing diverse and innovative strategic solutions (Crossland et al., 2014), more generalist CEOs may not be effective integrators and/or aligners of internal resources. They are less able to simulate information-seeking and undertake strategic analysis from the perspective of the focal industry and lack strong ties with industry stakeholders to mobilize resources, thus limiting both intra-industry information processing and the development of firm-specific resource configurations.

By contrast, during the early years of a CEO's tenure, less generalist CEOs have a shorter adaptation cycle that allows them to rapidly adjust to the strategic needs of a firm. Based on the normative theory of CEO role behavior (Smith & White, 1987), less generalist CEOs form stronger dominant coalitions by both better relating with the experiences of, as well as having lower mismatches with the strategic mindset of members in, the upper echelons. Due to their ability to process information with higher fidelity, less generalist CEOs are also more likely to share

knowledge and participate in strategic processes with other TMT members, resulting in actions that are informed by a deeper, more nuanced knowledge of the firm and the industry. The actions of less generalist CEOs are also easier to monitor, because board members are better able to evaluate strategic actions against their own firm- and industry-specific knowledge. This lower monitoring effort – relative to the higher monitoring effort required for more generalist CEOs engaging in divergent strategic actions – may also support board members in allocating more time toward fulfilling their resource provision roles (Adams, Hermalin, & Weisbach, 2010). This, in turn, could further improve firm performance. Overall, we propose the following:

**H1.** Initially, CEO generalist experience will be negatively associated with firm performance.

#### *The alleviating role of tenure*

Next, based on the domain expertise framework, over time, more generalist CEOs could increase their firm-specific domain expertise. Domain-relevant expertise increases over time through three modes of learning: the deliberate practice of strategy making and implementation (cf. Ericsson & Charness, 1994), implicit learning from developing a better understanding of tacit routines and knowledge (cf. Lewicki, Hill, & Bizot, 1988), and experiential learning through experimenting with resource combinations (cf. Armstrong & Mahmud, 2008). Research has consistently shown that acquiring domain expertise across all three modes of learning takes time (Anders Ericsson, Roring, & Nandagopal, 2007) and improves when receiving accurate performance feedback (Kahneman & Klein, 2009). A CEO's job allows for all three modes of learning and provides accurate and timely feedback in the form of quarterly or yearly firm performance, thus allowing for the development of firm-specific domain expertise with longer tenure. Although it could be argued that domain expertise acquired over time could lower adaptation and flexibility, cognitive entrenchment, “or a high level of stability in one's domain,” that varies “not only with expertise but also with one's task environment and attentional focus [to] overcome inflexibility-related limitations of expertise” (Dane, 2010, page 579) could help lower the negative effects of domain expertise resulting from longer tenure.

During their early years, more generalist CEOs may have limited knowledge of the organization and its resources; however, over time, they develop a deeper understanding of the organization and its industry (Hambrick & Fukutomi, 1991). Firm-specific human and social capital increase with tenure as CEOs hone their abilities by aligning resources, structures, and capabilities (Gibbons & Murphy, 1992). Over time, more generalist CEOs acquire job-specific (Harris & Helfat, 1997) and task-specific knowledge through organizational learning and narrow their information search in intra-firm and intra-industry domains (cf. Finkelstein & Hambrick, 1996). As aptly stated by Hambrick and Fukutomi (1991), “each passing year in the job tends to bring the CEO a heightened sense of correctness in his or her established way of operating and viewing the world” (p. 725).

More generalist CEOs with longer tenure not only become more attuned to their industry environments (combining their broader experiences into the context of industry conditions), but also develop stronger employee and customer relationships (Tsui, Zhang, Wang, Xin, & Wu, 2006) to improve product offerings (Wu, Levitas, & Priem, 2005). With increased tenure, more generalist CEOs combine knowledge from their diverse experiences with knowledge from their local searches related to employees, internal resources, and customers. Increasing tenure also allows generalists to improve their mental representations of past experiences within the context of current resource bundles (Simsek, 2007), and thereby develop a more robust understanding of internal constraints and capabilities.

CEOs with highly generalized abilities could also face a longer adaptation cycle in developing their awareness of their job while they

work to mold their general experiences into knowledge that is most beneficial for the resources and capabilities specific to the organization. The mindset of a more generalist CEO gradually aligns over time with the mindset of his or her organization, steadily improving performance (Miller, 1993, 1996). Furthermore, the mismatch between broad experiences and organizational capabilities decreases over time as CEOs become increasingly able to discern connections among their diverse knowledge- and firm-related resources and capabilities.

Conversely, less generalist CEOs may not realize significant advantages in firm performance with longer tenure. Stemming from the CEO normative role theory for less generalist CEOs in Hypothesis 1, with increased tenure, both more and less generalist CEOs are expected to build the upper echelons with like-minded executives; however, this alignment may not necessarily increase over time for less generalist CEOs. Based on the group-theory literature, the value of common consensus, shared mindsets, and decision-making routines may not provide long-term adaptation benefits (Smith & White, 1987). The knowledge and experience touchpoints developed with the similar others in the upper echelons may not *continue* to increase with the longer tenure of a less generalist CEO. Overall, we hypothesize the following:

**H2.** The initial negative association between CEO generalist experience and firm performance becomes weaker with longer tenure.

## Data and methods

### Sample

Similar to prior studies on CEOs (e.g. Beatty & Zajac, 1994; Devers, McNamara, Wiseman, & Arrfelt, 2008), we drew upon the COMPUSTAT and Standard & Poor's (S&P's) Execucomp databases. Using the CUSIP identifier, we matched the Execucomp database with the COMPUSTAT database. The resulting data, by using *execid* (the unique identifier field for executives in Execucomp), were then merged with the indicators of CEO human capital provided by Prof. Cláudia Custódio. The matched sample includes 2243 firms (3634 CEOs) representing 16,158 firm-year observations from 1993 to 2007. The data for our analysis begin in 1992, in order to include a one-year lag of all the predictors in the model, and our analyses commence in 1993. The firms in our sample operate in over 240 different industries (3-digit Standard Industrial Classification Code). The computer and software industry accounts for over 6.7% of the total sample. Appendix A, which can be found online, details the distribution across industry-by-year. For simplicity, we only tabulated industries with > 100 observations within our sample period. The firms in our sample are headquartered across 52 states and regions in North America. Appendix B reports the region-by-year distribution.<sup>4</sup>

### Dependent variable

#### Firm performance

We used Tobin's Q to measure firm performance. Tobin's Q is the sum of total assets plus the market value of equity, minus the book value of equity divided by total assets. Tobin's Q has been widely accepted as an indicator of firm performance and future growth potential (Alessandri, Tong, & Reuer, 2012; Chung & Pruitt, 1996; Mehran, 1995). In the robustness test section, we replaced Tobin's Q with return on assets (ROA), return on equity (ROE), and total shareholder returns, which is a purely stock market-based outcome. Our inferences were similar under these three alternate performance measures.

<sup>4</sup> Our results remain unchanged upon dropping one non-US region (QC – Quebec) and an autonomous US territory – Puerto Rico).

### Independent variable and moderators

#### CEO generalist experience

Custódio et al. (2013) proposed a formative measure of the CEO general ability index that uses a weighted average value of all five components: the number of top five executive positions held, the number of firms at which a CEO has worked, the number of the four-digit industries in which a CEO has worked, a past CEO experience dummy, and a conglomerate experience dummy. Recent works in organizational research have questioned the general validity of formative constructs (Edwards, 2011; Rönkkö et al., 2016). Conceptually, the formative measure has a causal assumption because it treats indicators as causes of constructs (Edwards, 2011), which often makes it difficult to interpret the effect sizes of indicators measuring different attributes that are, at times, on incompatible measurement scales.

In the spirit of the general ability index used in recent years (Custódio & Metzger, 2014), we do not use a formative construct. Instead, we use the direct measures of CEO general ability rooted in strategic management discourse (Finkelstein et al., 2009) and in Becker's (1962) conceptualization of general human capital: *the number of industries* in which a CEO has worked. As another proxy for CEO generalist experience, we also checked the robustness of our findings using the *number of firms* in which a CEO has worked.

#### CEO tenure

The Execucomp database provides the CEO's start date with their current firm. CEO tenure is the number of years in which the CEO held this position at their firm.

#### Control variables

We controlled for individual-, firm-, and industry-level factors. At the individual level, we include the *CEO age* as reported in the Execucomp database. Prior research has shown that younger executives are more risk-seeking and initiate more strategic changes to improve firm performance (Musteen, Barker, & Baeten, 2006). CEOs are considered newcomers in their first year, and their impact on performance may not be immediate; therefore, we control for *new CEO* (=1 if the CEO was recruited in the last year, and =0 otherwise) (Zhang & Rajagopalan, 2010). We also control for *Outsider CEO* (=1 if the CEO was recruited from outside the firm, and =0 if the CEO was promoted from inside the firm), as well as *CEO duality* (=1 if the CEO is also a Chairman, and =0 otherwise), which increases the CEO's influence on the board and in the firm. Greater influence improves strategy implementation and control (Finkelstein & D'Aveni, 1994).

At the firm level, we control for *firm size*, which is measured by the log of total employees, and the *log of R&D expense*, which is computed as the logarithm of total R&D expenditures plus 1 (in order to account for firms with non-R&D expenses). We also control for the log of total capital expenditures.

At the industry level, we include *industry-median Tobin's Q* to control for the growth prospects in the industry. Industries also differ in their resource availability and level of dynamism. We controlled for these factors based on Dess and Robinson (1984). Following prior literature (Cannella, Park, & Lee, 2008; Keats & Hitt, 1988), we determined the environmental munificence and dynamism from five-year rolling windows for net sales at the 2-digit SIC code level to provide measures for the sixth year. (For instance, the net industry sales of all COMPUSTAT firms at the 2-digit SIC code level from 2001 to 2005 were used to calculate the dynamism for the year 2006.) The equation to calculate the environmental indicators is  $y_t = b_0 + b_1 \times t + e_t$ , where  $y_t$  is the industry's sales,  $t$  is the year, and  $e$  is the residual. *Environmental munificence* was captured by the regression coefficient of time ( $b_1$ ), thus representing the sales growth within an industry. *Environmental dynamism* is the standard deviation of the regression coefficient divided by the industry's average sales. We finally controlled for year dummies to

account for year fixed-effects.

We also controlled for important indicators that may influence a CEO's risk-taking behaviors. We first included *CEO relative pay*, which is computed as the ratio of CEO total compensation (*TDC1*<sup>5</sup> variable from ExecuComp) to the average pay of the remaining four executives<sup>6</sup> (Bebchuk, Cremers, & Peyer, 2011; Henderson & Fredrickson, 2001). A larger value of CEO's relative pay indicates a wider gap between the CEO's and TMT members' pay. The *CEO delta* is defined as the change in the dollar value of the executive's wealth for a one percentage change (0.01) in stock price, and the *CEO vega* is defined as the change in the dollar value of the executive's wealth for a one percentage change (0.01) in the annualized standard deviation of stock returns (Coles, Daniel, & Naveen, 2006). Because these two variables are highly skewed, we took log values of CEO delta and vega. To ensure the replicability of the delta and vega values, we drew on publicly available values of delta and vega provided by Coles et al. (2006). Finally, to lower the specification bias, we control for the three remaining indicators in Custódio and Metzger's (2014) general ability index: the number of top five executive positions held, a past CEO experience dummy, and conglomerate experience dummy.

Table 1 provides a summary of the mean and standard deviation statistics and correlations.

## Results

First, the Hausman test (null hypothesis: there is no difference between random and fixed effects estimates) supported a firm fixed effects model ( $\chi^2(17) = 405.67, p < 0.00$ ) (Hausman, 1978). In specifying the panel data, we used *gvkey* (a unique company six-digit identifier assigned to each firm in the Compustat database) as the firm identifier, and calendar year as the time identifier. We also included year dummies.

Table 2 presents regression estimates. Model 1 of Table 2 reports the results for all control variables. Hypothesis 1 predicts that initially there will be a negative association between more generalist CEO experience and firm performance (Model 2 of Table 2:  $\beta = -0.019, p < 0.01$ ). All else being equal, Tobin's Q decreases by 0.019 for each additional industry in which a CEO has worked.

Hypothesis 2 predicts that the negative association between more generalist CEO experience and firm performance will weaken with a longer tenure. Consistent with past studies, longer CEO tenure lowers performance (Henderson, Miller, & Hambrick, 2006). Model 3 of Table 2 provides support for Hypothesis 2 ( $\beta = 0.002, p < 0.01$ ). Specifically, when firm performance is 1 (Tobin's Q = 1) and the number of different industries that a CEO has worked in increases by 1, each year of experience at the current firm decreases the negative relationship from  $-0.016$  to  $-0.014$  ( $= -0.016 + 0.002 \times 1$ ). In other words, it will take  $> 8$  years for a firm to break even from the performance decline from hiring a generalist CEO ( $0 = -0.016 + 0.002 \times 8$ ), and with the average CEO tenure at around 8 years (and the median CEO tenure at around 6 years), many generalist CEOs are likely to leave the firm before the gains from their general experience have time to materialize.<sup>7</sup>

In Fig. 1(a), with increasing tenure for CEOs with experience in more industries, the performance decline is less steep than the decline for CEOs with experience in fewer industries. For simplicity, we plotted

<sup>5</sup> *TDC1* in ExecuComp = Salary + Bonus + Other Annual + Total Value Restricted Stock granted + Total Value Stock Options granted + Long-Term Incentive Payouts + All Other Total. ExecuComp lists the top five highest paid executives and the mean of the *TDC1* variable from ExecuComp for the remaining four executives.

<sup>6</sup> Our results remain unchanged upon replacing the ratio variable with CEO total compensation and average pay of the top four executive compensation.

<sup>7</sup> We thank an anonymous reviewer for offering this alternative explanation.

the moderation effects at  $-2$  SD and  $+2$  SD. The plots show that all point estimates are significantly different from zero. Moreover, a margins test suggests that there is a significant performance difference between firms managed by less generalist CEOs and more generalist CEOs ( $-0.031, p < 0.01$ ), but that this difference changes to 0.034 when the tenure increases to 32 years ( $p < 0.1$ ). We also tested the slope difference. For less generalist CEOs, the slope is significantly different from zero ( $t = -5.19, p < 0.01$ ), whereas the slope for more generalist CEO is not significant from zero ( $t = 0.53, p > 0.1$ ). A joint test for slope difference between less generalist CEO and more generalist CEO suggests that these two slopes are significantly different ( $F = 8.59, p < 0.01$ ). Consistent with Hypothesis 2, the less steep decline in performance for CEOs with experience in more industries suggests an alleviation effect. That is, over time, by leveraging their diverse industry experience with increasing firm-specific domain expertise, such CEOs can alleviate the performance decline. Conversely, consistent with our arguments in Hypothesis 2, CEOs with experience in fewer industries have fewer 'dots to connect' from their less diverse industry experience with their firm-specific domain expertise, resulting in a more restrictive locus of strategic efficacy of such CEOs. With increasing firm-specific domain expertise, more (less) generalist CEOs would develop a more (less) effective strategic repertoire, resulting in a lower (higher) performance decline.

## Additional analyses

### Alternative models

A key assumption in our specification may invalidate our findings: errors terms are independent within the panel period and cross-sectionally independent. It is possible to relax the assumption of independently distributed errors by using robust standard errors. However, the cross-sectional correlation among distributed disturbances could result in biased standard errors. To address this issue, Driscoll and Kraay (1998) proposed a nonparametric covariance matrix-based estimator that generates standard errors that are heteroskedasticity- and autocorrelation-consistent and hence are robust to general forms of spatial and temporal dependence. Hoechle (2007) implemented this technique in Stata (*-xtsc-*). We reran models using *-xtsc-* to produce heteroskedasticity- and autocorrelation-consistent standard errors. Models 4 and 5 of Table 2 provide additional support for our conclusion.

### Endogeneity

Another major concern for studies investigating the relationship between leader characteristics and firm outcomes is endogeneity (Antonakis, Bendahan, Jacquart, & Lalive, 2010). In other words, firms may systematically select CEOs with a specific background and CEOs may select firms based on their human capital, thus resulting in endogeneity that may bias our findings. One way to deal with this issue is to identify an instrumental variable that correlates with the predictor, but not with error terms.

We use "state  $\times$  year" as the instrumental variable to proxy for the time-varying state effects in the enforceability of non-compete agreements and other state law variations over time that could influence CEO career mobility. A more recent study shows that 80% of CEO employment contracts have a no-compete clause (Bishara, Martin, & Thomas, 2015). States vary systematically in their ability to enforce no-compete clauses, and the enforceability is contingent on the definition of the geographic area and a reasonable definition of competing firms. Enforceability lowers executive mobility in an industry (Garmaise, 2011), especially for those with a higher firm-specific human capital (Marx, Strumsky, & Fleming, 2009). Recently, the variation of state enforceability-time in non-compete clauses was used as an instrumental variable in Custódio et al. (2017) and Ertimur, Rawson, Rogers, and Zechman (2018).

Because the state enforceability index is constant over three decades

**Table 1**  
Summary statistics and correlation.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Tobin's Q	1									
(2) Industry median Tobin Q	0.488	1								
(3) ROA	0.408	0.161	1							
(4) Industry median ROA	0.200	0.409	0.395	1						
(5) ROE	0.123	0.023	0.344	0.138	1					
(6) Industry median ROE	0.059	0.236	0.230	0.109	0.216	1				
(7) Total shareholder return	0.256	0.042	0.295	0.154	0.126	0.223	1			
(8) Industry median total shareholder return	0.127	0.073	0.149	0.018	0.043	0.047	0.051	1		
(9) Age	-0.074	-0.071	-0.030	-0.007	-0.041	-0.016	-0.001	-0.013	1	
(10) New CEO	-0.019	0.001	-0.030	-0.030	-0.008	0.003	-0.136	-0.118	-0.21	1
(11) Outsider CEO	-0.064	-0.060	-0.038	-0.030	-0.008	0.003	-0.136	-0.118	-0.21	-0.125
(12) Duality	-0.037	-0.009	0.045	0.040	0.051	0.037	0.035	0.03	0.275	0.244
(13) Firm size	-0.095	-0.047	0.179	0.138	0.122	0.091	-0.020	0.144	0.144	0.027
(14) Log (R&D expense)	0.253	0.351	-0.002	-0.012	-0.014	-0.084	-0.029	-0.043	-0.035	0.012
(15) Log (capital expenditure)	-0.049	-0.088	0.131	0.069	0.112	0.064	0.038	0.012	0.107	0.017
(16) Dynamism	-0.089	-0.182	-0.060	-0.151	-0.020	-0.021	0.054	0.089	-0.003	-0.006
(17) Munificence	-0.078	-0.160	0.031	0.078	0.039	0.071	0.030	0.045	0.043	0.004
(18) CEO relative pay	-0.023	-0.029	0.048	0.005	0.051	0.039	0.049	0.018	-0.017	-0.029
(19) CEO delta	0.264	0.104	0.210	0.025	0.188	0.110	0.301	0.199	0.14	-0.159
(20) CEO Vega	0.043	0.001	0.053	-0.065	0.091	0.025	0.006	-0.038	-0.016	-0.046
(21) CEO tenure	0.054	0.024	0.055	0.027	0.019	0.011	0.083	0.054	0.412	-0.286
(22) CEO experience dummy	-0.069	-0.058	-0.056	-0.019	-0.029	-0.009	-0.043	-0.033	0.072	0.039
(23) Conglomerate experience dummy	-0.017	0.022	0.011	0.008	0.002	-0.026	-0.038	-0.058	0.029	-0.005
(24) Number of positions	-0.029	-0.010	0.031	0.002	0.049	0.008	-0.07	-0.066	0.088	0.021
(25) CEO generalist experience - number of firms	-0.026	-0.006	-0.052	-0.035	-0.015	-0.022	-0.059	-0.037	0.146	-0.010
(26) CEO generalist experience - number of industries	-0.030	-0.001	-0.040	-0.024	-0.011	-0.017	-0.061	-0.041	0.156	-0.014
(27) Number of firms × tenure	-0.028	-0.023	0.008	-0.012	0.026	0.007	0.025	0.019	-0.13	0.034
(28) Number of industries × tenure	-0.023	-0.014	0.012	-0.008	0.026	0.007	0.024	0.020	-0.126	0.030
Mean	1.87	1.87	0.09	0.09	0.1	0.1	12.4	12.67	55.54	0.08
S.D.	1.16	0.57	0.11	0.04	0.31	0.17	2.65	13.75	7.4	0.27
Min	0.3	0.83	-1	-0.24	-2.94	-2.77	-84.07	-75.14	29	0
Max	8.99	6.95	0.93	0.57	2.95	2.87	549.97	298.39	91	1

Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
(11) Outsider CEO	1																	
(12) Duality	-0.185	1																
(13) Firm size	0.129	0.218	1															
(14) Log (R&D expense)	0.08	0.017	0.118	1														
(15) Log (capital expenditure)	0.134	0.019	0.69	0.173	1													
(16) Dynamism	-0.04	0.014	-0.066	-0.159	-0.034	1												
(17) Munificence	0.074	0.048	0.09	-0.071	0.166	0.112	1											
(18) CEO relative pay	0.038	0.057	0.03	0.022	0.037	-0.029	0.03	1										
(19) CEO delta	-0.163	0.211	0.329	0.132	0.289	-0.027	0.062	0.093	1									
(20) CEO Vega	0.176	0.108	0.373	0.237	0.353	-0.082	0.071	0.292	0.478	1								
(21) CEO tenure	-0.641	0.239	-0.037	-0.067	-0.056	-0.013	-0.02	-0.023	0.324	-0.072	1							
(22) CEO experience dummy	0.113	0.044	0.073	-0.007	0.084	-0.01	0.037	0.052	0.014	0.108	-0.138	1						
(23) Conglomerate experience dummy	0.139	0.048	0.105	0.182	0.108	-0.009	0.039	0.077	0.008	0.129	-0.107	0.195	1					
(24) Number of positions	0.232	0.149	0.342	0.187	0.346	-0.052	0.055	0.043	0.1	0.292	-0.202	0.326	0.331	1				
(25) CEO generalist experience - number of firms	0.043	0.131	0.183	0.11	0.186	-0.028	0.016	0.061	0.122	0.213	-0.057	0.497	0.268	0.654	1			
(26) CEO generalist experience - number of industries	0.071	0.149	0.192	0.119	0.186	-0.022	0.007	0.062	0.109	0.201	-0.052	0.495	0.268	0.624	0.943	1		
(27) Number of firms × tenure	0.073	-0.065	0.042	-0.008	0.022	0.017	-0.004	0.037	-0.049	0.037	-0.18	-0.046	0.058	0.027	-0.053	-0.037	1	
(28) Number of industries × tenure	0.068	-0.07	0.036	0.003	0.015	0.027	-0.003	0.004	-0.037	0.038	-0.171	-0.058	0.049	0.01	-0.065	-0.054	0.931	1

(continued on next page)

Table 1 (continued)

Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
Mean	0.58	0.64	1.76	1.67	4.1	0.02	0.15	0.37	5.48	3.77	7.97	0.35	0.75	5.8	1.76	1.51	-0.59	-0.78
S.D.	0.49	0.48	1.63	2.2	1.83	0.02	0.33	0.13	1.58	1.69	7.13	0.48	0.43	3.23	1.89	1.57	1.86	12.9
Min	0	0	-6.91	0	0	0	-0.88	0	0	0	1	0	0	0	0	0	-87.57	-99.8
Max	1	1	7.65	9.41	1.41	0.13	5.02	0.99	13.47	9.34	57	1	1	31	18	14	138.98	168.71

Notes. N = 16,158 firm-year observations from 2243 firms for years between 1993 and 2007.

(refer to Table 4 in Ertimur et al., 2018) and other state-level laws could influence executive mobility (Aobdia, 2017), we use “state × year” as the instrumental variable. The variable is exogenous because firm performance has no impact on state and time.

We specified a two-stage least square (2SLS) regression using *-xtivreg2-* in Stata 14. Model 1 of Table 3 is the first-stage regression for the number of industries. The first-stage regression shows that there is a significant and negative relationship between the number of industries and the instrumental variable. Anderson's under-identification test suggests that our model was not under-identified ( $\chi^2 = 5.28, d.f. = 1, p < 0.05$ ). The endogeneity test indicates that more generalist CEO experience is endogenous ( $\chi^2 = 6.49, d.f. = 1, p < 0.05$ ). The Sanderson-Windmeijer multivariate F-test is significant ( $F = 5.27, d.f. = 1, p < 0.05$ ), yet it does not reach the Stock and Yogo's (2005) cutoff value (16.38 for a single endogenous variable). Although the Sanderson-Windmeijer multivariate F-test and endogeneity test provide support for the inclusion of the instrumental variable, the instrumental variable is nevertheless weak, which biases our 2SLS results.

Model 2 of Table 3 is the second-stage model for the main effects. Model 3 includes the moderation effects based on the predicted values of the number of industries. Fig. 1(b) plots this interaction effect. Although the interaction is statistically significant, a marginal test fails to confirm the moderating effect. When the tenure is 1, the performance difference between firms managed by less and more generalist CEOs is  $-0.88 (p < 0.01)$ . When tenure increases to 32, the performance difference between firms managed by less and more generalist CEOs is reduced to  $-0.79 (p < 0.01)$ . In Model 4, we used *-xtscc-* to produce heteroskedasticity- and autocorrelation-consistent standard errors. In Model 5, instead of manually creating interaction variable, we interacted our instrumental variable with tenure to create the instrumental variable for our interaction term. Although Model 5 provides some support for Hypothesis 1, it fails to confirm our moderating effect. Again, our endogeneity test calls for the use of 2SLS ( $\chi^2 = 17.646, d.f. = 2, p < 0.01$ ), and the F value (2.81) is well below the Stock-Yogo's suggested value (7.03) for 2 instrumental variables, suggesting that our instrumental variables are weak. Overall, Table 3 suggests that our interaction results are not robust to 2SLS with “state × year” as the instrumental variable. However, due to the possibility of bias with a weak instrument ( $> F$  value is smaller than Stock-Yogo's suggested value), we cannot make a strong causal inference.

Outside CEOs and relative pay are also likely to be endogenous variables. We did additional regression by excluding these variables and our results remain unchanged.

Alternate firm performance variables

In Table 4, Models 1a to 3a include the number of industries as a proxy for more generalist CEO experience to predict the three alternate firm performance measures – return on assets (ROA), total shareholder returns (TSR), and return on equity (ROE). ROA is calculated as the net income divided by total assets. Model 1a of Table 4 showed that our main effect is not consistent. There is a negative but insignificant relationship between a CEO's experience in different industries and ROA ( $\beta = -0.001, p > 0.1$ ) and a positive and significant interaction between a CEO's experience in different industries and tenure. Model 2a used the TSR as the proxy of firm performance, and our results are consistent with the predictions. Model 3a used the ROE, which is calculated as the net income divided by the value of shareholders' equity. We found a negative but insignificant effect of CEO generalist experience on the ROE and a positive and significant moderating effect. Models 1b to 3b used the *-xtscc-* routine to generate cluster and autocorrelation robust standard errors. Again, the moderation effect is strong and consistent, but the main effect is not consistent for the ROA (Model 1b).

An alternative measure for more general CEO experience

Another way to measure more general CEO experience is to use the

**Table 2**  
Firm fixed effects regression results (Tobin's Q).

	Number of industries			xtscs; number of industries	
	Model 1	Model 2	Model 3	Model 4	Model 5
Industry median Tobin's Q	0.765** (0.022)	0.765** (0.022)	0.766** (0.022)	0.765** (0.027)	0.766** (0.027)
Age	-0.005** (0.001)	-0.005** (0.001)	-0.004** (0.002)	-0.005* (0.002)	-0.004* (0.002)
New CEO	-0.023 (0.022)	-0.024 (0.022)	-0.024 (0.022)	-0.024 (0.029)	-0.024 (0.030)
Outsider CEO	-0.083** (0.031)	-0.087** (0.031)	-0.078* (0.031)	-0.087** (0.024)	-0.078** (0.026)
Duality	-0.036* (0.018)	-0.033* (0.018)	-0.030* (0.018)	-0.033* (0.017)	-0.030* (0.016)
Firm size	-0.228** (0.018)	-0.225** (0.018)	-0.228** (0.018)	-0.225** (0.026)	-0.228** (0.025)
Log (R&D expense)	-0.090** (0.013)	-0.090** (0.013)	-0.088** (0.013)	-0.090** (0.023)	-0.088** (0.023)
Log (capital expenditure)	-0.065** (0.012)	-0.065** (0.012)	-0.065** (0.012)	-0.065* (0.022)	-0.065* (0.022)
Dynamism	-0.543 (0.627)	-0.546 (0.627)	-0.553 (0.626)	-0.546 (0.363)	-0.553 (0.362)
Munificence	0.028 (0.034)	0.029 (0.034)	0.028 (0.034)	0.029* (0.015)	0.028* (0.015)
CEO relative pay	0.155** (0.052)	0.156** (0.052)	0.159** (0.052)	0.156* (0.056)	0.159* (0.057)
CEO delta	0.170** (0.007)	0.170** (0.007)	0.171** (0.007)	0.170** (0.015)	0.171** (0.015)
CEO vega	-0.094** (0.007)	-0.093** (0.007)	-0.094** (0.007)	-0.093** (0.011)	-0.094** (0.011)
CEO tenure	-0.009** (0.002)	-0.009** (0.002)	-0.008** (0.002)	-0.009** (0.002)	-0.008** (0.002)
CEO experience dummy	-0.023 (0.021)	0.001 (0.022)	0.005 (0.022)	0.001 (0.024)	0.005 (0.024)
Conglomerate experience dummy	0 (0.027)	0.007 (0.027)	0.003 (0.027)	0.007 (0.016)	0.003 (0.017)
Number of positions	-0.004 (0.010)	-0.007 (0.010)	-0.006 (0.010)	-0.007 (0.009)	-0.006 (0.010)
CEO generalist experience - number of industries		-0.019** (0.006)	-0.016* (0.007)	-0.019** (0.006)	-0.016** (0.005)
CEO generalist experience - number of industries × tenure			0.002** (0.001)		0.002* (0.001)
Constant	0.922** (0.108)	0.862** (0.110)	0.854** (0.110)	0.862** (0.051)	0.854** (0.049)
R square	0.2366	0.2371	0.2375	0.2371	0.2375
N	16,158	16,158	16,158	16,158	16,158

Notes.  $N = 2243$  firms for 16,158 firm years. Year dummies and firm dummies are included in all models. Models 4 and 5 report Driscoll-Kraay's heteroskedasticity- and autocorrelation-consistent standard errors.

+  $p < 0.1$ .

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

number of firms in which a CEO has worked. Table 5 summarizes our findings. Model 1 of Table 5 provides additional support for our hypotheses. Because the number of firms does not account for the number of unique industries in which a CEO has worked (e.g., a CEO may work in 3 firms but within the same industry), we adjusted for such an effect by controlling for the number of industries divided by the number of firms. The higher the value of this variable, the more likely it is that the CEO has worked in multiple firms and industries. Model 2 of Table 5 replicates the results presented in Model 1. In Models 3 to 5, we also replicated the findings using different outcome variables, including the ROA, TSR, and ROE. Overall, this alternative predictor provided strong support for our hypotheses. The inferences from Fig. 1(c) are consistent with those in Fig. 1(a). When tenure is 1, the performance difference between firms managed by less and more generalist CEOs is  $-0.024$  ( $p < 0.01$ ); however, the difference is  $0.019$  ( $p > 0.1$ ) when CEO tenure increases to 32. Similarly, the slope test for a less generalist CEO is significant and negative ( $t = -4.76$ ,  $p < 0.01$ ), but the slope for a more generalist CEO is insignificant ( $t = 0.33$ ,  $p > 0.1$ ). Joint tests for slope difference suggest that these two slopes are significantly different

( $F = 6.02$ ,  $p < 0.01$ ).

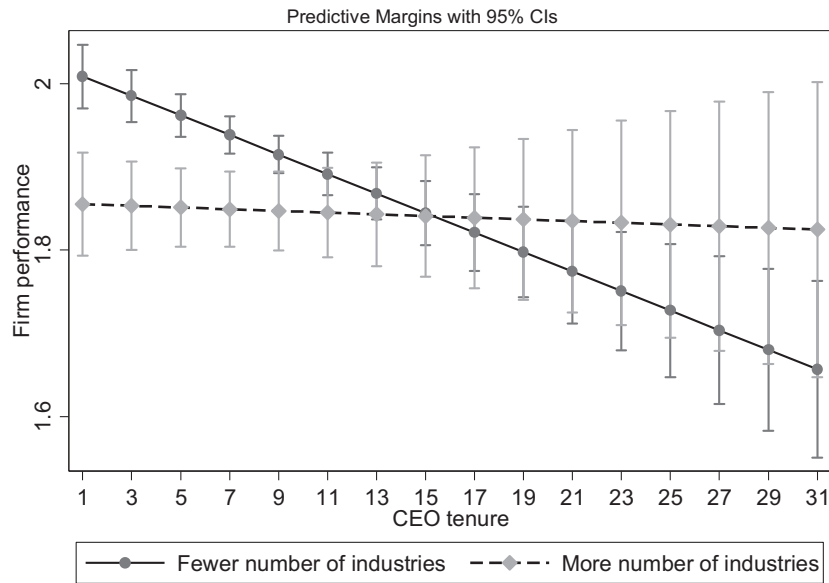
## Discussion

In recent years, due to increasing uncertainty and organizational complexity coupled with a shortage of executive talent, generalist CEOs are in higher demand (Gerhart & Rynes, 2003; Kaplan & Rauh, 2010). Boards are increasingly apt to seek out CEOs with diverse experiences to improve their strategic repertoire, mitigate uncertainty and increase competitiveness. According to Custódio et al. (2013), a one standard deviation increase in their general ability leads to a 12% increase in CEO pay, and for CEOs with lower levels of ability, more generalist CEOs earn a 19% premium – or, close to one million US dollars in additional annual pay on average. Other studies also find support for significant pay premiums for more generalist CEOs (Kaplan & Rauh, 2010).

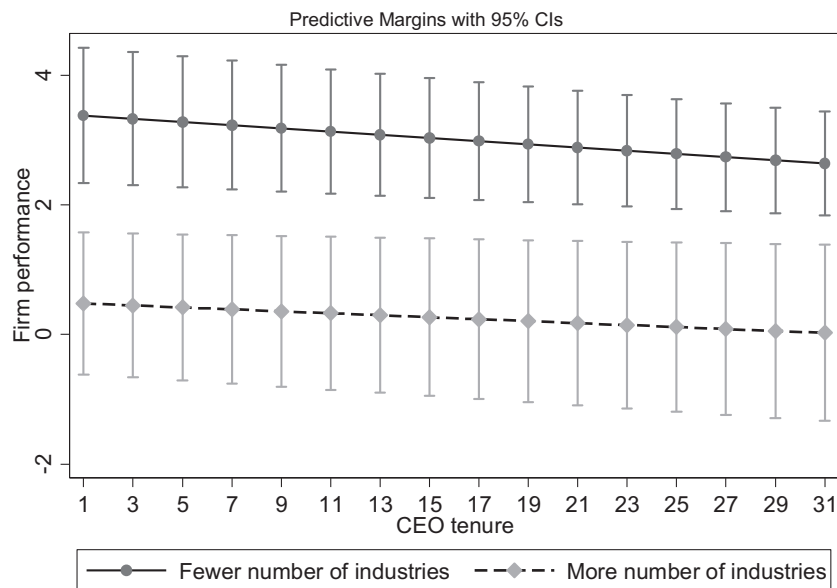
Our findings call into question whether these premiums are worth it. Our results show a negative association between more generalist CEO experience (proxied by the number of industries or number of



## Two-way interaction



(a): CEO generalist experience (number of industries) and CEO tenure



(b): CEO generalist experience (number of industries) and CEO tenure

Fig. 1. Two-way interaction.

(a): CEO generalist experience (number of industries) and CEO tenure.

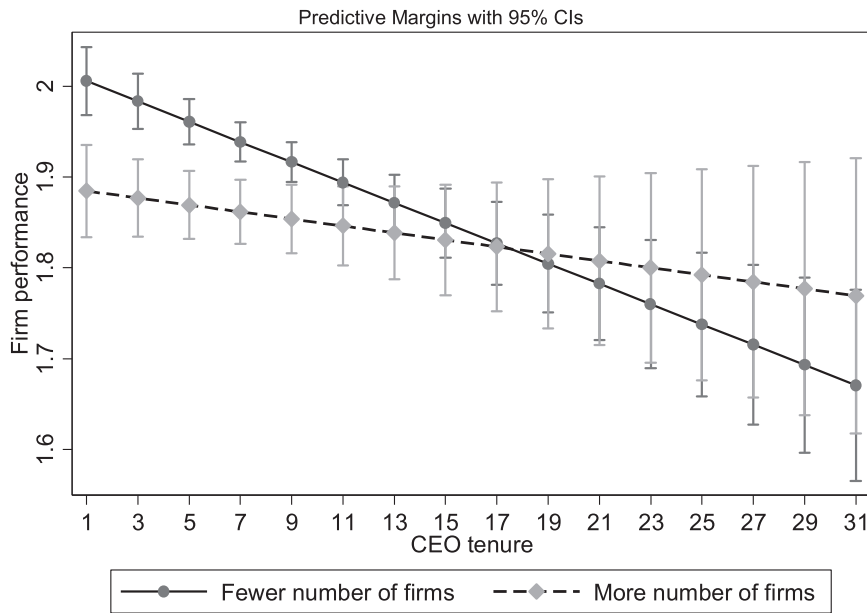
(b): CEO generalist experience (number of industries) and CEO tenure.

(c): CEO generalist experience (number of firms) and CEO tenure.

firms) and firm performance, especially during the early years of a CEO's tenure. However, this negative association is alleviated for more generalist CEOs, but not ameliorated, with increasing tenure (Fig. 1(a)). The negative relationship between more general experience and firm performance sheds a different light on recent work related to competition among firms for CEO talent. Gritsko, Kozlova, Neilson, and Wichmann (2013) refer to it as a "CEO arms race," where firms offer competitive contracts to CEOs to acquire their talent. The results also indicate that the pay premiums for more generalist CEOs may not be worth it, even with longer tenure. Due to smaller effect sizes, we do not

highlight this as a strong practical implication, but consider the results as a starting point to critically evaluate the value of paying out high premiums to acquire generalist CEOs.

The association between less generalist CEOs and firm performance calls for further discussion. We have argued that the adaptation benefits may decline over time for less generalist CEOs. Although less generalist CEOs have a faster adaptation cycle during early years, develop more accurate perceptions of the environment, and develop refined problem-solving routines informed by deeper industry- and firm-specific knowledge, these benefits may decline over time (Smith & White,



(c): CEO generalist experience (number of firms) and CEO tenure

Fig. 1. (continued)

1987). This finding could be explained by the team adaptation model (LePine, 2005) or through the reflection-in-action model for professionals (Schön, 2017). Related to the team adaptation model, with increasing tenure, less generalist CEOs may mutually reinforce the strategic information processing modes and mindsets in the upper echelons, which may lower adaptation to emerging strategic problems. A more generalist CEO, despite having a longer adaptation cycle during his or her early years, starts with a greater variety of human capital that allows for better team adaptation in the long term. Further, more generalist CEOs are also more likely to recruit upper echelon members who may also have diverse experiences, thereby improving long-term adaptation that could at least limit the decline in performance (dashed lines in Fig. 1(a)). Through the reflection-in-action approach, professionals do “on the spot surfacing, criticizing, restructuring and testing of intuitive understandings of experienced phenomena” (Schon, 1983, pages 241–242). With longer tenure, more generalist CEOs with a broader strategic repertoire would have a more efficacious reflection-in-action approach to manage strategic challenges. Both the group adaptation model and the reflection-in-action framework suggest that although more generalist CEOs may have a slower start, they would also see a lower performance decline with longer tenure.

The generalist-specialist perspective could also be further informed by insider-outsider CEO succession. In a meta-analysis of 13,578 CEO successions between 1972 and 2013, Schepker, Kim, Patel, Thatcher, and Campion (2017) found that “inside CEOs improve long-term performance and engage in less strategic change, whereas hiring an outside CEO leads to more strategic change that results in lower long-term performance” (page 701). The performance differentials between more and less generalist CEOs in Fig. 1(a) also have parallels with the findings in Bidwell (2011) who used a sample of investment banking personnel. He found that although external hires are paid more and have higher levels of education and experience, they “initially perform worse than workers entering the job from inside the firm” (page 369). To further explore the nuances of the nature of CEO succession and CEO career experiences, Brockman, Lee, and Salas (2016) found that generalist-outsiders had the highest pay, followed by generalist-insiders, specialist-outsiders, and specialist-insiders. Related to the value of outsider generalist CEO, Georgakakis and Ruigrok (2017) found that

outside succession is beneficial when a CEO has experience in different industries. Future research could focus on the effects of insider-outsider and specialist-generalist combinations on firm performance.

We could not measure instrumental leadership, but speculate that less generalist CEOs with better internal alignment capabilities would exhibit stronger instrumental leadership. Instrumental leadership could be a useful lens for studying the efficacy of general versus firm-specific human capital of CEOs (Antonakis & House, 2014). Instrumental leadership approaches highlight the value of leaders in adapting to the external environment and improving internal resource alignment. Instrumental leadership goes beyond transactional and transformational leadership and requires the “formulation and implementation of solutions to complex social (and task-oriented) problems” (page 747). In the related literature, the value of employee firm-specific human capital is both positively (Campbell, Coff, & Kruscynski, 2012) and negatively (Chatain & Meyer-Doyle, 2017) associated with performance. The degree of instrumental leadership experienced by employees or displayed by the leaders could also help shed light on the mixed effects of firm-specific human capital on performance.

We speculate that over time, CEOs would realize improvements in domain expertise related to the firm, but we do not directly measure the changes in firm-specific domain expertise with longer tenure. How CEOs balance domain expertise with the need for adaptation is an unopened black box in our study. Drawing on concepts such as cognitive entrenchment (Dane, 2010), future studies could further assess how generalist CEOs adapt their evolving firm-specific domain expertise.

The findings also have broader implications for the leadership literature. Wang and Murnighan (2013) found support for generalist biases in both sports and employee recruitment. The value of generalist leaders is also highlighted in public administration (Moynihan & Pandey, 2010), the military (Jackson, 2016), entrepreneurship (Lazear, 2012) and medicine (Schwartz, 2017). Conversely, other studies highlight the value of expert leaders in academic departments (Goodall, 2009), National Basketball Association coaches (Goodall, Kahn, & Oswald, 2011), in improving followers' job satisfaction (Artz, Goodall, & Oswald, 2017), hospital performance (Bloom, Propper, Seiler, & Van Reenen, 2010) and Formula-1 racing (Goodall & Pogrebná, 2015). Research in entrepreneurship has also led to mixed results on the role of

**Table 3**  
2SLS model.

	Model 1	Model 2	Model 3	Model 4	Model 5
	Stage 1	Stage 2		xtsc	
IV = region × year	-0.0003 <sup>+</sup> (0.000)				
Industry median Tobin's Q	-0.011 (0.029)	0.759** (0.022)	0.758** (0.022)	0.758** (0.027)	0.776** (0.057)
Age	0.037** (0.002)	0.027* (0.012)	0.027* (0.012)	0.027* (0.020)	0.046 <sup>+</sup> (0.024)
New CEO	-0.061* (0.029)	-0.073* (0.030)	-0.076* (0.030)	-0.076* (0.035)	-0.111 (0.068)
Outsider CEO	-0.243** (0.041)	-0.285** (0.087)	-0.284** (0.087)	-0.284** (0.142)	-0.186 (0.272)
Duality	0.169** (0.024)	0.114 <sup>+</sup> (0.059)	0.117* (0.059)	0.117 (0.096)	0.243 <sup>+</sup> (0.129)
Firm size	0.120** (0.024)	-0.117** (0.044)	-0.118** (0.044)	-0.118* (0.045)	-0.137 (0.111)
Log (R&D expense)	0.011 (0.017)	-0.073** (0.014)	-0.073** (0.014)	-0.073** (0.019)	-0.044 (0.040)
Log (capital expenditure)	0.022 (0.015)	-0.049** (0.013)	-0.050** (0.013)	-0.050 <sup>+</sup> (0.026)	-0.048 (0.031)
Dynamism	-0.247 (0.826)	-0.752 (0.633)	-0.769 (0.633)	-0.769* (0.325)	-1.042 (1.195)
Munificence	0.05 (0.045)	0.069 <sup>+</sup> (0.037)	0.067 <sup>+</sup> (0.037)	0.067* (0.028)	0.063 (0.073)
CEO relative pay	0.048 (0.068)	0.197** (0.054)	0.198** (0.054)	0.198* (0.070)	0.282* (0.136)
CEO delta	-0.025* (0.010)	0.148** (0.011)	0.149** (0.011)	0.149** (0.019)	0.156** (0.030)
CEO vega	0.039** (0.009)	-0.060** (0.015)	-0.061** (0.015)	-0.061** (0.018)	-0.072 <sup>+</sup> (0.044)
CEO tenure	-0.013** (0.003)	-0.020** (0.005)	-0.020** (0.005)	-0.020* (0.008)	-0.012 (0.017)
CEO experience dummy	1.331** (0.027)	1.115* (0.441)	1.124* (0.441)	1.124 (0.694)	1.743* (0.826)
Conglomerate experience dummy	0.404** (0.036)	0.354** (0.136)	0.351** (0.136)	0.351 (0.218)	0.429 (0.273)
Number of positions	-0.142** (0.013)	-0.127** (0.048)	-0.127** (0.048)	-0.127 (0.077)	-0.164 <sup>+</sup> (0.097)
Generalist CEOs		-0.860** (0.331)	-0.859** (0.331)	-0.859 (0.517)	-1.198 <sup>+</sup> (0.625)
Generalist CEOs × tenure			0.003* (0.001)	0.003 <sup>+</sup> (0.001)	0.048 (0.048)
Constant	-1.699** (0.143)	-0.571 (0.572)	-1.886 <sup>+</sup> (1.071)	-1.886 (1.666)	
Weak ID test	$F = 5.27, df = 1, p < 0.05$				
Underidentification test	$\chi^2 = 5.28, df = 1, p < 0.05$				
R square	0.23	0.24	0.24	0.24	
N	16,005	16,005	16,005	16,005	15,786

Notes. Year dummies and firm dummies are included in all models.

<sup>+</sup>  $p < 0.1$ .

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

generalist entrepreneurs on venture performance (Chen & Thompson, 2016). These mixed findings seem to suggest that the leadership context could be an important moderator in explaining the direction of the association between generalist leaders and performance. We call for future research to further explore these issues.

#### Limitations and future research directions

The study is not without limitations. First, we draw on a sample of large publicly traded firms where the market for executive talent is thicker. However, CEOs in private firms may have greater firm-specific skills because thinner executive labour markets limit the development of generalist experience. Furthermore, the effect size of CEO generalist experience will be lower in private firms due to the smaller resource base that restricts the strategic novelty from a more generalist CEO. Ownership in private firms is more concentrated, and therefore, agency costs related to hiring a more generalist CEO would also be lower.

Scholars have examined the relationships between CEOs and firm-related outcomes; however, how types of individuals are appointed as CEOs is still unclear. In other words, several studies have revealed the consequences of generalist CEOs, yet few studies have shown the antecedents of CEO selection.

Second, there are various definitions of generalist CEOs. As a proxy for CEO human capital, past studies have used the years of CEO experience (Bragaw & Misangyi, 2017; Hamori & Koyuncu, 2015) and CEO general ability, which is a formative index of five indicators (Custódio et al., 2013). Crossland et al. (2014) proposed CEO career variety as follows: “the sum of distinct industry sectors, distinct firms, and distinct functional areas the individual had worked in prior to becoming CEO of the focal firm, divided by the number of years the person had worked prior to becoming CEO” (p. 18). Others have used single-item measures for industry and firm-specific skills (Harris & Helfat, 1997). We chose two proxies – the number of industries and the number of firms – to facilitate clearer interpretation of the effects.

**Table 4**  
Estimates for robustness tests (alternative outcome variables).

	Model 1a	Model 2a	Model 3a	Model 1b	Model 2b	Model 3b
	ROA	TSR	ROE	ROA	TSR	ROE
Industry median performance	0.826** (0.021)	0.835** (0.011)	0.918** (0.013)	0.826** (0.032)	0.835** (0.032)	0.918** (0.016)
Age	0 (0.000)	-0.079* (0.032)	-0.001* (0.001)	0 (0.000)	-0.079 (0.046)	-0.001 <sup>+</sup> (0.001)
New CEO	0 (0.002)	-0.363 (0.465)	-0.007 (0.008)	0 (0.002)	-0.363 (0.682)	-0.007 (0.006)
Outsider CEO	-0.002 (0.003)	-0.197 (0.677)	0.014 (0.012)	-0.002 (0.002)	-0.197 (1.095)	0.014 (0.008)
Duality	-0.002 (0.002)	-0.339 (0.393)	0.003 (0.007)	-0.002 (0.002)	-0.339 (0.548)	0.003 (0.008)
Firm size	-0.006** (0.002)	-3.754** (0.406)	-0.018** (0.007)	-0.006** (0.001)	-3.754** (0.791)	-0.018** (0.006)
Log (R&D expense)	-0.007** (0.001)	-0.564* (0.285)	-0.023** (0.005)	-0.007** (0.002)	-0.564* (0.236)	-0.023** (0.005)
Log (capital expenditure)	-0.005** (0.001)	1.401** (0.254)	0.002 (0.004)	-0.005 (0.004)	1.401** (0.283)	0.002 (0.004)
Dynamism	-0.193** (0.063)	16.058 (13.338)	-0.025 (0.249)	-0.193** (0.060)	16.058 <sup>+</sup> (8.590)	-0.025 (0.071)
Munificence	0.001 (0.003)	-0.098 (0.705)	-0.003 (0.013)	0.001 (0.001)	-0.098 (0.418)	-0.003 (0.003)
CEO relative pay	0.028** (0.005)	2.627* (1.112)	0.034 <sup>+</sup> (0.019)	0.028** (0.008)	2.627* (1.077)	0.034 <sup>+</sup> (0.019)
CEO delta	0.015** (0.001)	6.046** (0.171)	0.038** (0.003)	0.015** (0.001)	6.046** (0.934)	0.038** (0.006)
CEO vega	-0.004** (0.001)	-1.644** (0.149)	-0.001 (0.003)	-0.004** (0.001)	-1.644** (0.297)	-0.001 (0.004)
CEO tenure	-0.001** (0.000)	-0.280* (0.044)	-0.001 (0.001)	-0.001** (0.000)	-0.280* (0.095)	-0.001 (0.001)
CEO experience dummy	-0.002 (0.002)	1.578** (0.472)	-0.014 (0.008)	-0.002 (0.002)	1.578* (0.608)	-0.014 <sup>+</sup> (0.007)
Conglomerate experience dummy	0.006* (0.003)	2.404** (0.596)	0.003 (0.010)	0.006 <sup>+</sup> (0.003)	2.404 <sup>+</sup> (1.194)	0.003 (0.012)
Number of positions	0.002 (0.001)	-0.285 (0.214)	0.004 (0.004)	0.002 (0.001)	-0.285 (0.178)	0.004 (0.003)
CEO generalist experience - number of industries	-0.001 (0.001)	-0.444** (0.139)	-0.003 (0.002)	-0.001 (0.001)	-0.444* (0.171)	-0.003* (0.001)
CEO generalist experience - number of industries × tenure	0.000** (0.000)	0.054** (0.017)	0.001** (0.000)	0.000** (0.000)	0.054** (0.018)	0.001** (0.000)
Constant	-0.004 (0.011)	-16.781** (2.219)	-0.056 (0.039)	-0.004 (0.016)	-16.781** (5.174)	-0.056 <sup>+</sup> (0.029)
R square	0.18	0.49	0.31	0.18	0.49	0.31
N	16,158	14,701	15,342	16,158	14,701	15,342

Notes. ROA = return on asset, ROE = return on equity, TSR = total shareholder return. Year dummies and firm dummies are included in all models. Models 1b to 3b report Driscoll-Kraay's heteroskedasticity- and autocorrelation-consistent standard errors.

<sup>+</sup>  $p < 0.1$ .

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

Nevertheless, a measure of general ability, based on an observable exogenous measure of general ability, would extend our understanding of this construct.

Third, there are increasing calls among social scientists to make causal inferences. However, in many studies, researchers include endogenous variables, which will bias the empirical findings to the extent that the policy implications are limited (Antonakis et al., 2010). Despite the robustness of our analyses across alternate specifications, the possibility of weak instruments limits us from making causal inferences. Endogeneity concerns in this context are further exacerbated by two-sided sorting in the selection of generalist CEOs. Firms may seek more generalist CEOs to boost firm performance, and generalist CEOs may seek positions in firms where their broad experiences would be more highly valued. Although we used firm fixed-effects to control for time-invariant, firm-level variables, this systematic sorting and selection effect might bias our findings. Following the recent recommendations provided by various works (Antonakis et al., 2010; Guide & Ketokivi, 2015; Ketokivi & McIntosh, 2017; Reeb, Sakakibara, & Mahmood, 2012), we used the instrumental variable procedure to address the

endogeneity bias, but do not make a causal inference due to the weakness of the instrumental variable. We encourage future research to explore stronger instrumental variables to uncover the causal relationship between leaders' experience and performance.

The findings also open several avenues for future research. First, future research could assess TMT configurations conducive to more generalist CEOs. A generalist CEO could apply past knowledge and draw on the specialized knowledge of TMT members to enhance performance. Because boards may find it difficult to monitor a CEO with more general experience, whether board members with diverse industry backgrounds can improve monitoring is also an interesting research question. Alternatively, longer-tenured board members could more effectively monitor the actions of more generalist CEOs in the context of firm-specific resources. The interest in the association between CEO characteristics and firm performance is perennial, and recently, characteristics such as narcissism and humility (O'Reilly III, Doerr, & Chatman, 2018; Zhang, Ou, Tsui, & Wang, 2017) and temporal focus (Nadkarni & Chen, 2014), among others, have been explored for their roles in explaining the influence of CEO leadership on firm

**Table 5**  
Estimates for CEO generalist experience - number of firms.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
			ROA	TSR	ROE
Industry median performance	0.766** (0.022)	0.766** (0.022)	0.826** (0.021)	0.836** (0.011)	0.919** (0.013)
Number of industries/ number of firms		0.008 (0.040)			
Age	-0.004** (0.001)	-0.004** (0.001)	0 (0.000)	-0.081* (0.032)	-0.001* (0.001)
New CEO	-0.024 (0.022)	-0.024 (0.022)	0 (0.002)	-0.351 (0.465)	-0.007 (0.008)
Outsider CEO	-0.079* (0.031)	-0.079* (0.031)	-0.003 (0.003)	-0.245 (0.676)	0.014 (0.012)
Duality	-0.032+ (0.018)	-0.032+ (0.018)	-0.003 (0.002)	-0.383 (0.393)	0.002 (0.007)
Firm size	-0.228** (0.018)	-0.228** (0.018)	-0.006** (0.002)	-3.734** (0.406)	-0.018** (0.007)
Log (R&D expense)	-0.089** (0.013)	-0.089** (0.013)	-0.007** (0.001)	-0.576* (0.285)	-0.024** (0.005)
Log (capital expenditure)	-0.065** (0.012)	-0.065** (0.012)	-0.005** (0.001)	1.416** (0.254)	0.003 (0.004)
Dynamism	-0.545 (0.626)	-0.542 (0.627)	-0.192** (0.063)	16.334 (13.339)	-0.022 (0.249)
Munificence	0.029 (0.034)	0.029 (0.034)	0.001 (0.003)	-0.082 (0.705)	-0.003 (0.013)
CEO relative pay	0.158** (0.052)	0.158** (0.052)	0.028** (0.005)	2.605* (1.112)	0.034+ (0.019)
CEO delta	0.170** (0.007)	0.170** (0.007)	0.015** (0.001)	6.040** (0.171)	0.037** (0.003)
CEO vega	-0.094** (0.007)	-0.094** (0.007)	-0.004** (0.001)	-1.636** (0.149)	0 (0.003)
CEO tenure	-0.009** (0.002)	-0.009** (0.002)	-0.001** (0.000)	-0.284** (0.044)	-0.001 (0.001)
CEO experience dummy	0.006 (0.022)	0.005 (0.023)	-0.001 (0.002)	1.605** (0.473)	-0.012 (0.008)
Conglomerate experience dummy	0.004 (0.027)	0.003 (0.028)	0.006* (0.003)	2.432** (0.597)	0.003 (0.010)
Number of positions	-0.006 (0.010)	-0.006 (0.010)	0.002 (0.001)	-0.291 (0.214)	0.004 (0.004)
CEO generalist experience - number of firms	-0.014* (0.005)	-0.015* (0.006)	-0.001+ (0.001)	-0.409** (0.116)	-0.003 (0.002)
CEO generalist experience - number of firms × tenure	0.001* (0.001)	0.001* (0.001)	0.000** (0.000)	0.034* (0.014)	0.001** (0.000)
Constant	0.855** (0.110)	0.853** (0.111)	-0.004 (0.011)	-16.808** (2.221)	-0.057 (0.039)
Rsquare	0.24	0.24	0.18	0.49	0.31
N	16,158	16,158	16,158	14,701	15,334

Notes. Year dummies and firm dummies were included in all models. ROA = return on assets, ROE = return on equity, TSR = total shareholder return.

+  $p < 0.1$ .

\*  $p < 0.05$ .

\*\*  $p < 0.01$

performance. It is plausible that less generalist CEOs could be more prone to leveraging humility and longer-term temporal focus to enhance firm value, and that narcissism could exacerbate negative outcomes from more generalist CEOs.

Future research could also focus on the value of more generalist CEOs under increasing industry discretion. Industry discretion or investment opportunities in the industry refer to the diversity of the available market and technological combinations. More generalist CEOs may be particularly critical to seizing opportunities under increasing discretion, and in industries with fewer investment opportunities, less

generalist CEOs may be more adept at exploiting opportunities. With a lower diversity of investment opportunities, less generalist CEOs would increase investment efficiency (with less over- and underinvesting); however, with an increasing diversity of investment options, firms may call on more generalist CEOs to seize such opportunities, despite the potential increase in investment inefficiency.

Having worked in multiple industries and firms, generalist CEOs are more likely to be construed as superstars. Future research could focus on the effects of reputation (or career endowment) on the strategic actions of more generalist CEOs and the sensitivity to declines in performance due to reputation, and the subsequent changes in resource allocations by generalist CEOs. Capability cues (Chatterjee & Hambrick, 2011) through the media or stakeholders could also lead generalist CEOs to increase their levels of acceptable risk. CEO career and succession issues were recently reviewed by Koyuncu, Hamori, and Baruch (2017), who highlighted the recent focus on the CEO influence on corporate social performance and other non-financial performance outcomes.

Extending the “stale in the saddle” conceptualization of CEO tenure, where the effect of CEO tenure on performance has an inverted-U shaped relationship with performance (Miller, 1991), firms with more generalist CEOs may realize lower performance in the long run than firms with more specialized leaders. Less generalist CEOs could become entrenched at a faster rate and propose strategic actions that decrease in value over time. Conversely, more generalist CEOs could improve performance over time through learning and adaptation.

## Conclusion

Generalist CEOs are highly sought-after executives and receive a significant pay premium. However, a significant body of work in this area has not focused on the most desired outcome of higher pay: firm performance. If there is an economic rationale for leveraging the diverse abilities of the so-called generalist CEOs, then the economic rationale would also dictate a higher pay-for-performance sensitivity. The results show a negative association between more general CEO experience and firm performance, although longer tenure has the potential to limit further declines in performance. These findings paint a bleaker picture of the pay-for-performance rationale for hiring more generalist CEOs. The results suggest there may be an irrational exuberance about hiring CEOs with more general experiences, however, the economic returns from such exuberance are negative in the short-run and neutral in the long-term.

## Appendices A and B. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.leaqua.2018.08.006>.

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