

RESEARCH ARTICLE

The relative importance of CEOs and non-CEOs over firm performance

Alex Bolinger¹, Jeff Brookman^{1*} and Paul Thistle²

¹College of Business, Idaho State University, 921 S. 8th Ave, Pocatello, ID 83209, USA and ²College of Business, University of Nevada, Las Vegas, 4505 Maryland Parkway, Box 456008, Las Vegas, NV 89154-6008, USA

*Corresponding author. Email: broojeff@isu.edu

(Received 23 April 2018; accepted 3 June 2019; first published online 5 July 2019)

Abstract

The purpose of this study is to examine the relative contributions of the CEO and other (non-CEO) top management team members to firm performance. Using data from ExecuComp, we analyze 2,687 CEOs and 11,501 other top management team (TMT) members, by industry, during the period 2004–2017 using variance decomposition methods. We find that other TMT member effects are important but are smaller than CEO effects. We also find that the effect of new TMT members appointed by the CEO on firm performance is larger than the effect of continuing TMT members and that this differential effect on performance increases with CEO tenure.

Key words: upper echelons theory; managerial power theory; TMT turnover

Introduction

There is renewed research attention on the connection between CEOs and firm performance (e.g., Hambrick & Quigley, 2013; Mackey, 2008), and recent studies suggest the impact of CEOs on firm performance is substantial and is increasing over time (e.g., Quigley & Hambrick, 2014). Less research attention, however, is given to the proportion of variance in firm performance attributable to the CEO relative to other members of the top management team (TMT). Conceptually, it seems reasonable to expect that CEOs carry outsized influence over firm performance relative to other members of TMTs (Peterson, Smith, Martorana, & Owens, 2003). Skillful CEOs' strategic choice can optimally allocate resources and establish a firm direction (Dean & Sharfman, 1996); CEOs can draw attention and resources to the organization through their celebrity status (Sinha, Inkson, & Barker, 2012); and they can exercise more influence over organizational performance because of their place in the organizational hierarchy (Finkelstein, 1992).

On the other hand, it is not uncommon for management literature to treat all members of the TMT as equal contributors to firm performance (e.g., Barrick, Bradley, Kristof-Brown, & Colbert, 2007; Cannella, Park, & Lee, 2008; Walters, Kroll, & Wright, 2010; Tien, Chen, & Chuang, 2013). Moreover, the upper echelons theory is based on the efforts of the entire team rather than the effect from any single individual (Carpenter, Geletkanycz, & Sanders, 2004; Hambrick, 2007). This perspective treats CEOs, at least empirically, as equal members of the TMT (Ling, Simsek, Lubatkin, & Veiga, 2008). These inconsistent theoretical premises lead our research questions. First, we ask how much firm performance is explained by the CEO and by other TMT members. Second, we ask whether subgroups of other TMT members explain different amounts of organizational performance over the course of CEOs' tenure.

We address these questions through the theoretical perspective of upper echelons theory (Hambrick & Mason, 1984, Hambrick, 2007), and managerial power theory (Finkelstein,

© Cambridge University Press and Australian and New Zealand Academy of Management 2019.

1992). Upper echelons theory argues that the entire top management team affects firm performance, and managerial power theory posits that power is distributed unevenly within the top management team. Neither extreme position – that the CEO is just another member of the TMT nor that the CEO’s contribution dramatically overshadows contributions of other TMT members – seems to reflect the reality of CEO and TMT contributions accurately. Our empirical analysis answers these research questions by disentangling the effect of the CEO from the effect of other TMT members on the variation in firm performance. While jointly estimating CEO and other TMT member effects on firm performance is a relatively straightforward task, we also investigate the indirect influence CEOs have on firm performance. Boards of directors hire CEOs with explicit strategic intent and CEOs know they have been hired to make strategic choices. To shift the firm paradigm, CEOs must rely on the top management team. Since CEOs have chief responsibility for hiring other TMT managers, they can exert influence over firm performance indirectly through their choice in strategic human resource management (Collins & Clark, 2003). Lastly, CEO tenure heterogeneity could result in a different relation between the CEO and other TMT members. A newly hired CEO may struggle against organizational inertia, whereas CEOs with many years of tenure might be less inclined to change strategic vision. Consequently, we investigate whether CEO tenure heterogeneity affects the variation in firm performance for CEOs, continuing managers and managers appointed by the CEO.

Our research offers several contributions to the literature. First, strategy research has investigated what TMT characteristics are reflected in firm performance (Haleblian & Finkelstein, 1993; Keck, 1997; Carpenter, 2002). Domingues-CC and Barroso-Castro (2017, Table 1) summarize much of this research. Research has not yet investigated the contributions of other TMT members based on whether the CEO hired the team member. Ling et al. (2008) point out that one of the unique responsibilities of the CEO is the selection of the rest of the TMT. At least to our knowledge, we are the only study to investigate the relation between CEO hiring decisions and the variation in firm performance for CEO hired and continuing managers (new TMT members and continuing TMT members). Second, we build on research that investigates the power dynamic between the CEO and the other TMT members. This line of research is developed by Henderson and Fredrickson (2001); Patel and Cooper (2014); Ridge, Aime, and White (2015); Smith, Houghton, Hood, and Ryman (2006), and others. Many of these studies have investigated the upper management power dynamic, but few have investigated firm performance, (e.g., Henderson & Fredrickson, 2001; Smith et al., 2006) and none have estimated the amount of variation in firm performance explained by the CEO and TMT. Third, we also build on research focused on tenure heterogeneity by Hambrick, Humphrey, and Gupta (2015), Carpenter (2002), and Henderson, Miller, and Hambrick (2006). Specifically, we examine how CEO tenure affects CEO and manager influence on the variation in firm performance for both continuing managers and new managers. As far as we know, we are the first study to investigate this. Lastly, we use a large sample of firms with many different industry classifications and jointly estimate the effects of CEOs and other TMT members on firm performance. Prior literature, in contrast, has focused on limited industries (Smith et al., 2006; Haleblian & Finkelstein, 1993).

In the sections that follow, we describe the literature and specify hypotheses. We then describe our sample and methodology. Finally, we outline our results and discuss the implications of our findings for current practice and future research.

Background and Hypotheses

CEO and other TMT members

There is a large literature, going back to Lieberman and O’Connor (1972), which examines the effects of CEOs on firm performance (see Hambrick & Quigley, 2013, Table 1, for a good summary of much of this literature, as well as Fitza, 2014; Quigley & Graffin, 2017; and Quigley &

Hambrick, 2014). The common factor in all of these studies is that they examine only the effect of the CEO on firm performance and exclude other members of the top management team. The key argument underlying this position is that the CEO controls the composition and actions of members of the TMT to the extent that other executives have a relatively little independent effect on performance. In contrast, the second line of literature treats all members of the TMT as equal contributors to firm performance (e.g., Barrick et al., 2007; Barsade, Ward, Turner, & Sonnenfeld, 2000; Cannella, Park, & Lee, 2008; Finkelstein & Hambrick, 1990; Keck, 1997; Smith, Smith, Olian, Sims, O'Bannon, & Scully, 1994; Walters, Kroll, & Wright, 2010). These lines of research are the extremes on a continuum. The third line of work investigates CEO and manager influence between these extremes but has focused on the power dynamic between CEOs and the remaining team members (e.g., Patel & Cooper, 2014; Ridge, Aime, & White, 2015). While many of these studies have investigated the upper management power dynamic, few have investigated firm performance, (e.g., Henderson & Fredrickson, 2001; Smith et al., 2006), and none have estimated *how much* variation in firm performance is explained by the CEO and TMT independently. Our research investigates how much of the variation in firm performance is explained by the CEO and the TMT, and this leads us to our first hypothesis:

Null Hypothesis 1: The effect of the non-CEO members of the TMT on firm performance is zero.

This hypothesis takes the extreme view that power is concentrated in the hands of a CEO. The alternative to this hypothesis is that CEOs engage in actions that allow the non-CEO members of the TMT to affect firm performance. The effect could range anywhere from non-CEOs having a small effect to having a larger effect on firm performance than that of the CEO. We do not predict an outcome on the continuum, but instead, let the data speak for itself.

New and continuing TMT members

Prior literature has suggested that an important responsibility of the CEO is who he or she selects for the management team (Ling et al., 2008). Even with a sitting CEO, there is turnover in the TMT (Barron, Chulkov, & Waddell, 2011; Ridge, Hill, & Aime, 2017), which leads to opportunities to appoint new members to the TMT. Moreover, when there is a change in the CEO, this person has opportunities to appoint new members to the TMT (Barron, Chulkov, & Waddell, 2011; Kesner & Dalton, 1994). Newly appointed CEOs have clear ideas about what they are expected to accomplish (Henderson, Miller, & Hambrick, 2006). However, organizational inertia limits the rate of organizational change (Hannan & Freeman, 1984). To overcome inertia, CEOs can replace TMT members with managers that fit with the CEOs paradigm (Hambrick & Fukutomi, 1991; Siggelkow, 2002). Consequently, the CEO may have a different amount of interdependence with new and continuing members of the TMT, which leads to our second hypothesis:

Null Hypothesis 2: The degree to which the other TMT members affect firm performance does not depend upon whether they are new members or continuing members of the team.

The alternative hypothesis is that the amount of influence the other TMT members have on firm performance does depend on whether the CEO hires them.

CEO tenure

In addition to investigating whether new or continuing other TMT members differentially influence the variation in firm performance, we also examine the effects of tenure heterogeneity on the

variation in firm performance for the CEO and other TMT members. Theory suggests that newly hired CEOs gradually implement a strategic focus that meshes the firm to the environment and strategic issues (Henderson, Miller, & Hambrick, 2006). Hence, it might take time to align the organizational activities with the CEO's strategic view, given the organizational environment. Consequently, in a shorter-tenure CEO environment, existing TMT members might have more influence over the variation in firm performance than newly appointed TMT members. On the other hand, given the difficulty in changing organizational inertia, newly hired CEOs could attempt to change firm paradigms quickly by hiring managers to shake up the firm. In this case, managers appointed by shorter-tenure CEOs might have more influence over firm performance.

The literature argues that managers that serve together over time improve TMT cohesion (Carpenter, 2002) and one would expect longer-tenure CEOs to have developed a management team over time and that these newly hired managers could have obtained a large amount of influence compared to remaining team members. Consequently, managers selected by a longer-tenured CEO could have more influence on firm performance than continuing managers not appointed by the CEO. To disentangle the effect of CEO tenure on the influence of TMT members, we divide our sample into shorter-tenure and longer-tenure CEO categories, which leads to our third hypothesis:

Null Hypothesis 3: CEO tenure length will not affect the influence on firm performance for the CEO, new managers, and continuing managers.

The alternative to this hypothesis is that tenure length will affect the influence of the CEO, new managers, or continuing managers.

To summarize, Null Hypothesis 1 is about the direct effects of the CEO and other TMT members on firm performance. Null Hypothesis 2 explores whether new or continuing managers employ greater influence over firm performance. Null Hypothesis 3 further investigates the effect tenure heterogeneity has on the influence over the performance of the CEOs, new managers, and continuing managers.

Data and Methodology

Data

We use the Compustat Executive Compensation (ExecuComp) database, which reports data for the highest paid managers, including CEOs and other top managers, of many S&P large-, mid-, and small-cap companies, about 1,500 firms per year; all companies trade on US markets. We use data from 2004 through 2017. Our dataset excludes financial firms (SIC codes 6,000–6,999) and utility firms (SIC codes 4,000–4,999). We combine the ExecuComp data on manager characteristics with data on firms' financial characteristics from Compustat. We eliminate observations for which ROA or the firm's sales are missing. We use the program SAS and Excel for data manipulation and organization and the program STATA for data analysis. There are 2,687 CEOs and 11,501 non-CEO managers who work at 2,213 firms in our sample. Our sample includes 46,721 manager-years. A manager-year is the observation of one manager for 1 year and is commonly used when working with panel data. For instance, observing three managers over 10 years would be 30 manager-years of data. Sample summary statistics are reported in Panel A of [Table 1](#).

Top management team

An individual is included in the top management team if the person is listed in ExecuComp. ExecuComp reports information on the highest paid executives; some firms include information on additional executives. An individual is the CEO if ExecuComp designates them as holding the

Table 1. Descriptive statistics

<i>Panel A: Data size information</i>			
Total number of CEOs	2,687		
Total number of Managers	11,501		
Total number of Firms	2,213		
Total number of firm/year observations	46,721		
<i>Panel B: Firm and manager information</i>			
	Mean	Median	
Firm ROA	.132	.127	
Firm size (millions \$)	4,268	1.470	
CEO tenure	5.990	4.000	
<i>Panel C: ROA information by CEO tenure</i>			
CEO tenure	Mean ROA	MedianROA	N
Less than 3 years of tenure	.125	.123	21,290
4–6 years of tenure	.138	.131	10,279
More than 6 years of tenure	.139	.131	15,152

title for the greatest part of the year. The mean size of the TMT is 3.26 members, and the median size is 3.0 members. The TMT ranges from 1 to 18 members.

The definition of the TMT is dictated by the availability of the data in the ExecuComp and is common in studies that rely on financial statement data. For example, Carpenter, Pollock, and Leary (2003); Carpenter, Sanders, and Gregersen (2001) and Bertrand and Schoar (2003) define the TMT as the top five highest paid executives, including the CEO, listed in the financial statements. Barron, Chulkov, and Waddell (2011) use the four highest-paid executives. Other studies using publically available data report similar mean TMT sizes (Haleblian & Finkelstein, 1993, mean TMT size 3.39; Wiersema & Bantel, 1992, mean TMT size 4.3). Surveys of top managers yield similar mean TMT sizes (Amason, 1996, 3.45; Amason & Mooney, 1999, 4.9; Iaquinto & Fredrickson, 1997, 4.2). Carpenter, Geletkanycz and Sanders (2004, Table 1) summarize studies published between 1996 and 2003. These studies, which utilize a wide variety of definition of the TMT and a wide variety of data sources, report mean TMT sizes ranging from 3.4 to 13.2; with an average across studies of 6.48. Hambrick, Humphrey, and Gupta (2015) using a different data source and definition report a mean TMT size of 8.58. In general, our definition of the TMT and the size of the TMT is on the low end, but consistent with existing studies.

New and continuing TMT members

To test Null Hypothesis 2, we need to distinguish between managers appointed by the CEO and continuing members of the TMT that were appointed by a previous CEO. A new manager is defined as a manager whose first year of tenure begins during the CEO's tenure. A continuing manager is defined as a manager hired by a prior CEO and whose tenure, therefore, begins before the first year of the CEO's tenure. For each year, we determine whether a manager is a new manager or a continuing manager. If a CEO and manager are both in ExecuComp in 2003, the first year of our sample, we do not know whether the CEO hired the manager. To disentangle this issue, we collect information on CEOs and managers starting in 1994, 9 years before our sample begins. Then, over the 9 years, we classify whether the manager is hired by the CEO. Incorporating this information allows us to more correctly classify managers as either new

managers or continuing managers in 2003. Our only dilemma is when the non-CEO manager and CEO both work for a firm before 1994 and continue their tenures through 2003. In this case, we cannot tell if the manager is a new manager or a continuing manager. We classify these managers as new managers when it is possible they should be classified as continuing managers. We find that 1.8% (210/11,501) of managers worked for the firm before 1994, and these managers are classified as new managers. This classification will bias downward the amount of total variance explained by the new managers. Consequently, the amount of total variance explained by new managers is likely slightly higher than reported in the results. However, since the variance explained by CEO-hired managers is significantly different than that of continuing managers, any misclassification of CEO-hired managers does not materially affect the results.

CEO tenure

To test Null Hypothesis 3, we divide the sample into three categories based on the length of CEO tenure. The short-tenure CEO category consists of newly hired CEOs with 1–3 years of tenure. The medium-tenure CEO category is made up of CEOs with 4–6 years of tenure. The long-tenure category is made up of CEOs with more than 6 years of tenure. The data primarily drive the choice of these ranges. Panel B of [Table 1](#) shows that the average tenure of a CEO in our sample is 5.99 years, and just over one-half of the CEOs leave their position in the first 4 years of tenure. Consequently, we remove the middle tenure length category (4–6 years of tenure) from our analysis and focus on the shorter- and longer-tenure CEO categories. Panel C of [Table 1](#) shows the mean and median ROAs for each sub-group. ROA ranges from 12.5% for the short-tenure CEO category to 13.9% for the long-tenure CEO category. The number of observations is large for the two categories, ranging from 21,290 for the short-tenure category to 15,152 for the long-tenure category.

Firm performance

We use return on assets (ROA) as the measure of firm performance. We measure ROA as the ratio of earnings before interest, taxes, and depreciation (EBITDA) to book value of assets (BVA). Both EBITDA and BVA have been adjusted to constant 2010 dollars. The mean and median values of ROA 13.2% and 12.7% respectively, as reported in Panel B of [Table 1](#). We also report the book value of total assets. The mean firm size is \$4,268 million and the median firm size is \$1.470 million. The difference between mean and median size results from several larger firms in the ExecuComp database.

Empirical model

The objective of our analysis is to estimate the percent of the total variance explained by the CEO and by the rest of the managerial team. We use the model:

$$y_{ijt} = \alpha + \beta_i + \gamma_i + \varepsilon_{ijt}$$

where y_{ijt} is ROA for manager i in firm j in year t , β_i is the effect of the CEO on performance, γ_i is the effect on the non-CEO manager on performance and ε_{ijt} is the error term. We estimate the model by simultaneous ANOVA. The model is estimated by industry to control for industry effects.

Results

[Table 2](#) reports the variance decompositions for the CEO and manager effects by industry. We focus on the results in Panel A to test Null Hypothesis 1. There is substantial variation in the

Table 2. CEO and manager effects. Table measures the amount of variation in ROA explained by CEOs, new managers hired by the CEO and continuing managers. ROA is measured as earnings before interest, taxes, and depreciation (EBITDA) divided by book assets

Panel A: Industry				
Industry	SIC	CEO	All other managers	<i>N</i>
Mining and minerals extraction	1	.126	.097	3,045
Food, tobacco, apparel, lumber, furniture, publishing and chemicals	2	.069	.067	9,855
Primary manufacturing, industrial manufacturing, electronic equipment, transportation equipment and miscellaneous manufacturing.	3	.100	.070	17,591
Wholesale and retail goods stores, restaurants	5	.121	.051	6,981
Hotels, personal and business services, auto and other repair services, film, entertainment,	7	.102	.070	6,791
Services, -health, legal and social services, museums, management services	8	.068	.090	2,244
				Difference
Mean		.098	.074	<i>p</i> -value: .08
Median		.101	.070	<i>p</i> -value: .13

CEO effects, with the largest (mining and minerals, SIC group 1) nearly twice the smallest (food, tobacco, apparel, etc., and Services, SIC groups 2 and 8). There is less variation in the manager effects across industries. The CEO effects are larger than the manager effects for mining, heavy manufacturing, food and tobacco, wholesale and retail, and hotels and business services (SIC groups 1, 2, 3, 5 and 7) and smaller for other services (SIC group 8). The mean (median) CEO effect is .098 (.101) and the mean (median) manager effect is .074 (.070). The difference in the mean effect for non-CEO managers is statistically significant (p -value = .08), but the median is not (p -value = .13). This provides some evidence, but not conclusive evidence, for the rejection of Null Hypothesis 1.

These results suggest that the power distribution between the CEO and other TMT members does not result in complete dominance by the CEO, nor does it result in an equal distribution of power between the CEO and the rest of the TMT. Instead, these results show that other TMT managers have an effect on firm performance but that their effect is not as strong as the influence CEOs have over performance, a result that is not consistent with Null Hypothesis 1. The relative effects of the CEO and other TMT members on firm performance range from other TMT members having more of an effect (SIC 8) to CEOs having over two times as much influence on firm performance (SIC 5). All industries, except SIC 8, show the CEO as having a greater effect on firm performance than non-CEO managers. Our empirical results are consistent with an intermediate distribution of power within the TMT and are consistent with research on the distribution of power within TMTs (e.g., Patel & Cooper, 2014; Ridge, Aime, & White, 2015; Smith et al., 2006). The results suggest that while non-CEO managers are important, there is evidence that the CEO has a greater effect on firm performance and is more important than other individual TMT members.

Table 3 gives results for testing Null Hypothesis 2. Null Hypothesis 2 distinguishes between managers appointed by the CEO and managers that are continuing members of the TMT. Table 3, Panel A, reports variance decompositions of firm performance by the industry for CEOs and for new and continuing managers. The CEO effects are all approximately the same size as those reported in Table 2. The CEO effects are larger than the new manager effects for

Table 3. CEO and manager effects: New and continuing managers. Table measures the amount of variation in ROA explained by CEOs, new managers, and continuing managers. ROA is measured as earnings before interest, taxes, and depreciation (EBITDA) divided by book assets

<i>Panel A: Industry analysis</i>					
Industry	SIC	CEO	New Manager	Continuing Manager	N
Mining and minerals extraction	1	.099	.071	.032	3,045
Food, tobacco, apparel, lumber, furniture, publishing and chemicals	2	.069	.058	.008	9,855
Primary manufacturing, industrial manufacturing, electronic equipment, transportation equipment and miscellaneous manufacturing.	3	.098	.053	.020	17,591
Wholesale and retail goods stores, restaurants	5	.115	.037	.014	6,981
Hotels, personal and business services, auto and other repair services, film, entertainment,	7	.106	.060	.007	6,791
Services, -health, legal and social services, museums, management services	8	.074	.061	.035	2,244
Mean		.094	.057	.019	
Median		.099	.059	.017	
<i>Panel B: Test results</i>					
		<i>t</i> -test <i>p</i> -value	Wilcoxon rank sum test <i>p</i> -values		
CEO versus New Manager		.00	.02		
CEO versus Continuing Manager		.00	.01		
New versus Continuing Manager		.00	.01		

all industries. The mean (median) CEO effect is .094 (.099), while the mean (median) new manager effect is .057 (.059). The new manager effects are, in turn, larger than the continuing manager effects (mean .019, median .017). The differences in the means and medians are all statistically significant; *p*-values are reported in Panel B. Thus, the results in Table 3 are not consistent with Null Hypothesis 2. The difference between new managers' and continuing managers' impact on firm performance is, at least to our knowledge, a new result. Also, observe that, for each industry, the variance decomposition for new and continuing managers in Table 3 sum to approximately the value of the variance decomposition for all managers combined in Table 2. This implies that most of the effect of managers on firm performance is due to the managers appointed by the CEO. This highlights the importance of the CEO, not just in his/her role as a corporate leader because of hierarchy, but in his/her role in adding talent to the TMT.

Table 4 provides results for Null Hypothesis 3. Panels A and B focus on short-tenure CEOs and Panel C and D focus on long-tenure CEOs. Panel E uses the same mean and median information as Panels A and B, but the information is grouped differently so that additional tests can be performed to investigate Null Hypothesis 3.

In Panel A of Table 4, we provide the variance decomposition for CEOs with 3 years or less of tenure. In every industry classification, the CEO has more influence over firm performance than new managers. The point estimates also suggest that in every industry except SIC 8, the new managers have more influence over performance than continuing managers. The mean value for the CEO is .149 (median .155). New managers have a mean value of .027 (median .023), and continuing managers have a mean value of .017 (median .015). The test results in Panel B are significant for CEOs compared to new and continuing managers, with a mean *p*-value of .00

Table 4. CEO and manager effects: With CEO tenure. Table measures the amount of variation in ROA explained by CEOs, non-CEO managers hired by the CEO and continuing managers, that is those not hired by the CEO. ROA is measured as earnings before interest, taxes, and depreciation (EBITDA) divided by book assets

<i>Panel A: Less than 3 years tenure</i>				
Industry	SIC	CEO	New	Continuing
Mining and minerals extraction	1	.134	.046	.015
Food, tobacco, apparel, lumber, furniture, publishing, etc.	2	.175	.010	.008
Primary manufacturing, industrial manufacturing, electronics, etc.	3	.113	.044	.029
Wholesale and retail goods stores, restaurants	5	.163	.016	.014
Hotels, personal and business services, auto and other repairs, etc.	7	.148	.023	.007
Services – health, legal and social services, museums, etc.	8	.161	.023	.029
Mean		.149	.027	.017
Median		.155	.023	.015
<i>Panel B: Test results</i>				
	<i>t</i> -test <i>p</i> -value	Wilcoxon rank sum test <i>p</i> -values		
CEO versus new manager	.00	.00		
CEO versus continuing manager	.00	.00		
New versus continuing manager	.00	.00		
<i>Panel C: More than 6 years tenure</i>				
Industry	SIC	CEO	New	Continuing
Mining and minerals extraction	1	.130	.058	.004
Food, tobacco, apparel, lumber, furniture, publishing, etc.	2	.124	.036	.006
Primary manufacturing, industrial manufacturing, electronics, etc.	3	.154	.052	.003
Wholesale and retail goods stores, restaurants	5	.131	.049	.004
Hotels, personal and business services, auto and other repairs, etc.	7	.129	.101	.001
Services – health, legal and social services, museums, etc.	8	.077	.025	.002
Mean		.124	.054	.003
Median		.130	.051	.004
<i>Panel D: Test results</i>				
	<i>t</i> -test <i>p</i> -value	Wilcoxon rank sum test <i>p</i> -values		
CEO versus new manager	.00	.00		
CEO versus continuing manager	.00	.00		
New versus continuing manager	.00	.00		
<i>Panel E: Additional tests for mean (median) values</i>				
CEOs	Tenure		<i>p</i> -value	
	Less than 3 years	More than 6 years		
CEO Mean	.149	.124	.11	

CEO Median	.155	.130	.13
<i>New managers</i>			
Mean	.027	.054	.06
Median	.023	.051	.05
<i>Continuing managers</i>			
Mean	.017	.003	.02
Median	.015	.004	.02

(median .00). These results suggest that new managers hired during the CEO's early years of tenure have a greater influence on firm performance than continuing managers. These results provide evidence that, on average, CEOs bring in new managerial talent to change firm performance by shaking up the management team and it leads to an immediate change.

The results of the variance decomposition for CEOs with tenure of more than 6 years are provided in Panel C. Again, in every industry classification, the CEO has more influence than new managers, and new managers have more influence than continuing managers. The mean value for the CEO is .124 (median .130), and for new managers, it is .054 (median .051), and for continuing managers, it is .003 (median .004). The test results in Panel D, comparing the differences in mean and median for each of the groups, are all statistically significant. New managers have more influence over firm performance than continuing managers; indeed, the effect of continuing managers on firm performance is quite small. These results suggest that new managers have more influence over firm performance than continuing managers for long-tenured CEOs. We use Panel E to investigate the influence over firm performance for managers of short- and long-tenure CEOs more completely and to test Null Hypothesis 3.

Panel E regroups the information in Panels A and B by manager type and then by CEO tenure length. The results show that the CEO influence over firm performance changes from a mean of .149 (median .155) for CEOs with 3 years or less of tenure to a mean of .124 (median .128) for CEOs with more than 6 years of tenure. The test results are not significant, suggesting no difference in CEO influence over firm performance as CEO tenure increases. However, it appears CEOs increase their influence through their hiring decisions. For new managers, the mean estimate increases from .027 (median .023) for 3 years or less of CEO tenure to a mean of .054 (median .051) for CEOs with more than 6 years of tenure. The test results show a statistically significant difference in the means (p -value = .06) and medians (p -value = .05). This provides evidence that while CEO-hired managers have influence over firm performance when hired, they continue to gain more influence through time.

For continuing managers, the mean estimate decreases from .017 (median .015) to .003 (median .004), and the test results are significant at the 5% level. This result provides evidence that continuing managers lose influence over firm performance through time. These results, taken together, suggest that CEO direct power does not change over time, but indirectly, CEOs might have more influence over firm performance through their choice of other top management team members.

We conclude that CEO-hired managers increase their influence over firm performance as CEO tenure increases. Continuing managers see their influence over firm performance reduced as CEO tenure increases. CEO-hired managers have influence immediately after they are hired and continue to increase their influence through time. In sum, continuing managers lose influence over time even when while CEO-hired managers increase their influence. While CEOs direct influence over firm performance over time does not change, we find evidence that CEO indirect influence, through the hiring process, increases over time.

Discussion

In this paper, we examine the relative contributions of CEOs and the other top management team members of the TMT on firm performance. We find that the effect of CEOs on firm performance, while significant, is smaller than what recent estimates (Hambrick & Quigley, 2013; Mackey, 2008) suggest. Furthermore, while other TMT member effects are smaller than CEO effects, these effects do make a substantial contribution to firm performance. We find that managers selected by the CEO explain a greater amount of variance in firm performance than managers not hired by the chief executive. We also find that the chief executive's tenure does not directly affect CEO influence over firm performance, but does indirectly affect the CEO's influence over firm performance. This indirect CEO influence results from the TMT members' influence increasing with the tenure of the CEO who hired them. Our results are consistent with versions of upper echelons theory that recognize that the CEO exerts greater influence over firm performance than other TMT members, although that influence is far from exclusive.

These results, taken together, illustrate both the direct and indirect influence of CEOs on firm performance. Ling et al. (2008) point out that one of the unique responsibilities of the CEO is the selection of the rest of the TMT and CEOs have a critical role to play in the strategic management of executive-level human resources (Collins & Clark, 2003). Although the popular press often exalts the critical role of CEOs in the strategic hiring and deployment of a firm's human resources (e.g., Isaacson, 2011), very few researchers have directly investigated how leaders shape HRM systems (Jackson, Schuler, & Jiang, 2014). Furthermore, if the contributions of non-CEO TMT members have been overlooked or underestimated, there are implications for boards of directors, who may wish to take a greater role in evaluating the hiring philosophies of newly appointed CEOs.

We also contribute to the literature by investigating the influence of CEOs and TMT members, both hired by the CEO and not, over time. Our findings suggest a nuance that can only be revealed by examining outcomes over time. That is, while CEO hires shake up the firm to instigate immediate results, they also garner power over time. In turn, it appears to take time for continuing managers to lose influence and to have less of an effect on firm performance. We hope that our approach will inspire additional research to investigate precisely the full extent to which CEOs influence the contributions of other TMT members and firm performance overall.

As with any research, there are weaknesses and limitations of our study. Our analysis covers the broad range of US industries and reveals cross-industry variation in the effect of CEOs and other managers on firm performance. Further analysis is needed to understand the cross-industry pattern. If the ability to affect firm performance reflects the distribution of power within the top management team, the ability to affect firm performance, then our results have implications for how the distribution of power evolves over time. While our study shows the effect of new TMT members is greater for long-tenure CEOs than for short-tenure CEOs, our data do not allow us to explore the specific means through which chief executives influence other TMT members. We leave it to further research to investigate the degree to which this result is from increased individual influence, improved team cohesion and increased numbers of CEO-hired managers over time.

Author ORCID.  Jeff Brookman, 0000-0001-9160-0973

Acknowledgements. We have benefited from helpful comments and suggestions from two anonymous referees. All errors are our responsibility.

References

- Amason, A. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision-making: Resolving a paradox for top management teams. *Academy of Management Journal*, 39, 123–148.
- Amason, A., & Mooney, A. (1999). The effects of past performance on top management team conflict in strategic decision making. *International Journal of Conflict Management*, 10, 340–359.
- Barrick, M., Bradley, B., Kristof-Brown, A., & Colbert, A. (2007). The moderating role of top management team interdependence: Implications for real team and working groups. *Academy of Management Journal*, 50, 544–557.

- Barron, J., Chulkov, D., & Waddell, G. (2011). Top management team turnover, CEO succession type and strategic change. *Journal of Business Research*, 64, 904–910.
- Barsade, S., Ward, A., Turner, J., & Sonnenfeld, J. (2000). To your heart's content: A model of affective diversity in top management teams. *Administrative Science Quarterly*, 45, 802–836.
- Bertrand, M., & Schoar, A. (2003). Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, 118, 1169–1208.
- Cannella, A., Park, J.-H., & Lee, H.-U. (2008). Top management team functional background diversity and firm performance: Examining the roles of team member colocation and environmental uncertainty. *Academy of Management Journal*, 51, 768–784.
- Carpenter, M., Sanders, W., & Gregersen, H. (2001). Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal*, 44, 493–512.
- Carpenter, M., Pollock, T., & Leary, M. (2003). Testing a model of reasoned risk taking: Governance, the experience of principals and agents, and global strategic intent. *Strategic Management Journal*, 24, 803–820.
- Carpenter, M. A. (2002). The implications of strategy and social context for the relationship between top management team heterogeneity and firm performance. *Strategic Management Journal*, 23, 275–284.
- Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. G. (2004). Upper echelons theory revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30, 749–778.
- Collins, C. J., & Clark, K. D. (2003). Strategic human resource practices, top management team social networks, and firm performance: The role of human resource practices in creating organizational competitive advantage. *Academy of Management Journal*, 46, 740–751.
- Dean, J. W., & Sharfman, M. P. (1996). Does decision process matter? A study of strategic decision-making effectiveness. *Academy of Management Journal*, 39, 368–392.
- Domingues-CC, M., & Barroso-Castro, C. (2017). Managerial change and strategic change: The temporal sequence. *Journal of Management and Organization*, 23, 46–73.
- Finkelstein, S. (1992). Power in top management teams: Dimensions, measurement and validation. *Academy of Management Journal*, 35, 505–538.
- Finkelstein, S., & Hambrick, D. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, 35, 484–503.
- Fitza, M. (2014). The use of variance decomposition in the investigation of CEO effects: How large must the CEO effect be to rule out chance? *Strategic Management Journal*, 35, 1839–1852.
- Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal*, 36, 844–863.
- Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, 32, 334–343.
- Hambrick, D., & Fukutomi, G. (1991). The seasons of a CEO's tenure. *Academy of Management Review*, 16, 719–742.
- Hambrick, D., Humphrey, S., & Gupta, A. (2015). Structural interdependence within top management teams: A key moderator of upper echelon predictions. *Strategic Management Journal*, 36, 449–461.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9, 193–206.
- Hambrick, D. C., & Quigley, T. J. (2013). Toward more accurate contextualization of the CEO effect on firm performance. *Strategic Management Journal*, 35, 473–491.
- Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, 49, 149–164.
- Henderson, A. D., & Fredrickson, J. W. (2001). Top management team coordination needs and the CEO pay gap: A competitive test of economic and behavioral views. *Academy of Management Journal*, 44, 96–117.
- Henderson, A. D., Miller, D., & Hambrick, D. C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal*, 27, 447–460.
- Iaquinto, A., & Fredrickson, J. (1997). Top management team agreement about the strategic decision process. *Strategic Management Journal*, 18, 63–75.
- Isaacson, W. (2011). *Steve Jobs: The exclusive biography*. New York: Simon and Schuster.
- Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. *The Academy of Management Annals*, 8, 1–56.
- Keck, S. L. (1997). Top management team structure: Differential effects by environmental context. *Organization Science*, 8, 143–156.
- Kesner, I., & Dalton, D. (1994). Top management team turnover and CEO succession: An investigation of the effects of turnover on performance. *Journal of Management Studies*, 31, 701–713.
- Lieberson, S., & O'Connor, J. F. (1972). Leadership and organizational performance: A study of large corporations. *American Sociological Review*, 37, 117–130.
- Ling, Y., Simsek, Z., Lubatkin, M. H., & Veiga, J. F. (2008). Transformational leadership's role in promoting corporate entrepreneurship: Examining the CEO-TMT interface. *Academy of Management Journal*, 51, 557–576.
- Mackey, A. (2008). The effect of CEOs on firm performance. *Strategic Management Journal*, 29, 1357–1367.

- Patel, P. C., & Cooper, D. (2014). Structural power equality between family and non-family TMT members and the performance of family firms. *Academy of Management Journal*, 57, 1624–1649.
- Peterson, R. S., Smith, D. B., Martorana, P. V., & Owens, P. D. (2003). The impact of chief executive officer personality on top management team dynamics: One mechanism by which leadership affects organizational performance. *Journal of Applied Psychology*, 88, 795–808.
- Quigley, T. J., & Hambrick, D. C. (2014). Has the “CEO effect” increased in recent decades? A new explanation for the great rise in America’s attention to corporate leaders. *Strategic Management Journal*, 36, 821–830.
- Quigley, T., & Graffin, S. (2017). Reaffirming the CEO effect is significant and much larger than chance: A comment on Fitza (2014). *Strategic Management Journal*, 38, 793–801.
- Ridge, J., Aime, F., & White, M. A. (2015). When much more of a difference makes a difference: Social comparison and tournaments in the CEO’s top team. *Strategic Management Journal*, 36, 618–636.
- Ridge, J., Hill, A., & Aime, F. (2017). Implications of multiple concurrent pay comparisons to top-team turnover. *Journal of Management*, 43, 671–690.
- Siggelkow, N. (2002). Evolution toward fit. *Administrative Science Quarterly*, 47, 125–159.
- Sinha, P. N., Inkson, K., & Barker, J. R. (2012). Committed to a failing strategy: Celebrity CEO, intermediaries, media and stakeholders in a co-created drama. *Organization Studies*, 33, 223–245.
- Smith, A., Houghton, S. M., Hood, J. N., & Ryman, J. A. (2006). Power relationships among top managers: Does top management team power distribution matter for organizational performance? *Journal of Business Research*, 59, 622–629.
- Smith, K., Smith, K., Olian, J., Sims, H., O’Bannon, D., & Scully, J. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly*, 39, 412–438.
- Tien, T., Chen, C.-N., & Chuang, C.-M. (2013). A study of CEO power, pay structure and firm performance. *Journal of Management and Organization*, 19, 424–453.
- Walters, B., Kroll, M., & Wright, P. (2010). The impact of TMT board member control and environment on post-IPO performance. *Academy of Management Journal*, 53, 572–595.
- Wiersema, M., & Bantel, K. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35, 91–121.