



CEO career horizon and tenure: Future performance implications under different contingencies

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ABSTRACT

This paper examines the influence of CEO career horizon and tenure on the future performance of firms. Specifically, we argue that CEOs with shorter career horizons (as measured by their age) will adopt risk-averse strategies that will, on average, adversely influence future firm performance. Further, we argue that at high levels of CEO ownership, this relationship is exacerbated due to the accompanying power that comes with high ownership. In terms of CEO tenure, we propose that CEOs' paradigms will become increasingly obsolete as their tenure increases with this process hurting future performance in dynamic industries. However, such performance declines may not occur in more stable industries. Using a sample of US-based firms from the S&P 500, we find support for our arguments when examining the future Return on Assets of firms. With market-based performance, we find support for only our career horizon arguments.

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1. Introduction

Over the last few decades, scholars have found that Chief Executive Officers (CEOs) affect strategic choices and organizational performance (Finkelstein, Hambrick, & Cannella, 2009). Intriguing questions from this perspective involve the effects of CEO age (Hambrick & Mason, 1984) and tenure (Henderson, Miller & Hambrick, 2006; Simsek, 2007) on firm performance. In particular, our study argues that CEO age and tenure are associated with hard-to-measure cognitive factors such as the CEO's career time horizon and paradigm for running the firm, and these 'unseen' factors affect firm performance in certain situations.

While CEO age and CEO tenure are usually correlated, prior research (e.g., Barker & Mueller, 2002; Musteen, Barker, & Baeten, 2006) has indicated that CEO age and CEO tenure may affect firm outcomes differentially. In recent decades, the age and tenure of CEOs have also become increasingly decoupled. As noted in the business press, there has been a dramatic decline in CEO tenure in the past two decades (e.g., Weisman, 2008), which implies a greater number of CEOs with shorter tenure even if appointed at an advanced age. In contrast, some younger CEOs, especially in technology industries, are enjoying extended tenure. Thus, given this decoupling of CEO age and tenure, we particularly focus on how CEO age and CEO tenure affect future firm performance.

The idea that younger managers attempt novel and unprecedented strategies trying to improve firm future performance is inherently tied to the 'horizon problem' (Hambrick & Mason, 1984: 198). By definition, a CEO's career horizon is a function of the CEO's age. While younger CEOs, with relatively long career horizons, are more likely to adopt risky strategies to enhance future firm financial performance, CEOs with shorter career horizons are more likely to adopt strategic postures that are risk-averse and more conducive to career security. From a personal point of view, such older CEOs may be reluctant to embrace risky strategies if the pay-off is expected to materialize after the CEO's retirement. Indeed, a number of empirical studies have shown that CEOs curtail the use of risky strategies involving R&D expenditures (Barker & Mueller, 2002) capital expenditures (Dechow & Sloan, 1991) or international acquisitions (Matta & Beamish, 2008) as their career horizons shorten.

In addition, CEOs' paradigms or schemas for running their firms affect future firm performance. Hambrick and Fukutomi (1991) explained the evolution of CEO paradigms as their tenure increases. In the early stage of tenure, newly appointed CEOs start to develop their knowledge and beliefs regarding how the firm should be managed. However, after some time, CEOs have less interest to accept new information and are unwilling to initiate strategic change due to developing a relatively fixed paradigm (Hambrick & Fukutomi, 1991). Therefore, longer-tenured CEOs risk becoming 'stale in the saddle' (e.g., Miller, 1991) where their paradigms become outdated. Researchers have found that this problem becomes even more exacerbated in dynamic environments where the constant adaptation, rather than re-use of previous knowledge, is needed for the firm to perform well (Henderson et al., 2006).

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In this paper, we argue that a CEO's career horizon and paradigm will influence the firm's future financial performance negatively when (a) the CEO reaches an age that is near or beyond conventional retirement age and (b) the CEO has extended tenure. However, these arguments are nuanced by contingencies. We argue that career horizon problems are more problematic when CEOs have high ownership. In contrast, extended tenure's performance implications depend on the level of stability in a firm's industry. Using a data set of over 200 firms from the S&P 500 in 2001, we find some support for these arguments.

2. Theory and hypotheses

Our main argument is that future performance of firms will vary with the CEOs' career horizon and tenure. Specifically, the 'horizon problem' becomes salient as CEOs near retirement age (i.e., traditionally 65 years of age in the USA) and the 'fixed paradigm problem' becomes prominent as CEOs gain longer tenure. We expect the relationship between CEO age and future firm performance to be concave, showing little association over most of the range of CEO ages. However, as CEOs approach traditional retirement age, we expect a negative relationship to develop between CEO age and future firm performance. Additionally, we expect that the power associated with equity ownership by the CEO will strengthen this relationship resulting in even lower future performance for firms with older CEOs. We also propose a negative relationship between CEO tenure and future performance moderated by the level of industry dynamism such that the negative relationship is stronger in unstable industries. The rest of this section will present the theory underlying this study.

2.1. CEO career horizon and future financial performance

As CEOs approach retirement, the potential for agency problems increases (Davidson et al., 2007; Matta & Beamish, 2008). This phenomenon is called the horizon problem. The goals of the CEO may diverge from those of shareholders when the CEO has a shorter time horizon for firm actions to *personally benefit the CEO* than the time horizon for actions maximizing shareholder wealth or long-term firm performance. Indeed, empirical research shows that firms with short-horizoned top executives follow less risky investment strategies with firm resources. For example, several studies have found that older CEOs are less likely to spend money on long-term investments such as research and development (Barker & Mueller, 2002), advertising and capital investment (Dechow & Sloan, 1991). Other studies have found that firm actions having some level of risk may also decline with CEO age such as international acquisitions (Matta & Beamish, 2008) or entrepreneurial behavior (Levesque & Minniti, 2006).

The horizon problem becomes increasingly salient as CEOs near retirement age for two reasons. First, shorter career horizons are accompanied with reduced career mobility (e.g. Veiga, 1983; Ward, Sonnenfeld, & Kimberly, 1995). Once removed from office, older CEOs are less likely to find similar positions at firms than their younger counterparts. The relative lack of job mobility for older CEOs is amplified by involuntary loss of the CEO position. Fired CEOs are often viewed in the external labor market as having less to offer prospective employers (Ward et al., 1995). These findings suggest that as CEOs age it becomes a rational *personal career strategy* (as they begin to focus on their own financial and career security) to avoid the possible employment losses associated with riskier firm strategies that may make firm performance more variable in the short-term.

Second, the idea of retirement is often dreaded by top managers. Sonnenfeld argued that some CEOs become "shrunk" individuals as their retirements begin and that as retirement age nears they "see nothing attractive in retirement and much to avoid" (1988: 33). CEOs are largely high achievers that have often dedicated much

of their life to work. Sonnenfeld (1988) characterized this work dedication and attitude with a statement made by a CEO in his study: "I want my death and my retirement to be simultaneous" (Sonnenfeld, 1988: 35). In other words, many CEOs have their identities tightly connected with the top position and therefore may want to hang onto the CEO title for years after having become less effective.

Empirically, while many of the studies cited previously have examined the association between CEO career horizon and firm decisions (e.g., investments, acquisitions, etc.), little examination has been undertaken examining the relationship between CEO career horizon and future firm performance. However, a few studies offer some insight. Child (1974) found that executive age was negatively correlated with multiple measures of company growth. Child attributed the findings to younger managers being likely to challenge the status quo and reporting greater pressure for change in their companies, which could lead to greater growth opportunities. Similarly, Norburn (1986) found that the directors of companies in growing industries tended to be significantly younger than the directors of companies in declining industries. While these studies were not designed to conceptualize the problems associated with CEO career horizon, they do suggest that shorter career horizons may be associated with lower levels of future firm performance.

If risk-averse strategies are more likely to be adopted as a CEO's career horizon shortens, negative performance implications exist for firms with CEOs having relatively short career horizons. Because CEO age is the best way to measure career horizon going forward in time (e.g., Davidson, Xie, & Ning, 2007), we hypothesize that:

Hypothesis 1. CEO age and future firm performance will have a concave relationship.

With this concave relationship, we expect a modest relationship between CEO age and future firm performance over much of the range of CEO ages. However, we expect a distinct drop in future firm performance as a CEO's age nears the mid-60s. Hence, a curvilinear relationship is expected.

2.2. CEO power, career horizon, and future financial performance

Theoretically, it may be insufficient to argue that CEOs with shorter career time horizons will negatively affect future performance. While they may have the *motivation* to maintain the status quo, they must also have the *capacity* to do so.

The traditional view of agency theory argues that CEO and shareholder interests converge when CEOs become shareholders (e.g. Fama & Jensen, 1983; Jensen & Meckling, 1976; Morck et al., 1988). Within this view, managerial ownership of equity mitigates the agency problem by reducing incentives to consume perquisites and to undertake self-interested actions at the expense of shareholders.

However, researchers have also shown that power is likely to accrue to CEOs who hold substantial stakes of their firm's equity (e.g. Daily & Johnson, 1997; Matta & Beamish, 2008; McClelland & O'Brien, 2011). CEO power from high equity ownership may be seen as a double-edged sword. On one hand, CEOs need power in order to formulate and implement strategies, and to negotiate outcomes that benefit the firm. On the other hand, CEO power has also been shown to be associated with the pursuance of individual agendas, often to the detriment of firm shareholders (e.g., Stulz, 1988). That is, CEOs with relatively high levels of ownership have a greater capacity to be free from the discipline of the firm's board, shareholders, and the market for corporate control. Hence, in arguing that power will facilitate the capacity to lengthen career horizons, we adopt the latter perspective.

Indeed, research has shown that CEO power increases as a function of equity ownership. For example, McEachern (1975) found that CEOs who had substantial equity holdings were better able to

guard against disciplining forces of capital markets. Such CEOs were able to lengthen their tenures even when their firms performed poorly. Indeed, several studies have found that CEOs with relatively large equity stakes are able to ward off unwanted takeover attempts (Buchholtz & Ribbens, 1994; Stulz, 1988).

The study that probably most supports the argument that ownership can combine with career horizon to reduce risk-taking behavior and thus future firm performance is Matta and Beamish's (2008) study of the international acquisition behavior of firms. They found that international acquisitions, which carry a significant chance of failure, were less likely to occur when CEOs had a short career time horizon and when they had significant ownership in the firm (i.e., the interaction of the two variables). They argued that short-horizoned CEOs may use ownership power to reduce the probability international acquisitions by the firm and thus reduce downside risks of failed acquisitions.

In terms of the performance-related firm effects of CEO power conveyed by equity ownership, a number of studies in finance have shown that firms run by CEOs with relatively high ownership positions perform relatively poorly in the stock market (cf., Morck, Shleifer, & Vishny, 1988; Slovin & Sushka, 1993). While making the CEO a shareholder can align CEO and shareholder interests, the power conveyed by relatively large equity stakes can also facilitate the capacity to make self-serving decisions. Indeed, it seems that managerial ownership of public firms aligns interests (i.e., increases stockholder returns) only up to a certain level of ownership and then may have entrenching effects (e.g., Florackis, Kostakis, & Ozkan, 2009). Given the arguments regarding the hypothesized career horizon and future financial performance relationship, we hypothesize the following:

Hypothesis 2. The proportion of outstanding shares held by the CEO (CEO ownership) will strengthen the hypothesized curvilinear CEO age and future firm performance relationship (i.e., make it more concave with a steeper performance drop at high age).

2.3. CEO tenure, industry condition, and future financial performance

As CEOs gain longer tenure, they have been found to display a lack of adaptability (Miller, 1991) and risk averseness (Simsek, 2007). This phenomenon may be labeled the 'fixed paradigm problem' and is associated with bounded rationality (e.g., Cyert & March, 1963). Boundedly rationale CEOs operate with a finite model, or paradigm, of how the environment exists, what strategies are available, and how the organization should operate (Hambrick & Fukutomi, 1991: 721). This paradigm is the basis for the CEO's action and may change over time as learning occurs. However, the flexibility of a CEOs' paradigm will likely vary over the length of the CEO's tenure. CEOs with relatively short tenure may be alert to environmental changes and organizational options, so they are likely to have a relatively flexible paradigm. On the contrary, CEOs with longer tenure tend to become more supportive of maintaining the status quo as their paradigm becomes more fixed (Hambrick & Fukutomi, 1991; McClelland et al., 2010; Simsek, 2007).

Several processes may contribute to the fixed paradigm problem. First, past successes of the firm and CEO may lead to overconfidence in the existing paradigm and make it resistant to change (Hambrick & Fukutomi, 1991). Second, longer tenure is also associated with increasing risk-aversion (Simsek, 2007). Risky strategies create the possibility of uncertain outcomes, and CEOs often have firm-specific human capital that may be lost if they are removed from office due to the downside risk of these uncertain outcomes. These mechanism underlie why previous studies have consistently found that increasing tenure in top managers leads to persistent strategies (e.g. Finkelstein & Hambrick, 1990; McClelland, Liang, & Barker, 2010; Miller, 1991).

Long-tenured CEO will therefore be more likely to value the *status quo* versus the unknown outcomes of enacting change. Hence:

Hypothesis 3. CEO tenure and future firm performance will have a negative relationship.

The fixed paradigm problem accompanying greater CEO tenure is more salient when there is instability in a firm's environment. Previous literature emphasized the importance of environment-organization alignment (e.g. Lawrence & Lorsch, 1967). For instance, dynamic environments demand more flexible structures and innovative strategies (Miller, 1991). Therefore, if CEOs do not effectively respond to environmental changes by updating their paradigms, firms are likely to experience a decline in performance due to environment-organization misalignment. In stable industries, the fixed paradigm problem brings less risk to future firm performance as the environment changes more slowly and the chances of a mismatch between the organization and the environment are lower.

Our arguments strongly reflect Henderson et al.'s (2006) findings about the relationship between CEO tenure and firm performance over forty years in two different industries. They found that firm performance decreased with increasing CEO tenure in the dynamic computer industry. In contrast, firm performance increased with CEO tenure in the more stable food processing industry until CEOs had been in place for more than a decade. This pattern of findings strongly suggests that industry dynamism moderates the relationship between CEO tenure and future firm performance.

Hypothesis 4. The level of industry dynamism will negatively moderate the relationship between CEO tenure and future firm performance.

3. Methods

A sample of 220 firms was randomly drawn from the 2001 Standard & Poor's 500 list. Therefore, the firms were large, publicly traded, USA corporations. Archival sources were used to complete the data set. All variables were collected for the 2001 calendar year with the exception of future financial performance, which was measured in the year 2003 (e.g., $t+2$). Missing data reduced the final sample to 206 firms.

3.1. Dependent variables

To capture actual future profitability, we used a firm's *Future return-on-assets* in 2003 (as a percentage), which would allow many decisions made in 2001 to show in firm financial performance. We also measured each firm's *Market-to-book* value for the focal year (2001) reflecting investor expectations about future cash flows. Thus, any visible firm actions that reflect the horizon problem for CEOs should be accounted for in reduced market expectations about future performance. This variable was transformed by adding a constant ('10') to a firm's market-to-book ratio and then applying a natural logarithm due to the variable's skewed nature. Data for both variables was collected from the *Standard and Poor's Compustat* database.

3.2. Independent variables

Our hypotheses revolve around two independent variables (*CEO age* and *CEO tenure*) and two moderating variables (*CEO ownership* and *Industry dynamism*). *CEO age* was measured in years in year 2001. *CEO tenure* was measured as the number of years a CEO had occupied the CEO position. Data for these variables were collected from either of two sources: the *Dun and Bradstreet reference book of corporate managements* or *Who's who in finance and industry*. *CEO ownership* was measured as the proportion of a firm's total outstanding common shares owned by the CEO. CEO equity ownership data was collected from the *Standard and Poor's Execucomp* database. The total number

of shares outstanding was collected from *Compustat*. Unexercised CEO stock options were not included because they have no voting rights and therefore are not representative of equity ownership power. Because this variable was not normally distributed and positively skewed, it was transformed logarithmically after adding a constant ('10'). Similar logarithmic transformations of equity ownership are common in the literature (e.g., Himmelberg, Hubbard & Palia, 1999). We also calculated the *Industry dynamism*, following Keats and Hitt (1988), using a two-step procedure. First, the natural logarithm of operating income for each industry (at the two-digit SIC code level) over the years 1997–2001 was regressed against time (as an independent variable), and then antilogarithms of the standard errors from these models were computed. This measure is the variability of industry growth in terms of operating income. Thus, these antilogarithms represent the degree of environmental volatility or unpredictability of change within an industry. Such measures are commonly utilized to capture the industry dynamism (see Palmer & Wiseman, 1999).

3.3. Control variables

Because we examine equity ownership as a source of CEO power and because multiple studies have shown that other components of the governance context may be substitutable in their capacity to limit CEO power (e.g., Himmelberg, Hubbard, & Palia, 1999; Rediker & Seth, 1995; Walters et al., 2007), we control our analyses for the influence of the firm's governance context. *Institutional shareholdings*, measured as a percentage of common stock held by institutions, was collected from *Standard & Poor's research insight*. *Separation of the CEO and chairperson* position (a dummy variable coded as '1' when separate people held the positions) and *Proportion of outside directors* on the board for 2001 were collected from SEC filings as reported by *The Corporate Library* research service (www.thecorporatelibrary.com). Because debt in a firm's capital structure can act as a governance mechanism, we also measured a firm's *Debt-to-assets* ratio, defined as total firm debt divided by total firm assets expressed as a percentage. Data for this variable was collected from the *Compustat* database. We also controlled for *Total CEO compensation* for 2001 including salary, bonuses and other forms of annual compensation. Data for this variable were collected from *Execucomp* and were measured in millions of dollars. Additionally, we controlled for *Firm size* using the natural logarithm of the number of firm employees (in thousands), which was collected from *Compustat*. Finally, we included the *CEO change (in interim 2 years)* due to the time lag when measuring *Return-on-assets* in 2003 as a dependent variable, but not for *Market-to-book* value. When there was a change of CEO between 2001 and 2003, we included a dummy variable coded as '1', otherwise 0.

4. Analyses

The hypotheses were tested using hierarchical regression analyses. Hierarchical regression is a conservative method of testing the hypotheses because control variables are entered first into the regression model before the variables of theoretical interest are analyzed. The variable means, standard deviations, and correlations for the data are reported in Table 1.

Cook–Weisberg tests of the full regression models for both performance variables revealed the presence of heteroskedasticity ($p < .0001$), thus we used robust standard errors in our analyses (see Huber, 1967; White, 1982) to correct for heteroskedasticity. We analyzed both performance measures in five steps. In the first step, dummy variables were added for a sample firm's primary two-digit SIC code as reported by *Compustat*. Doing so allowed us to control for industry structure effects on firm performance. We do not include individual industry dummy variables in Table 1 or the regression models reported in Table 2 for parsimony. Instead, we reported the number of industry dummy variables whose coefficients were significant at the $p \leq .05$ level.

Table 2 shows the results for *Future return on assets*. Model 1 adds the industry dummies. Model 2 adds CEO variables as well as firm, governance and other control variables. The direct effect of *CEO Age* is not significant. To test for the hypothesized curvilinear effect of *CEO Age*, we mean-centered the *CEO Age* variable (subtracting the mean), squared it (i.e., made it a quadratic) and entered it into the model as *CEO age – squared* (e.g., Cohen, Cohen, West, & Aiken, 2002) in Model 3. The results indicate no support for Hypothesis 1 at conventional significance levels. Model 4 shows the results for the test of Hypothesis 2 where the interaction between *CEO age – squared* and *CEO ownership* is entered. We find support for the Hypothesis 2 that *CEO ownership* moderates the curvilinear effect of *CEO age* ($p < .01$).

Hypothesis 3 was not supported as *CEO tenure* had no significant direct effect in Model 2 (when entered alone) or in Models 3 and 4. We included the interaction term of *CEO tenure* and *Industry dynamism* in Model 5 in Table 2. The results indicate that this interaction term is statistically significant ($p < .05$), so Hypothesis 4 is supported. For testing interactions, all continuous variables were mean-centered following the advice of Cohen et al. (2002).

While we report adjusted R-square statistics for models in Table 2, which can be interpreted similarly to the traditional OLS R-square statistics, no F-tests are reported because such tests are not interpretable when using robust standard errors (see STATA Base Reference Manual, Vol. 3, 2003: 336–337). STATA does report the probability that all coefficients of the variables in the model are equal to zero (similar to an F-test) which we report in Table 2 (Stata Press, 2003).

Table 1
Means, standard deviations and correlations.

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Future return on assets	4.22	7.50												
2. Market-to-book value	2.42	.13	.68											
3. Firm size	3.47	1.15	-.07	-.10										
4. Institutional holdings	67.75	17.31	-.09	-.11	.03									
5. Total CEO compensation	12.18	15.80	-.01	.07	.16	-.10								
6. Separation of the CEO and chairperson	.18	.39	.12	.24	-.17	-.04	.17							
7. Debt-to-assets ratio	27.75	16.55	.00	-.22	.08	.08	-.10	-.17						
8. Proportion of outside directors	.63	.23	-.07	-.11	.11	.22	-.04	-.16	.12					
9. CEO ownership	2.38	.21	.13	.21	-.11	-.08	-.12	-.09	-.16	-.20				
10. CEO tenure	6.89	6.81	-.01	.06	-.04	.02	-.10	-.18	-.09	-.09	.66			
11. CEO age	57.01	5.94	-.05	-.06	.09	.03	-.06	-.28	.04	-.03	.26	.38		
12. CEO change	.10	.30	-.20	-.02	.01	.13	.03	-.03	.01	-.07	-.01	.07	.10	
13. Industry dynamism	1.07	.10	.07	.15	-.16	.07	.12	.12	-.17	.03	.05	-.03	-.15	-.05

Note: N = 206. All numbers are rounded to the second decimal place. Correlations with absolute values greater than .14 are significant at $p < .05$ using a two-tailed test.

Table 2

Regressions of controls and CEO characteristics on future return on assets (two years later).

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	4.36*** (.81)	4.44*** (1.08)	4.43*** (1.32)	4.73*** (1.08)	5.05*** (1.17)
Industry, firm and governance controls					
Industry dynamism		16.83 (15.33)	15.43 (15.95)	15.91 (15.93)	20.49 (21.88)
Firm size		−1.26* (.74)	−1.21* (.73)	−1.48* (.75)	−1.47* (.72)
Institutional shareholdings		−.06 (.05)	−.06 (.05)	−.06 (.05)	−.06 (.05)
Separation of the CEO and chairperson		1.39 (1.43)	1.48 (1.45)	1.37 (1.43)	1.49 (1.44)
Debt-to-assets ratio		−.03 (.06)	−.03 (.11)	−.04 (.06)	−.04 (.06)
Proportion of outside directors		2.07 (2.34)	1.91 (2.31)	2.04 (2.26)	1.97 (2.29)
Total CEO compensation		.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)
CEO change (in interim 2 years)		−5.74* (2.94)	−5.82* (2.95)	−5.82* (2.95)	−6.27* (2.98)
CEO characteristics					
CEO ownership		2.62 (4.18)	3.71 (4.24)	3.01 (3.24)	6.31* (3.50)
CEO tenure		−.08 (.12)	−.10 (.12)	−.13 (.12)	−.14 (.12)
CEO age		.00 (.10)	.03 (.11)	.11 (.10)	.12 (.11)
CEO age — squared			−.01 (.01)	−.00 (.01)	−.00 (.01)
CEO ownership × CEO age				1.03* (.63)	1.26* (.65)
CEO ownership × CEO age — squared				−.15** (.05)	−.16** (.06)
CEO Tenure × industry dynamism					−1.82* (1.05)
# Industry dummy variables (significant at $p < .05$)	22	15	15	17	17
Adjusted R-square	.20	.28	.28	.30	.31
Probability that all variables in model have coefficients equaling zero $p < .001$		$p < .001$	$p < .001$	$p < .001$	$p < .001$

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$, one-tailed tests. $N = 206$. Regression coefficients are unstandardized with robust standard errors in parentheses. Both are rounded to the second decimal place. Individual industry dummy variables are not reported for parsimony.

In order to demonstrate the moderating nature of ownership, we graphed the relationship between *CEO Age* and *Future return on assets* in Fig. 1 over the range of CEO ages in the sample at three different levels of *CEO Ownership* (e.g., *mean ownership*, $+1$ s.d. for *high ownership*, -1 s.d. for *low ownership*). The graph in Fig. 1 is constructed from the regression results from Model 5 in Table 2. The numbers on the left axis represent performance in the industrial equipment industry. While the relative relationship is the same across all industries, the future ROA numbers on the left axis shift if an industry dummy variable is significant. For example, the dummy variable for SIC Code 28 (Chemicals and Allied Products, including Pharmaceuticals) had a value of 6.99 and was significantly different from zero ($p < .01$) (not reported in Table 1 for parsimony). Therefore, for SIC Code 28, the graph looks exactly the same but the reader would add about 7 (e.g., 6.99) to the numbers on the left axis. As can be seen from Fig. 1, *CEO ownership* acts as a disordinal moderator as it changes the shape of the relationship between *CEO age* and *Future return on assets* (see Malhotra, 2004, for more discussion on disordinal moderators).

A number of observations can be drawn from Fig. 1. First, no substantial horizon problem existed for the “average firm” that had around the mean level of CEO ownership. Indeed, there is a very slight positive but near zero relationship between *CEO age* and *Future return on assets* for the firms in our sample (e.g., the dashed line in Fig. 1). This would explain why the coefficients for *CEO Age* or *CEO age — squared* were not significant in Model 2 in Table 2. At average ownership levels, virtually no relationship exists in our sample between CEO

age and future firm performance. Second, we see very little future performance differences between firms with CEOs ranging about 53 to 68 years in age. The lines for mean, low, and high *CEO ownership* are clustered in the same range of future ROA during that age range.

However, we do see a horizon effect exhibited for the high *CEO ownership* firms in Fig. 1. At about the traditional retirement age (mid-60s), future ROA starts to go down as CEOs become older. This trend continues to accelerate to the highest *CEO age* in the sample. At low *CEO ownership* firms, we do not see a deterioration of performance with very advanced age. One of the main reasons seems to be that very few low ownership CEOs stay in office until a very advanced age. As seen on Fig. 1, we stopped graphing the line for low *CEO ownership* at age 69 since no CEO with ownership less than one standard deviation below the mean level of ownership was older than 69 years of age in 2001.

Fig. 1 reveals several other interesting findings. First, the highest level of future firm performance comes from CEOs that are (1) young and (2) have low ownership. This finding is consistent with these CEOs having the longest career horizons and making strategic decisions that increase future firm performance. The most surprising finding is that young, high-ownership CEOs performed poorly. However, this part of the graph was sparsely populated with CEOs given the positive correlation between *CEO age* and ownership levels ($r = .26$, see Table 1).

We also graphed the effect of *CEO tenure* and *Industry dynamism* on *Future return on assets* in Fig. 2, based on the results in Model 5 in Table 2. As seen in Fig. 2, *Industry dynamism* moderates the relationship between *CEO tenure* and *Future return on assets*. Similar to Henderson et al. (2006) finding, *CEO tenure* has a negative relationship with future ROA in dynamic industries. Also mimicking their findings, our results show that increasing *CEO tenure* has a slight positive relationship with future ROA in less dynamic industries. Where our results deviate from their results was that we never found a turning point in less-dynamic industries where excessive *CEO tenure* began to hurt future performance. In unreported analyses, we tested for such an effect by inserting a squared term (i.e., *CEO tenure* × *CEO tenure*) in the models. These squared terms were not significant at conventional levels ($p < .05$ or lower).

For parsimony, the *Market-to-book* value results are not reported in tabular format but are available from the authors. Consistent with

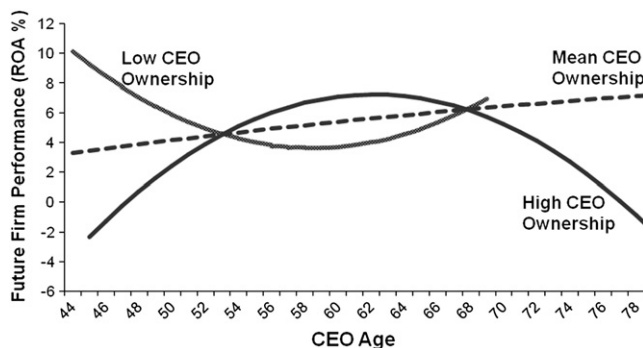


Fig. 1. Relationship between CEO age and firm performance at various ownership levels.

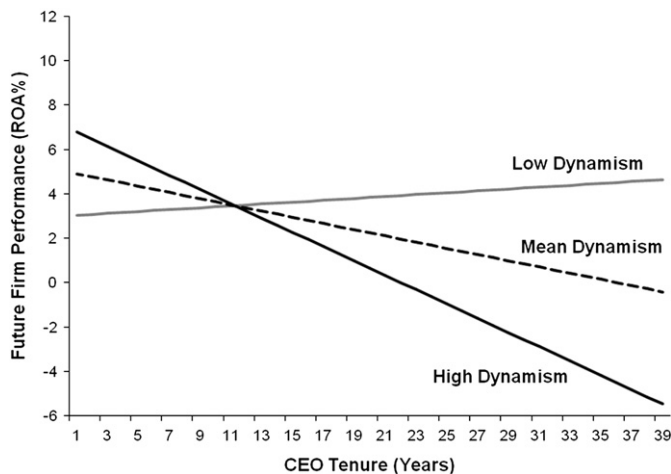


Fig. 2. Relationship between CEO tenure and firm performance at various dynamism levels.

the *Future return on assets* results, we found that *CEO ownership* significantly moderated the relationship between *CEO age – squared* and *Market-to-book* value ($p < .05$; Hypothesis 2 supported). When graphed out, the interaction was similar in shape to the results reported in Fig. 1. However, in a change from the *Future return on assets* results, no moderating effect was found for *Industry dynamism* on the relationship between *CEO tenure* and *Market-to-book* value. While the regression coefficient on the interaction terms was in the hypothesized direction, the size of the effect was not significantly different from zero ($p > .05$; Hypothesis 4 not supported).

5. Discussion

The main findings of this study are that (a) shorter CEO career horizons, coupled with higher levels of ownership, lead to lower future financial and market performance and (b) that longer CEO tenure generates lower future financial performance in dynamic industries but not in stable industries.

However, it is important for readers to understand the nuances of our findings. For example, one should not draw the blanket conclusion that older CEOs reduce future performance. Again referring to Fig. 1, lower future ROA happens only on average when older CEOs hold high ownership positions in their firms. Indeed, CEO age has very little effect on future performance around mean levels of CEO ownership. Similarly, increasing CEO tenure does not necessarily hurt performance. Increasing tenure only hurts performance on average in highly dynamic industries. As shown in Fig. 2, future ROA tends to actually increase slightly with tenure in more stable industries.

What do our findings mean for thinking about the performance effects of CEO tenure and age? Their effects depend on the contingencies or conditions the firm faces. In dynamic environments, CEO paradigms become increasingly obsolete as tenure increases with negative implications for future performance. In less dynamic environments, the continual development and implementation of existing paradigms may actually increase performance or at least not hurt it. In terms of age, the main contingency seems to be the ability of CEOs to entrench themselves with high levels of ownership when they have very short career horizons. In other words, short career time horizon plus the power conveyed by ownership can be a recipe for deteriorating future performance.

5.1. Theoretical implications

In terms of implications for theory, our findings suggest that CEO ownership may have mixed effects on the performance of publicly traded firms. While acknowledging that management equity ownership

increases the level of management power, many scholars have promoted equity ownership as a cure to agency conflicts at firms arguing that it acts as an incentive to maximize shareholder value (e.g., Jensen & Meckling, 1976). However, the role of management equity ownership is more complex (cf. Himmelberg et al., 1999). Some of this complexity stems from the power-enhancing effects of relatively high levels equity ownership that allows CEOs to effectively gain control of the firms they manage. Management control may work against shareholders in certain situations. For example, found high equity ownership interacts with a short CEO career horizon to reduce future firm performance. Indeed, the power associated with high levels of equity ownership can enable shorter-horizoned CEOs to pursue less risky strategies that hurt long term shareholder value such as under-investing in research and development (e.g., Barker & Mueller, 2002). However, absent short career horizons, the power associated with relatively high levels of equity ownership has less of an effect on future financial performance.

Another contribution was the finding that CEOs with relatively long tenures may have a detrimental effect on future financial performance in dynamic industries. Previous literature found that the effects of CEO tenure on financial performance are contingent on several factors such as managerial discretion (Finkelstein & Hambrick, 1990) and board of directors (Walters, Kroll, & Wright, 2007). Indeed, Henderson et al. (2006) found that industry dynamism is a key moderating factor in the relationship between CEO tenure and firm performance. However, in operationalizing industry dynamism, Henderson and colleagues used a sample of firms in only two industries (food industry versus computer industry). Our study used firms from various industries across the S&P 500, enhancing the generalizability of their previous finding.

5.2. Limitations

This study is not without limitations. Most of our study design is cross-sectional. However, cross-sectional data can indicate if an association exists and whether a theory is plausible (see Child, 1974: 176). Also, by lagging our explanatory variables by two years from future ROA, we can make stronger causality inferences than purely cross-sectional studies. Second, our sample size of 206 firms, although adequate to find support for many of our hypotheses, lacks the size to smaller-effect-size relationships. Third, since much of our theory about CEO age is based on a decreased appetite for risk that comes with a shorter career horizon, our results might be different in recent years (our sample year was 2001 with 2003 financial performance) where more risky positions could have been punished with performance declines due to general economic weakness and the global financial crisis. Therefore, we cannot speculate beyond the 2001–2003 time frame of our study. Lastly, the sample is composed of large USA-based corporations. Owning even a small percentage of shares in these large firms may place CEOs in unique positions of power and wealth making our results specific to very large firms. If the firms were headquartered outside the USA, the results might be different. Governance mechanisms work differently in other cultural-legal environments (Firth, Fung, & Rui, 2007), so generalizability outside the USA is limited.

6. Conclusion

The strategy literature has made great strides in identifying relationships between various CEO characteristics and firm outcomes. This study uniquely adds to that body of knowledge. We find that the relationship between CEO career horizon and performance is affected by the extent to which the CEO wields power associated with high levels of equity ownership. This finding is intriguing and opens an entirely new avenue for governance researchers interested in the effect that the power conveyed by relatively high levels of equity

ownership conveys vis-à-vis other governance mechanisms. Our findings also reaffirm contentions that CEO tenure may have differential effects on firm performance contingent on the industry conditions. Taken together, we propose that further examination of the performance implications of CEO characteristics such as career time horizon, tenure, and power is warranted.

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