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CEOs Under Fire: The Effects of Competition from Inside Directors on Forced CEO Turnover and CEO Compensation

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Abstract

This study examines board monitoring when a credible chief executive officer (CEO) replacement is on the board. Inside directors whose talents are in greater demand externally, as reflected by their holding outside directorships, are more likely to become CEOs, and their presence is associated with greater forced CEO turnover sensitivity to accounting performance and CEO compensation sensitivity to stock performance. These results reveal that certain insiders strengthen board monitoring by serving as a readily available CEO replacement and contradict the presumption that all insiders are under CEO control. Furthermore, the results persist when accounting for the endogenous firm selection of talented inside directors.

I. Introduction

Having immediate access to a talented replacement allows boards to respond quickly to a poorly performing chief executive officer (CEO). When the board forcefully removes a CEO, the common view is that it will look for an outside replacement since all insiders are associated closely with the ousted CEO. However, outside searches are time consuming, thus deterring boards from quickly responding to poor performance. In fact, while the frequency of outside succession does increase for forced departures, evidence shows that insiders still represent a significant portion of CEO replacements,[1] suggesting that certain insiders are valuable resources for their boards. So how can one identify these valuable

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[1] In a sample of forced CEO departures, Parrino (1997) finds 50.4% of the new CEOs were insiders.

insiders? This study uses outside directorships, on the basis that the external directorship market is an effective mechanism for identifying managerial skill (Fama and Jensen (1983)), to identify talented inside directors who can represent credible CEO replacements and tests whether these insiders are associated with stronger board monitoring.

Anecdotal evidence reveals that talented inside directors can be valuable assets for boards when CEOs perform poorly. For example, Home Depot's board removed CEO Robert Nardelli following a 23% drop in earnings in 1 quarter from the previous year's results and replaced him with an inside director, Executive Vice President Frank Blake.[2] After the transition, a person close to the board noted, "Not only did [the board] act in a timely fashion, but in an orderly and complete fashion."[3] This example underscores the value of having a skilled replacement readily available should a forced leadership change become necessary.

Consistent with the anecdotal evidence and the predictions of greater board monitoring, I find that having a talented inside candidate available on the board is associated with greater forced CEO turnover sensitivity to accounting performance. In addition, reinforcing the turnover evidence and consistent with the external labor market's ability to identify the more talented inside directors, I find that inside directors who hold an outside directorship are more likely to be appointed as CEO relative to other inside directors.[4]

Using an external mechanism to distinguish among directors, rather than an internal choice variable, ameliorates the endogeneity concern. Nonetheless, the results remain robust to several tests controlling for various forms of endogeneity, such as unobserved firm-fixed effects and the private choice by firms to have talented inside directors. This evidence further reveals that the firms selecting talented insiders are those that benefit the most from the greater board bargaining power they provide. The results are also robust to the exclusion of observations when the CEO is near retirement and to controlling for the presence of a succession plan, casting doubt on a reverse causality explanation of external firms selecting a known successor as a director. The results are also robust to controlling for the presence of a talented outsider on the board.

I further explore the bargaining power talented inside directors afford their boards by examining their association with CEO compensation contracts. When they are present, CEO compensation contracts exhibit greater pay-performance sensitivity (PPS), consistent with stronger, more independent boards (Mehran (1995), Ryan and Wiggins (2004)) and better alignment of CEO interests with those of shareholders (Jensen and Meckling (1976), Jensen and Murphy (1990)). These findings also reflect greater board bargaining strength and internal labor market competition constraining CEO power (Bebchuk and Fried (2003)). Finally, firms with talented insiders are also associated with lower levels of cash-based CEO compensation.

[2]*The Wall Street Journal,* "New Leader Is Renowned for Vision" (Jan. 4, 2007).

[3]*The Wall Street Journal,* "For Boards, Firing or Keeping a CEO Can Be a Tough Call" (Oct. 22, 2007).

[4]Mr. Blake was also a director of the Southern Company at the time of his appointment as CEO of Home Depot.

The findings contribute to the literature in several important ways. First, they extend the literature on the role of inside directors, which has focused on the information-providing role of insiders and the board's advisory function (e.g., Adams, Almeida, and Ferreira (2005), Adams and Ferreira (2007), Baranchuk and Dybvig (2009), and Harris and Raviv (2008)). Surprisingly, given the high frequency of internal successions even among forced departures, there is little research examining the association with inside directors and the board's monitoring role. Drymiotes (2007) and Raheja (2005) provide theoretical insight as to how insiders can enhance board monitoring. Drymiotes shows that boards with more insiders can commit to greater levels of monitoring ex ante because the greater access to firm-specific information they can provide helps the board to more precisely reward or punish the CEO. Extending this idea, the presence of a talented inside director can also enable the board to commit to greater monitoring ex ante by serving as a readily available CEO replacement. Similarly, Raheja shows that as insiders compete to become the next CEO, they have greater incentives to share information with outside directors. This study adds to these theoretical findings by providing initial empirical evidence on the relation between certain inside directors and board-monitoring outcomes.

Second, forced CEO turnover sensitivity to performance and CEO compensation contracts are two outcomes used in the literature to assess board effectiveness in monitoring (Hermalin and Weisbach (2003), Jensen and Murphy (1990)). However, current research in these areas (e.g., Core, Holthausen, and Larcker (1999), Hallock (1997), Huson, Parrino, and Starks (2001), Huson, Malatesta, and Parrino (2004), Mehran (1995), and Weisbach (1988)) focuses primarily on outside directors and their differing degrees of independence. This study provides the 1st empirical association between certain inside directors and greater forced CEO turnover and CEO compensation sensitivity to performance, contributing to this vast literature.

Finally, because the research here examines an avenue by which certain inside directors can strengthen board monitoring by serving as a valuable CEO replacement, it provides an additional explanation beyond information transparency for the relation between certain insiders and better firm performance and value (Coles, Daniel, and Naveen (2008), Masulis and Mobbs (2011)). The study also verifies that outside directorships can serve as a signal of talent for non-CEO inside directors. Masulis and Mobbs use outside directorships to identify insiders with information-sharing incentives, but they do not examine whether directorships serve to identify talent or improve the key monitoring functions of the board. However, they do argue that better information sharing should improve board monitoring. In sum, these findings reveal that differentiation among inside directors is important when examining how insiders affect board monitoring and the importance of internal competition in pressuring CEOs to perform.

The remainder of the paper proceeds as follows: Section II reviews the related literature and develops the hypotheses. Section III discusses the sample and descriptive statistics. Section IV contains the analysis of insiders promoted to CEOs. Sections V and VI report CEO turnover and compensation analyses. Section VII concludes. The Appendix lists all variable definitions.

II. Literature Review and Hypotheses Development

A. Insider Talent

It is not surprising that insiders are the most frequent CEO successors given their valuable firm-specific human capital. Even among forced departures, insiders represent roughly half of the successors (Borokhovich, Parrino, and Trapani (1996), Huson et al. (2001), and Parrino (1997)). Even if an insider does not replace the CEO, they have incentives to distance themselves from a faltering top executive to maintain their own reputation. Greater alignment with the board and independence from a poorly performing CEO increases the executive's chances of remaining with the firm following the removal of the CEO. For example, following the forced departure of former Hewlett-Packard (H-P) CEO Mark Hurd and the appointment of an outside successor, several top executives also left the firm, perhaps due to their association with the ousted CEO (Fee and Hadlock (2004), Helmich and Brown (1972), Helmich (1974), and Hermalin and Weisbach (2003)), but one executive, Ann Livermore, also considered a CEO candidate, remained.[5] This reveals that boards do not view all insiders equally when managing a forced CEO departure.

The most valued insiders, and potential CEO candidates, of a firm are those on the board (Fama and Jensen (1983), Hermalin and Weisbach (1988), and Mobbs and Raheja (2012)). However, some insiders could be on the board simply due to their loyalty to the CEO. These inside directors are unlikely optimal candidates to replace the current CEO, especially if they are more dependent upon him or her for their position than on their own talents. In fact, their presence can lead to greater CEO influence and weaker boards that are associated with CEO turnover and compensation contracts that are less sensitive to performance. On the other hand, more talented inside directors who possess CEO-type decision management and control skills likely earned their board position based on their own merit. Thus, when analyzing board-monitoring outcomes, it is important to distinguish between these two types of inside directors.

Research on planned succession has used titles (Naveen (2006)) and combinations of titles, compensation, and board membership (Mobbs and Raheja (2012)) as a means of distinguishing among inside executives. However, these internally designated features most likely represent the CEO's assessment of the executive, rather than an external unbiased assessment by a market mechanism, and thus do not allow one to distinguish insiders who are more talented in their own right from those who have gained their position simply due to their association with their CEO.

Masulis and Mobbs (2011) argue that unaffiliated outside directorships can serve to certify which insiders are not merely supportive of the CEO and are motivated to share information with outside directors. In addition to certification, unaffiliated outside directorships, unlike firm-designated characteristics, can provide external independent recognition of the executive's talent. In the H-P

[5] *The Wall Street Journal,* "H-P Puts Executive Shake-Up in Motion" (June 14, 2011).

example, an independent firm, United Parcel Service, Inc. (UPS), recognized the skills of Ms. Livermore, the one retained insider, as was evident in her election to its board. Fama and Jensen (1983) reasoned that directorships are signals to both external and internal markets recognizing valuable and highly regarded individuals. External identification of inside director talent through directorships should therefore correspond to a greater likelihood of their becoming a CEO. This is especially true in their own firms, given their firm-specific knowledge, but the exposure of their talents to a greater number of executives and directors in other industries also increases their likelihood of becoming a CEO elsewhere. The 1st hypothesis follows:

Hypothesis 1. Talented inside directors, those with an outside directorship, are more likely to become CEOs in their own firms or elsewhere than are other inside directors.

B. Forced CEO Turnover Sensitivity to Performance

Labor market competition provides a threat of termination for all CEOs, but the strength of the threat varies with the CEO's exposure to this market force (Bebchuk and Fried (2003), Fama (1980)). Research has shown that boards are more responsive to poor performance when the external labor market is active in providing access to potential replacement CEOs (Hermalin (2005)), such as when the firm operates in a more homogeneous industry (Parrino (1997)) or the board has more outside directors with connections to other firms and industries (Weisbach (1988)). Likewise, CEOs exposed to an active internal labor market should face an even greater likelihood of termination when performance suffers, given the lower search cost for the board.

If talented inside directors are qualified CEO candidates (Hypothesis 1), it follows that the internal labor market for these firms is more active. Since the availability of qualified CEO candidates within a firm reduces its search costs, these boards can respond faster to a poorly performing CEO and avoid prolonged poor performance. Thus, forced CEO departure is more likely and more sensitive to performance. Periods of poor performance can also accentuate the differences between talented inside directors and those more dependent upon the CEO. Talented inside directors have incentive to reveal operational information that can distance them from a poor CEO and preserve their own reputational capital as they contend for the CEO position themselves (Gibbons and Murphy (1992), Raheja (2005)). On the other hand, dependent insiders have incentive to strongly support the CEO, paint a rosier picture of operations, and argue against replacement for fear of losing their own position. Thus, the information received by the board can vary dramatically based on insider type. Using accounting performance as a signal of CEO ability and operational effectiveness (Weisbach (1988), Hermalin and Weisbach (1998), and Fich and Shivdasani (2006)), the 2nd hypothesis follows:

Hypothesis 2. Talented inside directors are associated with a greater forced CEO turnover likelihood and a greater forced CEO turnover sensitivity to accounting performance.

C. Executive Compensation Structure and Board Bargaining Power

Hermalin and Weisbach (1998) model board evolution and show that CEOs with more bargaining power have CEO-friendly boards, greater entrenchment, and higher CEO-friendly compensation. Bebchuk and Fried (2003) take a similar perspective and argue that when CEOs are more influential or insulated from competitive forces, compensation is less sensitive to performance. Conversely, CEOs governed by greater labor market competition and stronger boards (Hypothesis 2) are expected to have compensation contracts more reflective of shareholders' interests and thus more sensitive to performance.

Mehran (1995) and Ryan and Wiggins (2004) find a positive association between the percentage of outside directors and the proportion of equity in CEO compensation packages. These findings imply that inside director representation is associated with less performance-sensitive CEO compensation and thus weaker board bargaining. However, if differences exists among inside directors, these prior studies would not have observed them. Just as differences among outsiders are important when considering CEO compensation contracts (Chhaochharia and Grinstein (2009), Hallock (1997), and Hwang and Kim (2009)), differences among insiders can be important. If talented inside directors serve to increase competitive labor market pressure on the incumbent CEO, thereby improving board bargaining, their presence should be associated with less CEO power and, correspondingly, compensation contracts with greater alignment with shareholders and greater overall PPS. This leads to the next hypothesis.

Hypothesis 3. Talented inside directors are associated with compensation contracts that have greater PPS.

III. Data and Descriptive Statistics

Director data are from RiskMetrics, firm data are from Compustat, and CEO compensation data are from ExecuComp. The sample period is from fiscal years 1997–2006. RiskMetrics has director-level information for approximately 1,500 firms each year, including the number of other directorships; their classification as either an employee of the firm, an outsider affiliated with the firm, or an independent outsider; and a flag that indicates if the director is a CEO.[6] Talented inside directors are insiders who have at least one unaffiliated outside directorship, with their 1st outside directorship obtained after joining their own board.[7] Founding family membership is hand collected from proxy statements.

RiskMetrics has 148,795 director-year observations for 3,085 firms, or 15,479 firm-years over the course of the 10-year period. Merging these data with Compustat results in 15,215 firm-year observations for 2,832 firms. After excluding

[6]No CEO is listed for 391 firms, and of these, if the firm has an insider listed as President, Chairman, or there is only one insider listed for the firm, that insider is identified as the CEO. Twenty-four firm-year observations with no insiders listed and 75 firm-year observations with multiple CEOs are excluded.

[7]Excluding the insiders with an outside directorship prior to joining their own board as talented insiders rules out the endogenous possibility that firms added the talented insiders to the board only after determining that they are the likely CEO successors.

finance and utility firms,[8] due to differences in accounting and regulation, the final sample consists of 12,166 firm-year observations for 2,231 firms. All variable definitions are in the Appendix.

Table 1 reports the descriptive statistics of the key variables. Seven percent of the firm-years have at least one talented inside director.[9] Mean (median) total annual CEO compensation is slightly over $5 ($2.6) million. Annual CEO

TABLE 1

Descriptive Statistics of Sample Firms

Table 1 presents the descriptive statistics for the sample of 12,166 firm-year observations for 2,231 firms from fiscal years 1997–2006, excluding finance and utility firms. The accounting data are from Compustat. Firm age is the number of years the firm as been listed in CRSP. Leverage is long-term debt plus debt in current liabilities divided by total assets. Research and development (R&D) is the maximum of either data46 from Compustat or 0. Volatility is the standard deviation of the past 3 years of monthly stock returns from CRSP. CEO ownership and Board ownership are from RiskMetrics and are winsorized at the 1% and 99% levels. Founder on board equals 1 if at least 1 of the directors is the founder. Founding family member on board equals 1 if a relative of the founder is on the board. Board data are from RiskMetrics. Percent independent and Percent affiliated directors are the number of the respective directors as a percent of board size. Separate inside chairperson equals 1 if an inside director other than the CEO is the chairperson. Talented insider present equals 1 if the firm has at least 1 non-CEO inside director who holds at least 1 independent outside directorships and held no outside directorships when appointed to their own board. CEO total compensation consists of salary, bonus, the Black-Scholes (1973) value of option grants, restricted stock grants, long-term incentive payments, and other annual compensation (ExecuComp data item TDC1). CEO pay-performance sensitivity (PPS) is the shares held by the CEO plus the options held times the options delta, all divided by the shares outstanding, and represents CEO wealth change per $1,000 increase in shareholder wealth. Turnover equals 1 if the firm CEO changed from the previous fiscal year. Forced turnover equals 1 if the CEO turnover was identified by press releases to be nonvoluntary. Turnover variables are from 1998 through 2006. Variable definitions are in the Appendix.

Variable	*N*	Mean	Median	P25	P75
Panel A. Firm Characteristics					
Assets ($1,000,000)	12,077	5,258	1,112	471	3,188
No. of business segments	12,166	2	1	1	3
Firm age	12,017	21	14	7	30
Leverage	12,038	0.22	0.21	0.05	0.34
Capital expenditure / sales	11,947	0.12	0.04	0.03	0.08
Depreciation / sales	12,028	0.07	0.04	0.03	0.07
R&D / assets	12,077	0.03	0.00	0.00	0.04
Volatility	11,983	0.13	0.12	0.09	0.16
Panel B. Ownership and Board Characteristics					
CEO ownership (%)	11,726	4.20	1.39	0.54	3.65
Board ownership (excluding CEO) (%)	11,711	6.43	1.73	0.49	6.21
Founder on board	12,166	0.17	0	0	0
Founding family member on board	12,166	0.10	0	0	0
Board size	12,166	8.92	9	7	10
Percent independent board (%)	12,166	65.4	66.7	55.6	80.0
Percent affiliated directors (%)	12,166	13.5	11.1	0.0	22.2
Separate inside chairperson	12,166	0.14	0	0	0
Talented insider present	12,166	0.07	0	0	0
Panel C. CEO Compensation					
Total compensation ($1,000)	10,858	5,238	2,604	1,243	5,462
Salary and bonus ($1,000)	10,873	1,374	975	596	1,640
Equity compensation ($1,000)	10,873	3,151	932	0	2,906
Pay-performance sensitivity (PPS)	7,361	35.51	18.89	7.50	38.64
Turnover	9,935	0.15	0	0	0
Forced turnover	9,935	0.03	0	0	0

[8]Finance and Utility firms are in the Fama-French (1997) industry codes 31 and 45–48. Throughout the analysis I use their refined industry classifications as listed at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_49_ind_port.html.

[9]This sample differs from Masulis and Mobbs (2011), since they exclude observations when the CEO is near retirement. Here those observations are included unless otherwise noted. In addition, Masulis and Mobbs include all inside directors who may have held their outside directorships prior to joining their board.

cash-based mean and median compensation are $1.37 and $.975 million, respectively. These are similar to the $1.1 and $.83 million found in a similar sample from 1992 to 2002 in Coles, Daniel, and Naveen (2006). Finally, mean (median) CEO PPS is $35.5 ($18.9) per thousand-dollar increase in shareholder wealth, similar to that reported in Aggarwal and Samwick (2003).

CEO turnover, identified by a change in the CEO classification for a firm, occurs in 15% of the firm-year observations for which data are available for the previous year's board structure. Forced CEO turnovers, a more direct indicator of board monitoring, are determined by examining press releases. Specifically, the CEO turnover is classified as forced if the release states the departing CEO was fired, the departing CEO is less than 60 years of age, and there was no mention of health concerns or another position or a retirement was not announced at least 6 months prior.[10] Departures due to death are not included. Forced turnover occurs in 3% of the observations, representing 20.5% of all CEO turnovers. This is similar to studies of earlier periods (Fich and Shivdasani (2006) and Parrino, Sias, and Starks (2003) find forced departure rates of 18% with 1989–1995 data and 19% with 1982–1993 data, respectively) and is consistent with the increasing trend of forced CEO departures (Hermalin (2005), Huson et al. (2001)).

IV. Inside Directors Promoted to CEO

This section examines whether outside directorships represent a useful mechanism for distinguishing CEO talent among inside officer-directors. Panel A of Table 2 reports the frequency of inside directors promoted to CEO within the sample. Since the sample is comprised of the largest publicly traded firms, these promotions represent the most visible and prestigious CEO positions. There were 506 inside directors promoted to CEO (6.48%) within the sample. Most were internal successions (5.91%), though some inside directors did leave to become the CEO at another firm. A significantly greater percentage of talented inside directors became CEOs (11.4%) compared to other inside directors (5.9%). Moreover, talented insiders became CEOs significantly more frequently in either their own firm (9.2%) or elsewhere (2.2%).

Since boards are likely to have more inside directors close to a planned succession for evaluation or grooming purposes (Hermalin and Weisbach (1988)), it is possible that unaffiliated firms choose these insiders to be on their board only after the executive's firm recognizes them as a CEO successor. This would lead to a similar relation between holding an outside directorship and the likelihood of becoming a CEO, but it would not reflect externally verified talent. If this is the case and external directorships are not a signal of talent, then one does not expect to find a greater frequency of inside directors with outside directorships becoming CEOs when a succession is not likely. The last 2 columns of Panel A of Table 2 report CEO promotions for insiders in firms whose CEO is less than 59 years old. Within this smaller sample, talented inside directors still became CEOs significantly more frequently than did other inside directors.

[10]I thank Ronald Masulis and Lixiong Guo for sharing hand-collected forced CEO departure data. See Guo and Masulis (2012).

TABLE 2

Promotions to CEO of Inside Directors within the Sample

Table 2 reports the proportion of all non-CEO inside directors in the RiskMetrics director database that are promoted to CEO the following year from 1997 through 2005, excluding those in finance and utility firms (Fama-French (1997) industry codes 31 and 45–48). There are 506 non-CEO executive directors promoted to CEO in the sample. Panel A presents univariate statistics. Panel B presents the marginal effects from logit regression estimates of the determinants of inside directors promoted to CEO. The dependent variable in model 1 equals 1 if the director title changes from inside executive to CEO for any firm within the sample. The dependent variable in model 2 (model 3) equals 1 if the director title changes from inside executive to CEO at their own (another) firm (within the sample). Model 4 only includes observations where the director's current CEO is younger than 59. All variables definitions are in the Appendix. Standard errors are robust to heteroskedasticity (White (1980)) and clustered by director. The *p*-values are in parentheses beneath each estimate. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Inside Directors	*N*	Promoted to CEO	Internally Promoted to CEO	Externally Promoted to CEO	*N*	Promoted and CEO Age < 59
Panel A. Univariate						
Non-CEO inside directors	7,822	6.48%	5.91%	0.57%	4,739	3.71%
Other inside directors	6,999	5.90%	5.52%	0.39%	4,273	3.44%
Talented inside directors	823	11.42%	9.23%	2.19%	466	6.22%
Difference		−5.52%***	−3.72%***	−1.80%***		−2.78%***
p-value		(<0.01)	(<0.01)	(<0.01)		(<0.01)
		Promoted to CEO	Internally Promoted to CEO	Externally Promoted to CEO		Promoted and CEO Age <59
Independent Variable		Model 1	Model 2	Model 3		Model 4
Panel B. Logit Regressions (marginal effects)						
Talented inside director		0.03***	0.02***	0.01***		0.02**
		(<0.01)	(<0.01)	(0.01)		(0.02)
COO		0.11***	0.10***	0.004**		0.06***
		(<0.01)	(<0.01)	(0.03)		(<0.01)
Age		−0.0005**	−0.0004*	−0.0001		−0.0003
		(0.04)	(0.09)	(0.43)		(0.28)
Board tenure		−0.0020***	−0.0018***	−0.000002		−0.0012***
		(<0.01)	(<0.01)	(0.74)		(<0.01)
Ownership (%)		0.0003	0.0004	−0.0001		−0.0003
		(0.57)	(0.35)	(0.30)		(0.68)
Founder		−0.003	0.0011			0.0112
		(0.77)	(0.92)			(0.33)
Related to founder		0.02*	0.03**			−0.0051
		(0.07)	(0.03)			(0.58)
CEO tenure		0.00004**	0.00003**	0.000002		0.00001
		(0.04)	(0.05)	(0.64)		(0.73)
CEO ownership (%)		−0.0006***	−0.0008***	0.00006*		−0.0002
		(<0.01)	(<0.01)	(0.07)		(0.38)
ln(Assets)		0.0015	0.0001	0.001***		−0.0006
		(0.28)	(0.95)	(<0.01)		(0.62)
Volatility		−0.09***	−0.08***	−0.006		0.024
		(<0.01)	(0.01)	(0.53)		(0.30)
ROA		−0.01*	−0.01**	−0.0001		−0.004**
		(0.07)	(0.02)	(0.64)		(0.04)
Industry homogeneity		0.06	0.02	0.026**		−0.01
		(0.28)	(0.74)	(0.02)		(0.89)
No. of obs.		7,642	7,642	7,642		4,625
Pseudo-R^2		14.16%	14.58%	11.81%		11.20%
Prob(Insider becomes CEO)		0.04	0.03	0.003		0.02

Other director, firm, industry, and CEO characteristics can influence the likelihood of an inside director becoming the CEO of their own firm or elsewhere. The chief operating officer (COO) title is a strong indicator of future CEO successors within firms (Mobbs and Raheja (2012), Naveen (2006), and Rajan and Wulf (2006)). Age and board tenure are other measures of experience for inside

directors. Boyer and Molina-Ortiz (2008) argue that ownership signals to the board an executive's desire to become the next CEO and increases their chances of being the successor. A founding family member has influence, control, and incentive to take over the reins of the firm. CEO ownership and tenure can also affect the likelihood of non-CEO insiders becoming CEOs. Greater tenure increases the likelihood a succession event is approaching. Greater CEO ownership can incite them to stay at the helm longer than expected, reducing the likelihood of a succession occurring in a given year and increasing the likelihood of insiders departing for external positions.

Inside directors of larger firms have experience managing complex organizations, making them attractive CEO candidates, both internally and externally. Boards can more easily observe the ability of insiders in less volatile firms. Inside directors of well-performing firms increase their attractiveness in the external labor market, but they also face a lower likelihood their own firm will replace the current CEO and promote them. Finally, the ease of monitoring and greater availability of potential replacements makes CEO turnover more frequent in homogeneous industries (Parrino (1997)). Greater labor market competition in these industries can reduce inside directors' chances of becoming a CEO in their own firm, but it increases their chances of becoming the CEO at another firm.

Panel B of Table 2 presents the marginal effects from director-level logit regressions of inside directors becoming CEOs. The dependent variable is 1 if the executive becomes a CEO in the following year. The standard errors are robust to heteroskedasticity (White (1980)) and clustered by director. Model 1 examines all promotions to CEO. The unconditional likelihood of an inside director becoming a CEO is 0.04, with all the variables evaluated at the mean. Having an outside directorship relates significantly to a greater likelihood the insider will become a CEO, with a marginal effect of 0.03, representing a 75% increase in the probability of the insider becoming a CEO. Only the title of COO has an economically greater influence on the likelihood of the director becoming a CEO. Age and board tenure both decrease the likelihood of becoming a CEO, suggesting the longer an insider is on a board the less likely they are to become a CEO. Older, more tenured directors are more experienced, but they have less career incentives relative to younger directors.[11] Director ownership is positively, though not significantly, associated with their chances of becoming a CEO. Being a founder's relative relates positively to a greater likelihood of becoming a CEO. The current CEO's influence also matters: The longer the CEO has been in office, the more likely an insider becomes CEO. Conversely, greater influence through ownership decreases this likelihood, as the CEO could be more inclined to stay at the helm. Finally, executives in better-performing firms and in firms with greater volatility are less likely to become a CEO, as their CEOs are less likely to be replaced and it is more difficult to judge their talent in more volatile environments.

[11] In unreported regressions, I consider nonlinear effects of age and tenure and find no evidence for nonlinear effects from age and some evidence that board tenure decreases the likelihood of becoming a CEO in their own firm, but at a decreasing rate, suggesting that some boards do value significant firm-specific human capital.

Models 2 and 3 of Panel B of Table 2 decompose the executives who become a CEO in the following year into those promoted to CEO in their own firm and those hired as CEO in another firm. When an executive's own firm promotes him or her to CEO, it is, in part, due to their firm-specific skills in addition to their managerial talent. However, when an outside firm hires a non-CEO executive as CEO, the firm-specific skills are of less importance and the managerial talent is the driving factor. In both models 2 and 3, having an outside directorship is associated with a significantly greater likelihood of becoming a CEO. This finding in model 3 illustrates the usefulness of external directorships in recognizing managerial talent and, since they are departing their own firm, it weakens the reverse causality argument that executives obtain outside directorships when their firm anoints them as a potential heir apparent.

The control variables have differing effects on the likelihood of insiders becoming a CEO at their own firm or elsewhere. Firm-given titles are still important in determining the likelihood of becoming a CEO at another firm, but the effect is much weaker economically and statistically, perhaps reflecting a discount applied in the external market to internal designations. Firm performance, volatility, director age, and tenure have no effect on the likelihood of becoming a CEO elsewhere. There were no instances of founding family members becoming CEOs at another firm in this sample. Executives in larger firms where they have opportunities to improve their managerial skills or where their CEO has greater control through ownership are more likely to win outside CEO positions. Finally, executives in homogeneous industries are more likely to become the CEO of another firm, consistent with the Parrino (1997) finding that firms in these industries are more likely to hire outsiders.

Finally, model 4 of Panel B of Table 2 only includes the observations where a planned succession is unlikely. Again, the marginal effect of holding an outside directorship is positive and significant, suggesting that inside directors with outside directorships are more likely to become CEOs in either their own firm or elsewhere, even when a succession is not pending. This finding supports the use of outside directorships as a signal of executive talent rather than simply a consequence of external firms choosing a firm-recognized CEO heir apparent as a director.

The Table 2 results are consistent with the hypothesis that talented inside directors are serious CEO contenders (Hypothesis 1). As such, their presence can allow boards to respond quickly to poor performance, making them an important consideration when examining board monitoring.

V. CEO Turnover

A. Univariate Analysis

Table 3 presents analysis of annual and forced CEO turnover within the sample. Panel A reports turnover rates based on the presence of an inside director in the prior year. Over 17% of the firms with an inside executive on the board experienced CEO turnover. This is significantly greater, at the 1% level, than the 13.4% turnover experienced by firms without inside directors. Conversely, firms with insiders have a significantly lower frequency of forced CEO turnover

(2.5% vs. 3.4%). Thus, without distinguishing among inside directors, their presence appears to lessen the threat of forced CEO departure. However, Panel A also reveals that when conditioning on the presence of inside directors with unaffiliated outside directorships, both voluntary and forced departure rates are statistically greater. When talented insiders are present, the frequency of voluntary CEO turnover is 21.6% and that of forced CEO departure is 4.4%.

TABLE 3

CEO Turnover Univariate Analysis

Table 3 presents the univariate analysis of annual CEO turnovers and forced CEO departures occurring within the sample period. A CEO turnover is a change in the CEO identified in the RiskMetrics database within the sample period. Forced CEO departures are nonvoluntary CEO turnovers identified by searching press releases. A total of 1,540 CEO transitions, including 316 forced departures, occurred during the period. Panel A reports results for the full sample. Panel B reports results for the subsample of firms with non-CEO inside directors. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. *p*-values are in parentheses.

Panel A. Turnover: Full Sample

	N	Turnover	Forced		*N*	Turnover	Forced
Full sample	9,935	15.4%	3.0%				
No inside director present$_{(t-1)}$	5,072	13.37%	3.37%	No talented director present$_{(t-1)}$	9,174	14.90%	2.86%
Inside director present$_{(t-1)}$	4,863	17.54%	2.49%	Talented director present$_{(t-1)}$	761	21.55%	4.43%
Difference		−4.17%***	0.88%***			−6.65%***	−1.57%***
p-value		(<0.01)	(0.01)			(<0.01)	(0.01)

Panel B. Turnover: Firms with Inside Directors

	N	Turnover	Forced	CEO Age$_{(t-1)}$ < 59	*N*		Forced
Inside director(s) present$_{(t-1)}$	4,863	17.54%	2.49%	Inside director(s) present$_{(t-1)}$	2,690		3.23%
No talented director present$_{(t-1)}$	4,102	16.80%	2.08%	No talented director present$_{(t-1)}$	2,248		2.80%
Talented director present$_{(t-1)}$	761	21.55%	4.43%	Talented director present$_{(t-1)}$	442		5.43%
Difference		−4.75%***	−2.35%***	Difference			−2.63%***
p-value		(<0.01)	(0.01)	*p*-value			(<0.01)

Because having inside directors may not be optimal for all firms (e.g., Coles et al. (2008), Raheja (2005)), Panel B of Table 3 reports univariate analysis for the subsample of firms with non-CEO inside directors. When talented inside directors are present, both turnover and forced CEO turnover are significantly more likely. Moreover, the right-hand side of Panel B reports an even greater frequency of forced CEO turnover when talented insiders are present in firms where planned successions are unlikely, making distinguishing among non-CEO insiders important.[12]

B. Forced CEO Turnover Sensitivity to Performance

Table 4 reports results from forced CEO turnover logit regressions examining the relation between forced turnover and performance using quarterly data.

[12]Though there are more nontalented inside directors available to compete with and thus threaten the CEO for their job, proportionally much fewer actually do so. In firms where insiders are present just prior to a forced CEO succession, 77% of the talented insiders become the CEO, whereas only 29% of the nontalented insiders succeed their CEO.

TABLE 4

Forced CEO Turnover and Operating Performance

Table 4 presents the results from logit regression analysis of quarterly forced CEO turnover. The sample consists of firms from 1998–2006 and 316 (1,540) identified forced (all) CEO turnovers. Panel A presents results from logit model regressions where the dependent variable equals 1 if there was a forced CEO departure in the quarter, and 0 otherwise. The key explanatory variables are the lagged indicator variables for various types of directors present and industry-adjusted operating performance. Operating performance (ROA) is the average operating cash flow to assets for the most recent 4 quarters adjusted by the industry median. All variable definitions are in the Appendix. Standard errors are robust to heteroskedasticity (White (1980)) and clustered by firm with *p*-values in parentheses. Model 5 excludes firms with CEOs near retirement. Model 6 uses annual data, the dependent variable equals 1 if there is a new CEO (forced or voluntary) in the year, operating performance is the average of the most recent 2 years of operating cash flow to assets, and firms with CEOs near retirement are excluded. Panel B presents the quarterly implied probabilities of forced CEO turnover in the top and bottom performance quartiles. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Panel A. Logit Regressions						
Talented insider present$_{(t-1)}$	0.66*** (<0.01)	0.66*** (<0.01)	0.71*** (<0.01)	0.86*** (<0.01)	0.91*** (<0.01)	0.27** (0.05)
Nontalented insider present$_{(t-1)}$		−0.20 (0.18)	−0.20 (0.17)			0.29*** (<0.01)
Talented outsider present$_{(t-1)}$			0.06 (0.76)	0.05 (0.8)	−0.24 (0.26)	
President / COO present$_{(t-1)}$				−0.45** (0.02)	0.09 (0.66)	
Busy board$_{(t-1)}$	0.28 (0.35)	0.26 (0.37)	0.28 (0.35)	0.29 (0.33)	0.03 (0.92)	0.06 (0.89)
60% independent outside directors$_{(t-1)}$	0.29** (0.04)	0.23 (0.14)	0.21 (0.17)	0.23 (0.14)	0.14 (0.40)	−0.001 (0.99)
ROA	−3.05** (0.04)	−3.25** (0.03)	1.00 (0.72)	0.74 (0.8)	1.92 (0.56)	−0.16 (0.79)
Talented insider present$_{(t-1)}$ × ROA	−6.27** (0.04)	−6.13** (0.05)	−10.62*** (<0.01)	−10.41*** (<0.01)	−8.6* (0.05)	−2.95** (0.04)
Nontalented insider present$_{(t-1)}$ × ROA		0.76 (0.65)	0.31 (0.84)			0.26 (0.68)
Talented outsider present$_{(t-1)}$ × ROA			−4.92* (0.09)	−4.67 (0.11)	0.45 (0.84)	
President / COO present$_{(t-1)}$ × ROA				1.65 (0.46)	−5.02 (0.13)	
Busy board$_{(t-1)}$ × ROA	2.88 (0.33)	3.00 (0.30)	3.00 (0.29)	2.73 (0.32)	6.36* (0.06)	7.19* (0.10)
60% independent outside directors$_{(t-1)}$ × ROA	0.80 (0.64)	0.86 (0.60)	1.29 (0.42)	1.32 (0.42)	0.60 (0.73)	−0.83* (0.05)
ln(Market cap)$_{(t-1)}$	−0.19*** (<0.01)	−0.19*** (<0.01)	−0.19*** (<0.01)	−0.19*** (<0.01)	−0.24*** (<0.01)	−0.03 (0.32)
Separate inside chairperson$_{(t-1)}$	0.35** (0.03)	0.33** (0.03)	0.34** (0.03)	0.32** (0.04)	0.32* (0.06)	−0.02 (0.85)
CEO ownership$_{(t-1)}$	−0.08*** (<0.01)	−0.08** (0.01)	−0.08** (0.01)	−0.08*** (<0.01)	−0.12** (0.01)	0.00 (0.82)
CEO age (60–70)$_{(t-1)}$	−0.66*** (<0.01)	−0.65*** (<0.01)	−0.65*** (<0.01)	−0.62*** (<0.01)		
Founder CEO$_{(t-1)}$	−0.28 (0.54)	−0.27 (0.55)	−0.27 (0.55)	−0.27 (0.56)	−0.45 (0.44)	−0.06 (0.27)
High outside director ownership$_{(t-1)}$	−0.03 (0.85)	−0.03 (0.81)	−0.04 (0.76)	−0.05 (0.70)	−0.05 (0.72)	0.09 (0.27)
F-test: ROA + talented inside director × ROA = 0	−9.32*** (<0.01)	−9.38*** (<0.01)	−9.62*** (<0.01)	−9.68*** (<0.01)	−6.68* (0.06)	−3.12*** (<0.01)
ROA + talented outside director × ROA = 0			−3.92*** (<0.01)	−3.93*** (<0.01)	−3.1* (0.05)	
No. of obs.	39,212	39,212	39,212	39,192	26,923	7,494
Pseudo-R^2	3.03%	3.10%	3.18%	3.32%	2.85%	0.77%

(continued on next page)

TABLE 4 (continued)
Forced CEO Turnover and Operating Performance

Quartile	ROA	Inside Directors: Talented	Inside Directors: Nontalented	Inside Directors: None	Talented Outside Director
Panel B. Quarterly Implied Probabilities of Forced Turnover					
75th	0.0298	0.0112	0.0059	0.007	0.0070
25th	−0.0279	0.0182	0.0065	0.0081	0.0081
Increase in probability		0.0070***	0.0006	0.0011**	0.0011***
p-value of difference		(<0.01)	(0.29)	(0.02)	(0.01)
% change		62%	10%	15%	16%

The dependent variable equals 1 if a forced CEO departure occurred during the quarter. The key independent variables are lagged indicators of insider presence and their interactions with firm performance. All models use robust standard errors clustered by firm to account for serial correlation in the error term. Firm operating performance, return on assets (ROA), is the average of the 4 most recent quarters of operating cash flow scaled by beginning period assets adjusted by the Fama-French (1997) industry median (Barber and Lyon (1996)).[13] Firm size, a busy board indicator, a 60% independent outside directors indicator, a high director ownership indicator, and CEO ownership are included as controls (Fich and Shivdasani (2006), Huson et al. (2004), Parrino (1997), Warner, Watts, and Wruck (1988), and Weisbach (1988)). Indicator variables for CEO founders, whose influence makes them difficult to force out, and the presence of a separate inside chair, whose power can make removal easier, are also included. Finally, an indicator variable is included for firms with CEOs aged 60–70, since boards, as a professional courtesy, can allow CEOs around retirement age to "voluntarily" retire, resulting in fewer observed forced departures for these CEOs. Across all forced CEO turnover models, the controls have the expected signs and are significant, with the exception of a founder CEO and high outside director ownership.

In model 1 of Table 4, the coefficient for the presence of a talented inside director prior to the forced CEO turnover event is positive and significant (p-value < 0.01), consistent with their being associated with a greater threat of forced departure. ROA is negative and significantly related to forced CEO turnover likelihood, illustrating the expected forced turnover-performance sensitivity (Fich and Shivdasani (2006), Weisbach (1988)). Furthermore, the interaction term between ROA and the presence of a talented inside director is also negative and significant (p-value = 0.04), indicating that having a readily available CEO replacement in the form of a talented inside director is associated with greater forced CEO turnover-performance sensitivity consistent with Hypothesis 2. An F-test of the joint significance of this interaction and performance, representing the net effect of performance on forced CEO departure when a talented insider is present, is at the bottom of Table 4 and is significant at the less than

[13]The results are robust to using the level of ROA and industry dummy variables to control for industry factors, such as homogeneity.

1% level ($-9.3 = -3.0 + -6.3$). Boards with a majority of independent outside directors are also associated with greater forced CEO departure; however, there is no evidence that they enhance turnover sensitivity to performance. This further illustrates the value to boards of having a viable and readily available CEO replacement.

In model 2 of Table 4, nontalented inside directors are also examined. There is no evidence that these inside directors increase either the threat of forced CEO departure or the sensitivity of forced CEO departure to performance. If anything, the signs of the coefficients for the presence of nontalented insiders and its interaction with performance suggest that these insiders are associated with a reduced threat of forced CEO departure and a lower sensitivity of forced departure to performance. Thus, insiders not recognized externally for their ability do not enhance this aspect of the monitoring role of the board. These findings underscore the importance of distinguishing among inside directors when examining forced CEO turnover.

To see the economic impact, one needs the implied probabilities of forced quarterly departure derived from the regression coefficients. Panel B of Table 4 reports these for the top and bottom ROA quartiles.[14] When talented inside directors are present, the difference in implied probability of forced turnover is a statistically significant 62%. When other insiders are present, there is no statistically significant difference. When there are no non-CEO inside directors present such that outside directors dominate the board, the difference in implied probability of forced departure is 15%, which is significant at the 5% level and consistent with Weisbach (1988).

If boards with talented inside directors also have talented outside directors, who can also represent valid CEO replacements, the outside directors' skills could be driving the association between talented inside directors and greater forced CEO departure sensitivity to performance. Additional directorships can also be useful in identifying those outside directors who are more talented and thus the more desirable CEO candidates. However, unlike inside operating officers, who typically hold only 1 or 2 additional directorships (Masulis and Mobbs (2011)), outside directors come from a variety of backgrounds and may hold 3 or more directorships. Too many directorships can reduce the time and energy a director has to invest in acquiring firm-specific capital and their willingness to become the CEO of any one firm where they serve. Prior research finds that when a director has 3 or more additional directorships, their value as a director diminishes

[14] Because the logit models are nonlinear and the key interaction terms involve dichotomous variables, the magnitudes and standard errors of the marginal effects of the interactive variables are estimated by taking discrete differences (Ai and Norton (2003), Powers (2005)) as

$$\left.\frac{\partial \mathrm{E}\,[y|\mathrm{ROA}, \mathrm{Director}, X]}{\partial_{\mathrm{ROA}}}\right|_{\mathrm{Insider}=1} - \left.\frac{\partial \mathrm{E}\,[y|\mathrm{ROA}, \mathrm{Director}, X]}{\partial_{\mathrm{ROA}}}\right|_{\mathrm{Insider}=0},$$

where

$$\frac{\partial \mathrm{E}\,[y|\mathrm{ROA}, \mathrm{Director}, X]}{\partial_{\mathrm{ROA}}} = \frac{e^{X\beta}\,[\beta_{\mathrm{ROA}} + \beta_{\mathrm{Insider}}\mathrm{Insider}]}{\left(1 + e^{X\beta}\right)^2}.$$

The annualized forced departure rate increases from 4.48% to 7.28% in the presence of a talented inside director.

(Fich and Shivdasani (2006), Perry and Peyer (2005)), as they become too busy. Thus, an outside director whose talents are valued by other firms yet who is not too busy (i.e., they have fewer than 3 additional directorships), represents a potentially valuable CEO replacement for their board and is thus referred to as a talented outside director.[15] Model 3 of Table 4 includes an indicator for their presence. While the presence of a talented outside director is not associated with a greater forced CEO turnover likelihood, the interaction term with ROA is negative and significant (p-value = 0.09). The net effect ($-3.9 = -4.9 + 1.0$) is also significant. Moreover, the coefficient on ROA in isolation is no longer significant, suggesting that the availability of a skilled replacement completely explains the association between ROA and forced CEO turnover. The coefficients for the talented insider indicator and its interaction with performance exhibit the same significant associations. Finally, the last column of Panel B reveals that when performance drops from the top to the bottom quartile, having a talented outside director present increases the forced CEO departure threat by a statistically significant 16%. While both talented inside and outside directors are associated with greater forced CEO turnover sensitivity to performance, the effect is strongest for talented inside directors, reflecting the importance of greater firm-specific knowledge when selecting a CEO.

Naveen (2006) finds that firms with a succession plan are more likely to have a voluntary succession and less likely to experience a forced turnover, which suggests that firm-designated appointments are not likely causing the results. Nonetheless, if the recognition in their own firm as a potential successor leads other firms to invite the executive to sit on their boards, this could produce the observed results. To test this possibility, model 4 of Table 4 incorporates an indicator variable that equals 1 if the firm has a succession plan as in Naveen, a non-CEO insider with the title of president or COO. The presence of a chosen successor is associated with a lower likelihood of forced departure, consistent with Naveen. However, there is no evidence that having a succession plan increases forced CEO turnover sensitivity to performance. Even after controlling for the presence of an apparent designated successor, there is still evidence that having a talented inside director is associated with greater forced CEO turnover and its sensitivity to performance. These results further support the greater value of the external director market's recognition of talent over firm-bestowed titles.

To alleviate further the concern that succession planning is causing the observed relations, model 5 of Table 4 excludes firms with CEOs who are 59 or older. Within this subsample, the presence of talented inside directors is still associated with a greater threat of forced CEO departure that is also more sensitive to performance. Thus, expected CEO turnover is unlikely to be causing the association between talented insiders and forced CEO departure and its performance sensitivity. In addition, the coefficient on the interaction between busy boards and ROA is positive and significant in model 5, consistent with Fich and Shivdasani (2006).

[15] Separately, I considered directors who are CEOs as an indicator of greater replacement threat, but found no evidence of their posing such a threat to the incumbent CEO. They are likely too busy and less willing to relinquish their current CEO position.

An interesting side result in the forced CEO departure models is that the presence of a separate inside chair is associated with an increased likelihood of forced CEO departure. This illustrates another distinction among non-CEO insiders that can affect board monitoring.[16]

Finally, it is possible that many voluntary turnover events are not truly "voluntary" and are rather cases of the board graciously forcing out the current CEO. Likewise, many planned successions can occur earlier than scheduled if performance suffers and the board decides to hasten the transition, as was the case with Home Depot's board and its replacement of CEO Robert Nardelli with successor Frank Blake. In either case, when the board has more confidence in the ability of the successor, it is able to be more responsive should performance of the current CEO suffer. To account for these possibilities and as robustness to relieve any concerns of misclassification as noted in Jenter and Lewellen (2010), model 6 of Table 4 reports results using all annual CEO turnover events, excluding those when the CEO is near retirement.

Operating performance is the average of the most recent 2 years' annual ROA adjusted by the Fama-French (1997) industry median. The coefficients for both types of insiders are positive and significantly related to the likelihood of CEO turnover, consistent with grooming a planned successor by placing them on the board (Hermalin and Weisbach (1988)). Yet, their relations with performance differ. The interaction between talented insiders and performance has a significantly negative coefficient, suggesting that they are associated with greater CEO turnover-performance sensitivity. Conversely, the coefficient on the interaction between other insiders and performance is positive, consistent with their dampening CEO turnover-performance sensitivity. These differences illustrate the varying impact insiders can have on board monitoring.

C. Alternative Explanations: Endogeneity of Talented Inside Directors

An important advantage to using an external mechanism, the market for directorships, as a means of distinguishing talented inside directors, is that it is external to the firm's decision-making process, making analysis of the relation between talented directors and other firm characteristics less prone to endogeneity. Nonetheless, given the highly endogenous relations in corporate decisions (Coles, Lemmon, and Meschke (2012), Hermalin and Weisbach (2003)), I address several other potentially endogenous relations and report the results in Table 5. In each of the models, the controls are the same as in Table 4, but for brevity they are not tabulated.

One possibility is that aspects of the firm that are effective in attracting and developing highly skilled executives also produce better CEO monitoring. Firm-fixed effects can control for these unobserved time-invariant factors that may jointly determine the presence of talented insiders and forced CEO

[16] In separate analysis, the presence of a non-CEO inside chairperson who holds an outside directorship is positively associated with forced CEO departure that is more sensitive to stock performance. This finding further highlights the usefulness of outside directorships as a market mechanism for recognizing talented senior executives.

TABLE 5

Forced CEO Turnover and Endogeneity

Table 5 presents results from additional analysis on the effects of talented inside director presence on forced CEO turnover. Model 1 presents results from a conditional logit regression that incorporates firm-fixed effects. Model 2 presents logit model results using firm-level residual insider talent as a measure of inside director talent. The talent residual is the maximum residual for each firm arising from the director-level regression of inside director possession of an outside directorship on firm size and the percentage of independent directors on the board. Model 3 reports the outcome equation results from a bivariate probit selection model. The instrumental variable in the selection equation is the local firm density. The remaining explanatory variables in the selection equation, suppressed for brevity, include all the variables in the outcome equation. The coefficient for the instrument used in the selection equation is reported along with the estimate of ρ, the correlation coefficient of the residuals from the selection regression and the outcome regression, and the *p*-value for the Wald test of exogeneity ($\rho = 0$). Standard errors are robust to heteroskedasticity (White (1980)) with *p*-values in parentheses. The control variables for all models, suppressed for brevity, are the same as in Table 4. All variable definitions are in the Appendix. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Firm-Fixed Effects	Talent Residual	Self-Selection Outcome
Independent Variable	Model 1	Model 2	Model 3
Talented insider present$_{(t-1)}$	0.96*** (<0.01)	0.34 (0.15)	1.29*** (<0.01)
Busy board$_{(t-1)}$	0.56 (0.14)	0.25 (0.4)	0.05 (0.66)
60% independent outside directors$_{(t-1)}$	0.10 (0.59)	0.34** (0.02)	0.14*** (<0.01)
ROA	−1.41 (0.48)	−2.89* (0.05)	−1.07* (0.09)
Talented insider present$_{(t-1)}$ × ROA	−10.01* (0.08)	−7.42* (0.09)	−3.08** (0.03)
Busy board$_{(t-1)}$ × ROA	5.39 (0.33)	2.27 (0.43)	1.02 (0.39)
60% independent outside directors$_{(t-1)}$ × ROA	−0.77 (0.71)	0.27 (0.88)	0.19 (0.80)
IV: Local firm density			0.14*** (<0.01)
ρ			−0.46***
p-value for Wald test of $\rho = 0$			(0.01)
F-test: ROA + talented inside director × ROA = 0	−11.42* (0.05)	−10.31** (0.02)	−4.14*** (<0.01)
No. of obs.	6,838	35,859	37,019
Pseudo-R^2 / Prob > χ^2	3.06%	2.83%	0.00%

departure decisions. Model 1 of Table 5 reports results from a conditional logit regression with firm-fixed effects. Since the explanatory power comes from the variation within each firm, the model drops firms with no forced CEO departures within the sample period, reducing the sample size. The coefficients for a talented insider and its interaction with performance remain significant and have the expected signs. This suggests that fixed firm cultural or environmental factors are not driving the observed relations.

Another possibility is that executives in larger firms or on boards with more outside directors have greater exposure to the external labor market, which increases their likelihood of receiving an outside directorship after joining their own board. Thus, if firm size and board independence are associated with greater forced turnover-performance sensitivity and with the presence of talented directors, this could lead to the prior results. To rule out this spurious relation, I consider the portion of executive talent signaled by an outside directorship that is not associated with firm size or board independence. In a director-level regression

of the presence of an outside directorship on firm size and board independence, the residual represents the component of executive talent reflected in the attainment of an outside directorship that is orthogonal to that arising from firm size or board independence. The maximum level of this director talent residual in each firm is a firm-level measure of the presence of insider talent. Model 2 of Table 5 reports results using this measure. The coefficient for the presence of insider talent is still positive, but it is not quite significant at traditional levels (p-value = 0.15). At the same time, the greater board independence indicator is positive and significant. These results suggest that greater board independence and/or firm size, in part, drive the positive relation between talented insider presence and forced CEO departure in the primary results. However, this measure of insider talent is still associated with greater forced CEO turnover sensitivity to performance. Thus, while independent boards can be more willing to remove a poor CEO, greater insider talent allows boards to respond more rapidly to poor performance.

Even when there is no expectation of an immediate CEO succession, when a board nominates an internal executive as a director, it likely considers the nominee's CEO potential (Hermalin and Weisbach (1988)). Likewise, if a board deems there are no qualified insiders, it may also subsequently elect to delay a forced CEO turnover decision, making the turnover less sensitive to performance. Thus, the factors associated with a talented insider's selection can also influence the relations between these insiders and subsequent forced CEO departures. For these reasons, the observed relations of the primary findings contain both the effect from the presence of talented insiders who can serve as a valid CEO replacement (treatment) and the effect arising from the firm and board characteristics associated with their election to the board (selection). To account separately for both effects and since the dependent variable in the outcome equation (forced CEO departure) is binary, I estimate a 2-equation bivariate probit selection model using maximum likelihood estimation (MLE).[17] The correlation between the error terms of the selection equation and the outcome equation, ρ, captures the endogenous selectivity effect.

The key to this method is successful identification. This requires finding an instrumental variable (IV) with explanatory power in the selection equation that explains the presence of talented insiders, is not relevant to the outcome equation, and relates to forced CEO departure only through the presence of a talented insider. The IV I use is based on the geographic location of firms' headquarters and the corresponding market for local directors (Bouwman (2011), Knyazeva, Knyazeva, and Masulis (2013)).

The instrument is the local density of publicly traded firms, which is measured by the log of 1 plus the number of other nonfinancial firms in the Compustat universe located within a 60-mile radius of the firm's headquarters. I exclude firms in the same Fama-French (1997) industry and weight each density measure by the firm's market capitalization. Knyazeva et al. (2013) find that firms located within a larger density are more likely to have independent directors with executive

[17]For other applications of the bivariate probit selection models see Jiang, Li, and Wang (2012) for Hedge Fund Chapter 11 participation selection and Evans and Schwab (1995) for private school attendance selection.

expertise due to the greater supply of executives. Moreover, they also find that larger firms are more likely to attract nonlocal directors, making them net suppliers of local directors and making smaller firms net demanders within a given pool. Therefore, weighting each firm's measure by firm size emphasizes its net supply of local directors. It follows that executives of firms with a larger local density measure are likely to face a greater opportunity to be outside directors in local firms, making it more likely that talented insiders will be recognized and awarded with an external board seat. At the same time, it is not likely that the local firm density is significantly related to forced CEO departures. Since larger firms within a pool are more likely to have nonlocal directors, the variable is less likely related to those firms' outside directors and their CEO turnover decisions. Another possible concern is that a greater supply of similar firms implies a larger pool of qualified external CEO candidates, which could encourage more CEO turnovers, as argued by Parrino (1997), but the restriction against including firms in the same industry in the density measure reduces this possibility. This restriction, in addition to the weighting scheme, also keeps the measure independent of a firm's local outside directors from the same industry (Bouwman (2011)). Finally, the agents making the CEO turnover decisions are unlikely to be the same agents who chose the firm's location years earlier. Even if they were the same directors, they most likely did not have the current CEO and executives in mind at the time.[18]

Model 3 of Table 5 presents the results of the outcome equation. The selection equation includes all of the explanatory variables from the outcome equation plus the IV, but for brevity, I only report the coefficient estimates for the instrument.[19] The IV, local firm density, is positive and significantly related to talented inside director selection (p-value < 0.01). In the outcome equation, the coefficient estimate for the talented insider indicator is positive and significant. Moreover, its interaction with firm performance is negative and significant at the 5% level. Thus, after controlling for the selection of talented insiders, a significant treatment effect remains.

The estimate for the correlation coefficient and the p-value for the Wald test of exogeneity ($\rho = 0$), reported beneath the IV coefficient estimate, reveal a negative correlation and the rejection of the hypothesis of exogeneous selection at the 1% level. This suggests that firms likely to select a talented insider are, on their own, less likely to remove their CEO forcefully, perhaps out of concern for disrupting firm operations if a viable replacement is not available. This negative selection bias also explains the larger coefficient estimate for talented insider presence in model 3 of Table 5 compared to that in model 1 of Table 4. The smaller estimate on the interaction term in Table 5 suggests that the selection effect does

[18]In unreported results, I used a 2nd instrument and found robust results. Falato, Li, and Milbourn (2011) use the age of the CEO at appointment as an instrument for CEO talent on the basis that talented individuals rise through the corporate ranks more rapidly. Similarly, talented executives will obtain a position on the board at a younger age than those less talented. Following this approach, I employ a binary variable that equals 1 if the firm has an insider younger than 45. Because younger executives have less experience and are less attractive CEO candidates on that basis, their presence should be unrelated to forced CEO departure except to the degree that their young age reflects talent.

[19]The control for firm size in the selection equation is the natural log of sales since the local firm density instrument is weighted by market capitalization.

contribute to the forced CEO turnover-performance sensitivity associated with talented insiders. However, the significant effect observed after controlling for endogenous selection and the larger estimate of the total effect in Table 4 reveal that the treatment effect from the presence of a talented insider remains. This highlights the value to these firms and their boards from having a valid replacement threat.

Though not reported, the coefficient estimates of the 1st stage reveal that larger firms, those with busy or well-connected directors, better past performance, or older CEOs are more likely to have a talented insider present. These are firms in which boards have less bargaining power relative to the CEO and greater internal competition from a talented insider, and the corresponding increased bargaining power is of greater value. Conversely, firms with a board that consists of more than 60% independent directors, high outside director ownership, or a separate inside chairperson are less likely to have talented insiders. These boards already have sufficient bargaining power and may not benefit as much from a talented inside director. Thus, the evidence suggests that firms that select talented inside directors are the ones with boards that stand to benefit the most from having greater bargaining power relative to the CEO. Therefore, the effect of talented insiders is to enhance the monitoring of these boards by serving as an available CEO replacement, allowing the boards to act on their monitoring efforts and to make forced CEO turnover decisions that are more sensitive to performance.[20]

VI. CEO Compensation

Tighter internal labor market constraints can limit CEO ability to manipulate contracts in their interests (Bebchuk and Fried (2003), Hermalin and Weisbach (1998)), resulting in greater alignment with shareholder interests. To test this hypothesis, I examine the relation between the presence of talented insiders and CEO compensation package characteristics.

A. CEO Pay-Performance Sensitivity

An important measure of the degree of CEO-shareholder alignment in the compensation contract that takes into account the existing share holdings of the CEO is the PPS. The PPS is computed as the number of shares held by the CEO plus the number of options held by the CEO times the options delta, all divided by the total shares outstanding. Delta is calculated following the assumptions in Aggarwal and Samwick (2003), Core and Guay (2002), and Murphy (1999). Options granted in the year are assumed to have 7 years until expiration, and options issued in prior years are assumed to have 5 years remaining. Dividend yield, volatility, year-end stock price, and exercise price are from ExecuComp. Interest rates are from the U.S. Treasury yield curves for the month of year-end. There are

[20]In unreported analysis, I examine all annual CEO turnovers using a bivariate probit selection model of talented insiders. I also account for the endogenous choice of firms to have any inside directors by using the Heckman (1979) self-selection model following Masulis and Mobbs (2011). In both tests, the interaction between the presence of a talented insider and firm performance is negative and significant.

fewer observations in these regressions due to missing data for some of these new variables.

Table 6 reports the results of this analysis. All models include firm- and year-fixed effects, controls for economic determinants, and robust standard errors clustered by firm. Model 1 reveals that the presence of nontalented inside directors is not associated with greater CEO PPS. Conversely, model 2 reveals that the presence of talented insiders is associated with greater CEO PPS.

TABLE 6

CEO Pay-Performance Sensitivity

Table 6 presents the results from regression analysis of annual CEO pay-performance sensitivity (PPS) from 1998–2006. The dependent variable in models 1 and 2 is the CEO PPS, defined as the number of shares owned by the CEO plus the number of options owned by the CEO times the option delta, all divided by the number of shares outstanding. The dependent variable in models 3–5 is the PPS due to only options. All variable definitions are in the Appendix. Standard errors are robust to heteroskedasticity (White (1980)). All regressions include firm- and year-fixed effects, and *p*-values are in parentheses beneath the coefficient estimates. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	PPS		PPS Options		
Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Talented insider present$_{(t-1)}$		2.67**	1.51**	2.09***	1.95**
		(0.03)	(0.01)	(<0.01)	(0.02)
Nontalented insider present$_{(t-1)}$	0.53	0.83	−1.11***	−1.10***	−0.89**
	(0.60)	(0.43)	(<0.01)	(<0.01)	(0.01)
Talented outsider present$_{(t-1)}$				0.66	0.65
				(0.22)	(0.22)
Separate inside chairperson present$_{(t-1)}$					−1.75***
					(<0.01)
60% independent outside directors$_{(t-1)}$	1.72	1.84*	0.39	0.35	0.26
	(0.12)	(0.09)	(0.39)	(0.45)	(0.57)
Controls					
ln(Sales)	−6.47***	−6.49***	−4.19***	−4.20***	−4.19***
	(<0.01)	(<0.01)	(<0.01)	(<0.01)	(<0.01)
ln(Firm age)	−9.83**	−10.17**	2.00	2.00	2.23
	(0.02)	(0.02)	(0.23)	(0.23)	(0.18)
No. of business segments	−0.633*	−0.639*	0.07	0.07	0.07
	(0.09)	(0.08)	(0.62)	(0.62)	(0.61)
Capital expenditure / sales	−3.15	−3.19	−2.74	−2.74	−2.80
	(0.28)	(0.27)	(0.26)	(0.26)	(0.25)
Annual stock return	0.17	0.20	0.55**	0.56**	0.55**
	(0.81)	(0.78)	(0.03)	(0.03)	(0.04)
Annual stock return$_{(t-1)}$	−1.18*	−1.15	0.10	0.10	0.09
	(0.10)	(0.10)	(0.66)	(0.66)	(0.69)
Industry-adjusted ROA	15.35**	15.27**	2.63	2.61	2.60
	(0.02)	(0.02)	(0.20)	(0.20)	(0.21)
Industry-adjusted ROA$_{(t-1)}$	7.41*	7.39*	0.37	0.43	0.33
	(0.08)	(0.08)	(0.82)	(0.79)	(0.84)
Volatility	11.58	11.40	4.89	4.90	4.43
	(0.33)	(0.33)	(0.34)	(0.34)	(0.38)
Board ownership	−0.16	−0.15	0.07*	0.07*	0.07**
	(0.35)	(0.36)	(0.05)	(0.05)	(0.04)
No. of obs.	5,740	5,740	5,740	5,740	5,740
Adj. R^2	78.60%	78.61%	80.42%	80.42%	80.47%

Although PPS is comprised of sensitivities due to both stock and options, the nonlinear payoff of options makes them a more aggressive means of aligning CEO interests with those of shareholders. In addition, options are especially powerful when the firm has more growth options and are more attractive to firm executives who believe they can successfully capitalize those growth options. Thus,

more talented inside directors are likely supportive of greater option-based pay for themselves and for their CEO. For these reasons, model 3 examines only the portion of PPS due to options. Indeed, the coefficient for the presence of talented inside directors reveals a stronger positive and significant relation with option-based CEO PPS. Conversely, the relation with other insiders is negative and significant. One explanation for this result is that less talented insiders are less confident in their ability to capitalize the firm's growth options and prefer their compensation, and that of their CEO, to be proportionally less reliant upon their doing so.

Model 4 considers talented outside directors and finds they are not significantly associated with option-based CEO PPS. Finally, model 5 includes an indicator for the presence of a separate inside chair and finds a significantly negative association with option-based CEO PPS. An inside chair, likely a former CEO or founder, who is no longer engaged in daily operations but has large amounts of personal wealth tied up in the firm's stock, can be less willing to support compensation packages with risk-taking incentives. Even so, the results for talented inside directors are robust, providing support for Hypothesis 3, that boards with talented insiders have greater bargaining strength relative to the CEO.

B. CEO Salary and Bonus Compensation

Core, Guay, and Larcker (2003) point out that equity compensation exposes the CEO to greater firm and market risk and warrants a risk premium in the form of a greater base salary. However, CEOs with greater bargaining power can extract wealth from shareholders by obtaining cash-based compensation in excess of these warranted risk premiums, whereas boards with greater bargaining power can achieve the proper premium without overpaying. In fact, Core et al. (1999) find that a greater portion of inside directors and the presence of a non-CEO insider owning a 5% or greater stake are associated with lower CEO salary and bonus compensation.

Table 7 contains the results from regressions of industry-adjusted CEO salary and bonus compensation levels (excluding CEO turnover years). All models include firm- and year-fixed effects, controls for economic determinants of compensation, and robust standard errors clustered by firm. Model 1 reports an insignificant association with nontalented inside directors and CEO compensation. In model 2, the coefficient for talented inside director presence reveals a significantly negative relation with CEO salary and bonus. Next, model 3 tests whether the presence of a talented outside director is associated with the CEO salary and bonus compensation. The coefficient for this indicator is also negative and significant at the 5% level, though the economic magnitude is smaller than that for talented insiders. An unreported F-test rejects the equality of the talented insider and talented outsider coefficients at the 10% level. Finally, model 4 includes an indicator for the presence of a separate inside chair and finds no significant relation to CEO cash-based compensation, and the talented insider results are robust.

These findings reveal that the greater bargaining power of boards with talented inside directors helps them to maintain greater PPS without the offsetting

TABLE 7

CEO Compensation Level

Table 7 presents the results from regression analysis of annual CEO cash-based compensation from 1998–2006 excluding firm-year observations in which a CEO turnover occurred. The dependent variable is the CEO salary and bonus compensation adjusted by the industry median. All variable definitions are in the Appendix. Standard errors are robust to heteroskedasticity (White (1980)) and clustered by firm. All regressions include firm- and year-fixed effects, and *p*-values are in parentheses beneath the coefficient estimates. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Independent Variable	Model 1	Model 2	Model 3	Model 4
Talented insider present$_{(t-1)}$		−239.15*	−320.40**	−320.24**
		(0.08)	(0.04)	(0.04)
Nontalented insider present$_{(t-1)}$	9.39	−17.78	−18.19	−21.26
	(0.86)	(0.72)	(0.72)	(0.68)
Talented outsider present$_{(t-1)}$			−93.45*	−93.42*
			(0.10)	(0.10)
Separate inside chairperson$_{(t-1)}$				18.99
				(0.78)
60% independent outside directors	−68.70	−77.70	−70.68	−69.95
	(0.33)	(0.28)	(0.33)	(0.33)
Controls				
ln(Sales)	650.42***	651.08***	652.79***	653.01***
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
ln(Firm age)	−514**	−488**	−489**	−491**
	(0.03)	(0.04)	(0.03)	(0.03)
No. of business segments	−27.30	−27.17	−27.12	−27.12
	(0.37)	(0.37)	(0.37)	(0.37)
Capital expenditure / sales	4.71**	4.64**	4.7**	4.68**
	(0.03)	(0.03)	(0.03)	(0.03)
Annual stock return	97.07**	94.94**	94.78**	94.82**
	(0.01)	(0.02)	(0.02)	(0.02)
Annual stock return$_{(t-1)}$	54.48*	52.85*	52.60*	52.61*
	(0.07)	(0.08)	(0.08)	(0.08)
Industry-adjusted ROA	845***	842***	843***	842***
	(<0.01)	(<0.01)	(<0.01)	(<0.01)
Industry-adjusted ROA$_{(t-1)}$	196	190	184	185
	(0.45)	(0.47)	(0.48)	(0.48)
Volatility	−171	−152	−145	−141
	(0.85)	(0.86)	(0.87)	(0.87)
CEO tenure	20.24*	21.74*	21.61*	22.03*
	(0.09)	(0.07)	(0.07)	(0.07)
CEO tenure^2	−0.10	−0.11	−0.11	−0.11
	(0.7)	(0.65)	(0.66)	(0.65)
CEO ownership	−3.86	−3.11	−3.59	−3.06
	(0.90)	(0.92)	(0.91)	(0.92)
CEO ownership^2	−0.07	−0.09	−0.08	−0.1
	(0.92)	(0.90)	(0.91)	(0.90)
Board ownership	−4.75	−4.81	−4.80	−4.85
	(0.53)	(0.52)	(0.52)	(0.51)
No. of obs.	6,701	6,701	6,701	6,701
Adj. R^2	52.62%	52.70%	52.71%	52.70%

higher levels of cash-based compensation. They also extend the findings in Core et al. (1999) by revealing which inside directors are associated with less compensation. Finally, the findings provide evidence consistent with Guthrie, Sokolowsky, and Wan (2012), that increasing board independence alone may not always reduce excess CEO compensation. However, the evidence does not rule out the possibility that the board could increase compensation through another hidden means such as greater perquisites.

C. Alternative Explanations: Endogeneity of Talented Inside Directors

Using firm-fixed effects in the primary models controls for unobserved factors (e.g., good governance practices) that are likely associated with both CEO compensation and the presence of talented inside directors and thus reduces the concern that time-invariant firm characteristics may be endogenously producing the observed relations. However, if firm size and greater board independence relate to CEO compensation and to the presence of talented insiders, this can yield a spurious relation between talented insiders and CEO compensation. To account for this, models 1 and 2 of Table 8 report results repeating the primary tests from Tables 6 and 7 using the insider talent residual measure as described in Section V.C. The controls, not reported for brevity, are the same as in Tables 6 and 7. In both models, insider talent still relates significantly to higher CEO PPS and lower CEO cash-based pay. Models 3 and 4 account for the endogenous selection of talented inside directors.[21] Model 3 reveals a positive and much greater association between talented insider presence and CEO PPS than that for nontalented insiders, consistent with the results in Table 6. However, contrary to the Table 7

TABLE 8

CEO Compensation and Endogeneity

Table 8 presents results from additional analysis of the effects of talented inside director presence on annual CEO compensation from 1998–2006. Models 1 and 2 present ordinary least squares results using firm-level residual insider talent as a measure of inside director talent. The talent residual is the maximum residual for each firm arising from the director-level regression of inside director possession of an outside directorship on firm size and the percentage of independent directors on the board. Models 3 and 4 report the outcome equation results from a bivariate probit selection model. The instrumental variable in the selection equation is the local firm density. The remaining explanatory variables in the selection equation, suppressed for brevity, include all the variables in the outcome equation. The coefficient for the instrument is reported along with the estimate of ρ, the correlation coefficient of the residuals from the selection regression and the outcome regression, and the p-value for the Wald test of exogeneity ($\rho = 0$). Standard errors are robust to heteroskedasticity (White (1980)) with p-values in parentheses. The control variables for all models, suppressed for brevity, are the same as in Tables 6 and 7. All variable definitions are in the Appendix. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	PPS Talent Residual	CEO Salary/Bonus Talent Residual	PPS Treatment	CEO Salary/Bonus Treatment
Independent Variable	Model 1	Model 2	Model 3	Model 4
Talented insider present$_{(t-1)}$	3.10**	−291.81**	79.27***	2,165.82***
	(0.02)	(0.04)	(<0.01)	(<0.01)
Nontalented insider present$_{(t-1)}$	0.88	−24.71	8.86***	96.31**
	(0.40)	(0.62)	(<0.01)	(0.02)
60% independent outside directors$_{(t-1)}$	1.82*	−76.77	−7.11***	−33.7
	(0.10)	(0.28)	(<0.01)	(0.50)
IV: Local firm density			0.03*	0.08***
			(0.07)	(<0.01)
ρ			−0.92***	−0.87***
p-value for Wald test of $\rho = 0$			(<0.01)	(<0.01)
No. of obs.	5,733	6,691	5,423	6,344
Adj. R^2 / Prob $\chi^2 > 0$	78.60%	52.73%	0.00%	0.00%

[21] These models employ the typical treatment regression method, with MLE, since the outcome variables are continuous. The selection equation, in addition to the variables in the CEO turnover equation (with the exception of CEO ownership due to its use in the PPS computation), also includes the variables in the CEO compensation equation to make use of all available information.

results, model 4 reveals a positive relation between talented insiders and cash-based CEO compensation. In both models, the estimated sign of the correlation coefficient is negative, and the Wald test rejects exogeneity (p-value < 0.01).

The negative correlation coefficients reveal that firms likely to appoint talented insiders also, on their own, tend to pay their CEO with lower PPS and a less excessive cash-based component. This highlights the value to firms of having a talented insider who can increase the board's bargaining power, enabling it to increase CEO PPS. Given their greater ability, talented insiders are likely more willing to accept greater PPS in their own compensation packages, making it easier for the board to negotiate higher CEO PPS. At the same time, the greater ability of talented insiders warrants greater cash-based compensation for them, which makes it easier for the board to concede greater cash-based compensation to the CEO, hence the positive association in model 4. However, it is not enough to fully offset the selection effect, resulting in a total effect that is associated with less CEO cash-based compensation in these firms, as observed in Table 7.

VII. Conclusions

Fama (1980) argues that the primary force disciplining managers does not come from owners, but from competitive labor market forces, both internal and external. However, most of the empirical research on the disciplinary forces acting on CEOs has not directly considered the competitive forces represented by certain board members. The main findings presented here reveal that highly skilled inside directors represent an important source of internal competition for their CEOs. The analysis first provides evidence for the effectiveness of the external labor market in identifying highly skilled inside directors. Inside directors with outside directorships are significantly more likely to become CEOs, making them credible CEO replacements and valuable options for their boards. Second, inside directors with outside directorships are associated with greater forced CEO turnover sensitivity to operating performance.

Moreover, this greater internal competition from talented insiders can reduce CEO bargaining power and result in CEO compensation contracts more aligned with shareholder interests. Specifically, inside directors with additional directorships are associated with greater CEO PPS and lower levels of cash in CEO compensation contracts.

These findings show that certain inside directors are beneficial to shareholders by enhancing their board's monitoring role and increasing its bargaining power over the CEO in contract negotiations. By recognizing the importance of internal competition and differentiation among insiders on board-monitoring effectiveness, this study provides guidance for firms, researchers, and policymakers in better understanding corporate boards. For example, the greater monitoring strength attributed to outside directors in prior research is likely contingent upon their having a qualified CEO replacement in their midst. Additionally, just as prior research on the varying degrees of independence among outside directors contributed to the current regulations governing board composition, studying differences among insiders can further one's knowledge of board operations and help shape future regulations.

Appendix. Variable Definitions

All dataxx variables refer to the corresponding variable identifiers in the Compustat database.

Key Independent Variables: Different Types of Non-CEO Inside Directors (source: RiskMetrics)

Insider. Non-CEO employee and director of the firm.

Talented Insider. Non-CEO employee and operating officer of the firm and director who holds an unaffiliated outside directorship that was acquired after they joined their own board.

Firm Characteristics (source: Compustat and Center for Research in Security Prices (CRSP))

Firm Size. Total Assets ($1,000,000): data6

Sales. Total Sales ($1,000,000): data12

No. of Business Segments. Number of business segments listed in Compustat.

Firm Age. Current year less the 1st year the firm was listed in CRSP.

Leverage. Long-term debt plus debt in current liabilities scaled by total assets: (data9 + data34)/data6.

Capital Expenditure/Sales. Capital Expenditure/Total Sales: data128/data12.

Depreciation/Sales. Depreciation Expense / Total Sales: data14/data12.

R&D/Assets. Max(data46,0) / Total Assets.

Volatility. Standard deviation of most recent 3 years of monthly stock returns.

Local Firm Density. The log of 1 plus the number of nonfinancial firms listed within Compustat with headquarters within a 60-mile radius of the firm, excluding firms in the same Fama-French (1997) defined industry. Each firm's local density measure is weighted by market capitalization.

Annual Firm Performance Measures (source: CRSP and Compustat)

Annual Stock Return. Compound 12-month return for the fiscal year from CRSP.

ROA. Average return on cash flow from operations for the most recent 2 prior years adjusted by the industry median [(Cash Flow from Operations) / Beginning-Year Total Assets or data308/lag(data6)].

Quarterly Firm Performance Measure (source: CRSP and Compustat)

ROA. Return on cash flow from operations for the fiscal quarter. [(Cash Flow from Operations) / Beginning-Year Total Assets or data108/lag(data44)]. The most recent 4 quarters (current and previous 3 quarters) are averaged for each firm in the industry and then adjusted by the industry median.

Director and CEO Characteristics (source: RiskMetrics/Hand Collection from Proxy Statements)

Age. Age of director from RiskMetrics.

Board Tenure. Current year minus the year the director was 1st appointed.

Ownership %. Percent of common shares outstanding held by the director, including stock options, from RiskMetrics.

Founder-Director. Dummy variable: 1 if the director is a founder. Hand collected from proxy statements.

Related to Founder. Dummy variable: 1 if the director is a relative of the founder. Hand collected from proxy statements.

Talented Outsider. Independent outside director who holds 1 or 2 outside directorships.

President/COO. Dummy variable: 1 if the firm has a non-CEO insider with either title.

CEO Ownership %. Percent of common shares outstanding held by the CEO, including stock options, from RiskMetrics.

CEO Tenure. Current year minus the year the CEO joined the board, from RiskMetrics.

CEO Age (60–70). Dummy variable: 1 if the CEO is between 60 and 70 years old.

CEO Turnover. Dummy variable: 1 if the current year CEO was not the CEO from the previous year in RiskMetrics.

Forced CEO Turnover. Dummy variable: 1 if the firm announced the forced departure of its CEO in the current quarter. Forced departure is identified by manually searching press releases for CEO turnover within the sample period.

CEO Total Compensation. Consists of salary, bonus, the Black-Scholes (1973) value of option grants, restricted stock grants, long-term incentive payments, and other annual compensation (ExecuComp data item TDC1) ($1,000).

CEO Salary and Bonus. Total salary and bonus compensation for the CEO ($1,000) from ExecuComp.

CEO Equity Compensation. Total equity compensation, stock options, and restricted stock grants received by the CEO in the fiscal year ($1,000) from ExecuComp.

CEO Pay-Performance Sensitivity (PPS). (#shares held by the CEO + deltaX (#options held by the CEO))/total shares outstanding computed from ExecuComp data items.

Board Characteristics (source: RiskMetrics)

Inside Director Younger Than 45. Indicator variable that equals 1 if the firm has at least 1 non-CEO inside director who is younger than 45.

Board Ownership. Percent of common shares outstanding held by all directors of the board, excluding the CEO, including stock options, from RiskMetrics.

Outside Director Ownership. Percent of common shares outstanding held by all outside directors of the board, excluding the CEO, including stock options, from RiskMetrics.

High Outside Director Ownership. Dummy variable: 1 if the ownership of the outside directors is above the median ownership of outside directors.

Board Size. Number of directors on the board from RiskMetrics.

Percent Independent. Percentage of directors on the board classified as independent in RiskMetrics. Independence refers to no business or family connections to the firm or its management.

60% Independent Outsiders. Dummy variable: 1 if the percentage of independent outside directors is at least 60%.

Percent Affiliated. Percentage of directors on the board classified as "linked" in RiskMetrics. Linked or affiliated refers to directors that are not employees of the firm but have other connections to the firm such as business or family ties.

Separate Inside Chair. Dummy variable: 1 if an insider other than the CEO is the chairperson of the board.

Busy Board. Dummy variable: 1 if 50% or more of the outside directors hold 3 or more additional directorships.

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