

# Signaling a successor? A theoretical and empirical analysis of the executive compensation-chief executive officer succession relationship

Spenser M. Essman | Donald J. Schepker  |  
 Anthony J. Nyberg  | Caitlin Ray

Darla Moore School of Business, University of South Carolina, Columbia, South Carolina

## Correspondence

Spenser M. Essman, Darla Moore School of Business, University of South Carolina, 1014 Greene Street, Columbia, SC 29208.  
 Email: spenser.essman@grad.moore.sc.edu

## Abstract

**Research Summary:** Extant research rarely explores the relationship between executive compensation and chief executive officer (CEO) succession planning, despite practitioner claims that executive pay disparities indicate succession planning (in)effectiveness. Leveraging signaling theory, we use 830 succession events from 2010 to 2017 to show that pay disparity between the CEO and the highest paid non-CEO executive is positively related to the likelihood of outside CEO succession. Thus, boards need to be aware of the implications of possible unintentional signals sent via executive compensation decisions. We do not find evidence of an interactive effect when compensation and CEO succession are co-managed using linking pin directors—directors with compensation and CEO succession responsibilities—but supplemental analyses suggest a positive main effect of linking pin directors on the likelihood of inside CEO succession.

**Managerial Summary:** Powerful watchdog agencies assert that high pay differences between a firm's CEO and its next highest paid executive (*CEO-HPE pay disparity*) indicate succession planning challenges. This assertion has profound implications for stakeholders, but evidence supporting it is unclear. Our study examines the

relationship between CEO–HPE pay disparity and the board's choice of an outside CEO, an indicator of ineffective succession planning. We find evidence that higher pay disparity signals an increased likelihood of choosing an outside CEO successor. We also find that boards who co-manage compensation and succession may be more likely to hire an inside CEO successor. Our findings suggest that boards need to understand how compensation decisions may be inadvertently signaling future CEO succession choices.

#### KEY WORDS

CEO succession, executive compensation, executive pay disparity, signaling theory, top management teams

"Internal pay parity ratios among executives may be an indicator of potential succession-planning challenges within the organization, and may also signal that pay levels for the CEO are excessive." — Institutional Shareholder Services (ISS)

## 1 | INTRODUCTION

Watchdog agencies claim that pay differences (*pay disparity*) between a firm's chief executive officer (CEO) and its highest paid senior executives indicate CEO succession planning problems. Concurrently, research suggests that pay disparities (also pay dispersion or pay gap; Shaw, 2014) can result in motivational and performance consequences that affect the composition and functioning of a firm's highest paid executives (Henderson & Fredrickson, 2001; Messersmith, Guthrie, Ji, & Lee, 2011; Ridge, Aime, & White, 2015; Siegel & Hambrick, 2005). However, the limited empirical evidence finds no relationship between the pay disparity between the CEO and average pay of other named executive officers, and CEO successor choice (e.g., Ridge, Hill, & Aime, 2017). Thus, practitioner claims that executive pay disparities are indicative of ineffective succession planning are rightfully questioned. Furthermore, the mechanisms relating executive pay disparities to CEO succession planning challenges remain unclear.

In contrast to extant research, we adopt a signaling theory perspective (Spence, 1973) to reconcile the disconnect between proxy advisor claims and research findings. Executive pay disparity research primarily uses tournament theory (Lazear & Rosen, 1981) to examine its motivational and performance outcomes (e.g., Henderson & Fredrickson, 2001; Ridge et al., 2015). We suggest that pay disparities signal information that informs our understanding of how the board's primary lever, compensation, is related to its most important responsibility, planning for and choosing a CEO successor (Finkelstein, Cannella, Hambrick, & Cannella, 2009). Specifically, we posit that low pay disparity between the CEO and the highest paid non-CEO executive (*HPE*) signals greater viability of an inside candidate and is a stronger signal when more board members co-manage compensation and succession. Consequently, high CEO–HPE pay disparity may unintentionally signal lower internal candidate viability and a succession planning failure.

The present study makes three primary contributions to the executive compensation and CEO succession literatures. First, we use signaling theory to integrate executive compensation and CEO succession research. This integration establishes a theoretical foundation for understanding how the informational content of pay disparities signals future CEO successor choice. Through combining these two literatures, which rarely speak directly to each other, we examine previously unexplored signals of future CEO successor choice.

Second, we highlight the importance of unintentional signals. Research primarily focuses on intentional, positive signals, and empirical evidence of unintentional, negative signals and their repercussions is sparse (Connelly, Certo, Ireland, & Reutzel, 2011). Our findings suggest that executive pay disparities are related to future successor choice. Thus, boards should assess whether they are signaling their intended message to stakeholders.

Third, we illustrate the importance of specificity in analyzing pay disparities in executive compensation. Extant research largely focuses on the pay disparity between the CEO and the average of named executive officers (e.g., Ridge et al., 2015); however, by examining specific executives, we identify a reliable signal of CEO successor choice where prior research suggested no relationship, suggesting that variation in compensation among executive officers contains meaningful information. Thus, researchers should carefully consider whether theories appropriately apply to individual or averages of executives, and when conclusions may differ.

## 2 | THEORETICAL BACKGROUND

### 2.1 | Executive compensation and CEO succession

Extant research on executive pay disparities primarily use tournament theory to explain motivational and performance differences (e.g., Ridge et al., 2015). Explained pay disparities, or pay differences based on productivity-relevant employee inputs, can enhance performance (Trevor, Reilly, & Gerhart, 2012). Thus, high pay disparities may motivate potential internal CEO successors to improve performance and develop human capital. One might then expect CEO-executive pay disparity to yield greater inside candidate viability; however, executive pay disparity research rarely considers CEO succession outcomes.

While research has not shown a connection between pay disparity and CEO succession (cf. Ridge et al., 2017), firms, analysts, and major proxy advisors (e.g., ISS; Glass Lewis, 2012) suggest compensation and succession are interrelated. For instance, Walmart's (2019, p. 49) proxy statement states that "succession planning and the importance of retaining" executives, as well as executive potential, are primary factors that contribute to differences in executive compensation. Likewise, proxy advisors suggest that CEO-executive pay disparities are indicative of firm succession planning effectiveness, and ISS includes CEO-HPE pay disparity as part of its risk assessment that effects "say on pay" recommendations (ISS, 2019). Thus, executive pay disparity research appears to be disconnected from how practitioners view pay disparities.

### 2.2 | Compensation as a CEO succession signal

Signaling theory posits that a signaler and receiver signal unobservable qualities to reduce information asymmetries (Spence, 1973). Strategic leadership research primarily applies signaling

theory to examine how firms send intentional, positive signals to stakeholders (Connelly et al., 2011). However, signals can also be unintentional or negative.

To assess pay disparity as a CEO succession signal, we consider two signal dimensions: *observability* and *reliability* (Connelly et al., 2011). Observability, or visibility, indicates the degree to which a signal is visible to receivers. In the United States, publicly traded companies must disclose the salaries of their CEO, CFO, and the next three highest paid executives ([www.sec.gov](http://www.sec.gov)). Executive compensation is frequently discussed and scrutinized in the popular press and by proxy advisory firms. Thus, executive pay disparities are highly visible. Reliability is the degree to which a signal accurately reflects the quality it is signaling. Many factors influence executive compensation (Nyberg, Fulmer, Gerhart, & Carpenter, 2010), which makes it difficult to identify how and why pay disparities signal succession planning. Recent research claims that CEO-executive pay disparities do not contain information related to CEO successor choice (Ridge et al., 2017), further clouding whether pay disparity is a reliable succession signal.

However, we posit that cloudiness exists, in part, because research has frequently focused on comparing CEO pay to the average pay of the other named executive officers (e.g., Henderson & Fredrickson, 2001; Ridge et al., 2017). This approach is intuitive, especially if the outcome of interest is affected by all named executives (e.g., firm performance), but not all executives are potential successors (Schepker, Nyberg, Ulrich, & Wright, 2018). Thus, CEO-average named executive officer pay disparity may not be a reliable succession signal because it is distorted by pay of those who are not viable candidates. Pay differences between named executives are likely to carry information, and we argue that there are two primary explanations for why CEO-HPE pay disparity is an informative signal of the board's future successor.

First, CEO-HPE pay disparity may result from human capital differences. Historically, economists view pay as a reflection of individual human capital (Milgrom & Roberts, 1992), and deviations in executive compensation are presumed to be partially driven by human capital differences (Datta & Iskandar-Datta, 2014; Quigley, Wowak, & Crossland, 2020). Boards also strive to use compensation to drive individual contributions and to enhance executive team functioning and individual motivation (Fredrickson, Davis-Blake, & Sanders, 2010; Siegel & Hambrick, 2005). Thus, CEO-HPE pay disparities are likely to signal, at least in part, information about relative human capital differences and expectations of future performance.

Second, CEO-HPE pay disparity may also result from characteristics not related to human capital. For instance, pay disparity has been used to measure CEO narcissism (Chatterjee & Hambrick, 2007), self-importance (Hayward & Hambrick, 1997), and power (Finkelstein et al., 2009). Furthermore, CEOs can influence executive compensation, meaning that CEO-HPE pay disparity may result from a CEO's self-interest to earn more than others (Hayward & Hambrick, 1997) or reflect the CEO's desire to suppress the pay (and likely development) of potential successors. However, even if CEOs influence CEO-HPE pay disparity for nonhuman capital reasons by either inflating their own compensation or repressing the pay of others, the compensation disparity may still influence the board's perceptions of candidates, as boards typically rely heavily on the CEO's opinion when evaluating candidate viability.

## 2.3 | CEO-HPE pay disparity and succession planning effectiveness

A critical concern when selecting a new CEO is avoiding adverse selection (Zajac, 1990), and choosing well generally leads to higher levels of knowledge, skills, and abilities (i.e., human capital; Finkelstein et al., 2009). To the extent that CEO-HPE pay disparity signals human

capital differences as perceived by the board or the CEO, higher CEO–HPE pay disparity signals that the HPE has a lower level of human capital relative to the CEO. A larger human capital gap (i.e., higher disparity) would consequently decrease perceptions of internal candidate viability making it more likely that the board will look outside for a CEO successor. Conversely, low CEO–HPE pay disparity signals greater viability of the most likely internal candidate.

As described, CEO–HPE pay disparity can also be influenced by characteristics unrelated to human capital, such as CEO power. High CEO power can lead to both high CEO–HPE pay disparity and choosing an internal successor, when a powerful CEO wants to ensure a hand-picked successor to carry on the incumbent's policies (Zajac & Westphal, 1996). However, CEO power does not necessitate high CEO–HPE pay disparity because powerful CEOs can increase the pay of their hand-picked executives as well as their own pay (Carpenter & Sanders, 2002). Rather, high CEO–HPE pay disparity resulting exclusively from CEO power requires a powerful CEO who wants large pay disparities, such as a narcissistic CEO (Hayward & Hambrick, 1997; Siegel & Hambrick, 2005). Narcissistic CEOs, who have inflated self-importance, are more likely to distribute rewards inequitably (Resick, Whitman, Weingarden, & Hiller, 2009), leading to HPE turnover (Messersmith et al., 2011). Narcissistic CEOs may also limit candidate development (Schepker et al., 2018) or push out the HPE to reduce executive quality to enhance their narcissistic esteem (Chatterjee & Pollock, 2017). Such actions reduce the viability of internal successors. Taken together, an increased likelihood of HPE turnover and decreased executive development may reduce the viability of the internal talent pool and suggests the board will be more likely to seek an outside successor regardless of what drives the pay disparity.

### **Hypothesis 1 (H1).** *CEO–HPE pay disparity is positively related to outside CEO succession.*

We argue that CEO–HPE pay disparity signals the likelihood that the board will choose an outside CEO successor; however, signal reliability may be affected by signaler characteristics (Connelly et al., 2011). A key characteristic of boards is their use of committees to address structural constraints and enhance information processing (Kolev, Wangrow, Barker, & Schepker, 2019). The board's compensation committee is responsible for ensuring executives are effectively (Conyon & Peck, 1998) and equitably compensated (Glass Lewis, 2012). CEO succession planning responsibilities vary across firms. Some firms designate responsibility to the full board (e.g., Procter & Gamble; Target), while others use the nominating and governance (Zhang, 2008) or compensation committee (Schepker et al., 2018). Committees, however, can impede board communication and knowledge transfer because noncommittee members only receive information the committee discloses (Brandes, Dharwadkar, & Suh, 2016).

Boards can use linking pin directors—directors who simultaneously serve on multiple committees—to reduce information asymmetries and improve decision making (Brandes et al., 2016). We focus on linking pin directors who serve on the committees with CEO succession and executive compensation duties (*CS linking pin directors*). CS linking pin directors are uniquely positioned to communicate information about succession plans to the compensation committee, thus increasing the committee's awareness of an executive's succession viability. Consequently, this information may increase alignment between compensation and succession plans, enhancing the informational reliability of executive pay disparities as a succession signal. When there are more CS linking pin directors, it is more likely that such information will be shared across committees, increasing the likelihood that CEO succession and executive compensation decisions are considered in tandem. Consequently, CEO–HPE pay disparity ought to

be a stronger signal of the board's assessment of the HPE when there are more linking pin directors.

**Hypothesis 2 (H2).** *CS linking pin directors moderate the relationship between CEO–HPE pay disparity and outside CEO succession such that more CS linking pin directors will strengthen the CEO–HPE pay disparity—outside CEO succession relationship.*

## 3 | METHODS

### 3.1 | Data and sample

Our sample consists of succession events, where a new CEO permanently replaced an outgoing CEO, for firms included in the S&P 1500 any time from 2010 to 2017. Using ExecuComp, we found 1,634 potential new CEOs during this time. We reviewed each event and removed interim CEOs,<sup>1</sup> new CEOs resulting from structural changes (e.g., mergers), miscoded observations (i.e., succession did not occur), events with missing data, and abnormal pay situations (e.g., founder CEOs with \$1 salaries). This resulted in a final sample of 830 succession events in 739 firms.

### 3.2 | Measures

#### 3.2.1 | Dependent variables

*Outside CEO succession* was a dichotomous variable: 1 = outside succession; 0 = inside succession. Successors were coded inside if they joined the focal firm at least 6 months before the official announcement date that the incumbent CEO would be exiting to limit changes in compensation that may have been related to the announcement of a succession plan. We classified 285 of 830 (34.34%) events as outside successions.

Research uses varying tenure lengths for inside versus outside CEO origins. We selected 6 months for theoretical and methodological reasons.<sup>2</sup> For instance, if the firm hires a COO 1 year before the succession announcement, reducing CEO–HPE pay disparity by paying the COO more than incumbent executives, the move may indicate that the board saw a lack of potential internal successors, hired a new HPE, and reduced pay disparity due to increased human capital. Methodologically, the six-month cutoff also avoids estimating the independent variable using an executive who is coded as an outside CEO successor, resulting in questionable construct validity.

#### 3.2.2 | Independent variables

*CEO–HPE pay disparity* contains two components: incumbent CEO pay (*CEO pay*) and the pay of the HPE (*HPE pay*). HPEs were identified via Compustat as the highest paid, non-CEO

<sup>1</sup>We removed interim CEOs from our sample but included the subsequent permanent successor.

<sup>2</sup>We also ran our analyses using 1-year and 2-year cutoffs and found similar results, which are available on request.

executive.<sup>3</sup> For each component we used total direct compensation (TDC1) in ExecuComp for the fiscal year ending before the succession announcement date to capture board-allocated compensation. TDC1 contains salary, bonuses, and the value of stock awards (cf. ExecuComp; Quigley et al., 2020). We also systematically reviewed the pay data for outliers (cf. Aguinis, Gottfredson, & Joo, 2013). First, we assessed the presence of “extreme outliers” using the Quartile method. Second, pay that changed by a factor of two or more, CEO or HPE pay doubled or decreased by 50%, year-over-year was also deemed an outlier. Each outlier was reviewed to adjust for abnormal pay (e.g., hiring bonuses, severance payments).

Extant research often operationalizes executive pay disparity using a ratio (e.g., Hayward & Hambrick, 1997; Henderson & Fredrickson, 2001; Ridge et al., 2015); however, variance in the numerator and/or denominator could explain results. Using a ratio as a predictor also increases the likelihood of Type II error (Certo, Busenbark, Kalm, & LePine, 2020; Wiseman, 2009). Thus, we test our hypotheses using two methods to ensure that our findings are robust and interpretable. First, we include each component of CEO–HPE pay disparity as unscaled predictors. Using unscaled variables avoids biases associated with ratios and the hypothesis test becomes an assessment of the main effect of the predictor (i.e., HPE pay) while controlling for the scaling variable (i.e., CEO pay; Certo et al., 2020). Second, we include the ratio of CEO pay to HPE pay and control for each component to better isolate the unique variance associated with the ratio measure, which improves the interpretability of our findings and maintains construct validity with extant research and practitioner measures.<sup>4</sup>

### 3.2.3 | Moderating variable

*CS linking pin directors* was measured as a count of succession committee members also serving on the compensation committee (range = 0–10; mean = 2.44), while controlling for *compensation committee size* (mean = 4.28). We used the most recent proxy filing before the announcement date to determine the succession committee and directors who served on each committee. If the compensation committee had succession responsibility, or if the full board was responsible, CS linking pin directors was equal to the number of compensation committee members. When a committee was not specified as responsible for CEO succession planning, or no compensation committee members had succession planning responsibilities, we coded the observation as zero (i.e., no CS linking pin directors). Counts greater than zero, but less than the size of the compensation committee, indicate separate committees had compensation and succession responsibilities with some membership overlap.

### 3.2.4 | Covariates

We included covariates to account for alternative explanations for outside CEO successor choice. We included firm size (*assets*) because larger firms are more likely to choose inside CEO successors. We also included components (rather than ratios) of firm performance because poor

<sup>3</sup>For the 545 inside successions, the CEO successor was the HPE (n = 345) or another named executive officer with similar levels of pay (n = 162) in 93.03% of cases (median pay difference was 15.60%).

<sup>4</sup>Results were also consistent when operationalizing pay disparity as an interaction term of the numerator and inverse denominator (e.g. CEO pay \* 1/HPE pay; cf. Wiseman, 2009), and are available upon request.

performance is related to outside CEO succession, including *net income*, *starting share price*, *ending share price*, and *dividends paid*. Additionally, we included *shareholder's equity* for liquidity. We included *incumbent CEO age* and *CEO duality* (coded "1" if the incumbent CEO was also board chair, "0" otherwise) as these may reflect CEO power and affect successor choice (Zajac & Westphal, 1996), as well as whether the firm had an *heir apparent*,<sup>5</sup> measured as a COO or President at least 5 years younger than the CEO ( $n = 340$ ; Cannella & Shen, 2001). We also included the total number of board members (*total directors*), and number of *outside directors*. To control for unobserved heterogeneity between years and industries, we used dummy codes for the *year* of the succession event and for *industry* using six categories (cf. Schepker et al., 2018). We also included a dummy variable to account for firms with more than one succession event during the sample window (*multiple successions*).<sup>6</sup>

### 3.3 | Analysis

To test our hypotheses, we used logistic regression (*glm* model from the *stats* package in R) to account for the binary dependent variable and robust standard errors to account for heteroscedasticity. Our level of analysis is the succession event, limiting our sample to only firms that experienced successions. This may create sample selection bias. To address this potential, we conducted a two-stage Heckman model using incumbent CEO ownership as an exclusion restriction. In our second stage model, we obtained *lambda* as the coefficient of the Inverse Mills ratio and found it was not related to choosing an outside successor ( $b = 0.08$ ;  $p = .79$ ). Additional tests also did not support the presence of sample selection bias (see Appendix S1, Supporting Information for detailed Heckman analysis). Thus, our results do not incorporate lambda.

## 4 | RESULTS

Table 1 shows bivariate correlations and descriptive statistics. HPE pay is negatively and CEO-HPE pay ratio is positively correlated with outside CEO succession. These correlations suggest preliminary evidence for the signaling effects of executive pay disparities on successor choice.

Table 2 shows results of logistic regression analyses predicting outside CEO succession. Model 1 includes only covariates. Model 2's results show that HPE pay is negatively related to outside CEO succession ( $b = -0.60$ ;  $p < .01$ ). This suggests that, controlling for CEO pay, firms with higher paid and likely higher human capital HPEs are less likely to hire outside CEO successors, which is consistent with our logic for Hypothesis 1. To interpret the effect size, we calculated the probability of outside CEO succession at three levels of HPE pay while holding all other variables at their means: low (-1 SD), mean, and high (+1 SD). The probability of outside CEO succession at these values of HPE pay was 42.74, 29.04, and 18.32%, respectively. Thus, outside CEO succession is 133.30% [(42.74–18.32)/18.32] more likely at the low than the high level of HPE pay. This effect size suggests that the pay of the HPE alone is significantly related

<sup>5</sup>We also tested models using a dummy variable to control for when the HPE was an heir apparent or when the HPE was a COO or President, regardless of age. Results were consistent and are available upon request.

<sup>6</sup>We also tested models with liabilities and institutional ownership. Results were nearly identical; however, they were not included in final analyses due to high correlations with other variables and reliance on ratios.

**TABLE 1** Descriptive statistics and correlations

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Outside CEO succession	0.34	0.48																	
2 Assets	18,697.59	97,138.38	-.08																
3 Net income	628.21	2051.20	-.12	.56															
4 Shareholder's equity	4,656.66	13,639.42	-.10	.83	.77														
5 Ending share price	41.13	33.83	-.18	.06	.26	.17													
6 Starting share price	38.98	32.96	-.14	.03	.23	.15	.92												
7 Dividends paid	21.02	126.24	-.04	.14	.10	.16	.18	.14											
8 Incumbent CEO age	59.72	6.97	-.16	.01	.04	.03	.04	.04	.04										
9 CEO duality	0.52	0.50	-.16	.04	.10	.08	.11	.08	-.05	.29									
10 Total directors	9.59	2.34	-.15	.22	.30	.31	.26	.28	.14	-.02	.07								
11 Outside directors	8.23	2.34	-.12	.23	.32	.33	.26	.28	.12	-.04	.07	.96							
12 Multiple successions	0.22	0.41	.19	-.05	-.03	-.04	-.06	-.03	.02	-.07	-.18	-.07	-.08						
13 Heir apparent	0.41	0.49	-.33	-.04	-.01	-.04	.07	.05	-.02	.38	.23	.04	.02	-.16					
14 Comp committee size	4.28	1.20	-.07	.11	.11	.15	.10	.04	.05	.09	.40	.42	-.01	.03					
15 CEO pay	6,097.78	5,085.51	-.18	.28	.52	.46	.41	.38	.10	.00	.19	.36	.38	-.10	.07	.20			
16 HPE pay	2,988.95	2,483.56	-.23	.33	.48	.50	.36	.32	.17	.02	.15	.35	.34	-.11	.13	.16	.85		
17 CEO-HPE pay ratio	2.10	0.78	.13	-.02	.08	.01	.13	.13	-.06	-.05	.08	.07	.14	.02	-.12	.11	.33	-.10	
18 CS linking pin directors	2.44	2.26	-.06	.14	.15	.18	.12	.13	.01	.01	.04	.24	.26	-.03	-.02	.44	.28	.24	

Note:  $n = 830$ ; High standard deviations relative to their respective means result from raw values that reflect differences in size and/or are not constrained by zero.

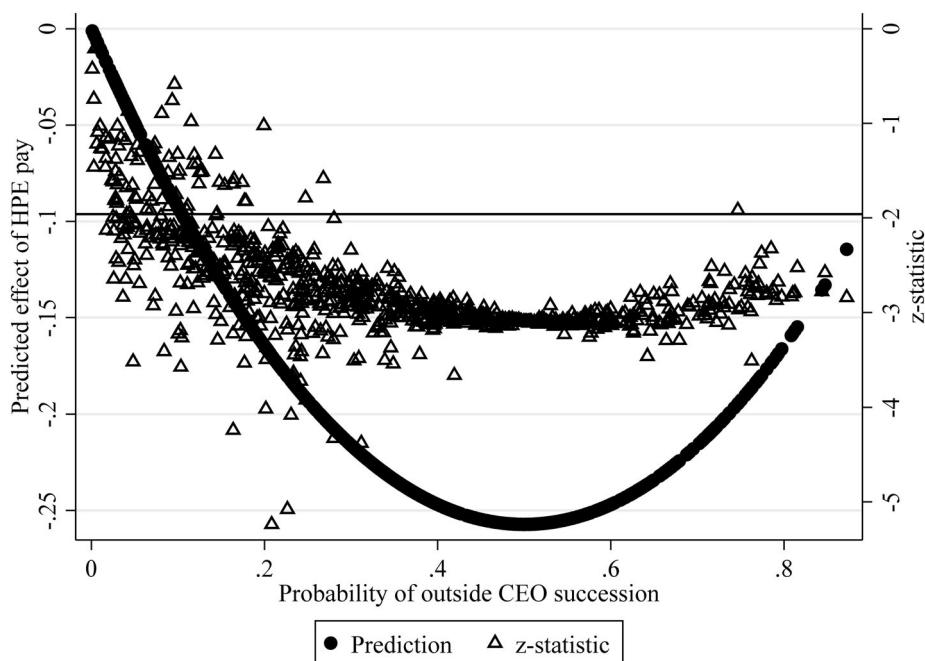
Abbreviations: CEO, chief executive officer; HPE, highest paid executive.

**TABLE 2** Logistic regression results predicting outside chief executive officer (CEO) succession

Variable	Outside						Outside						Outside					
	Outside successor:			successor with Outside successor:			Outside successor:			Linking pin directors			Outside successor:			Linking pin directors		
	successor: unscaled			successor with Linking pin ratio measure			successor: Linking pin directors			Linking pin directors			successor: Linking pin directors			Linking pin directors		
	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	Beta	SE	p	Beta	SE	p	Beta	SE	p	Beta	SE	p	Beta	SE	p	Beta	SE	p
Constant	-0.39	0.45	.38	-0.42	0.46	.36	-0.37	0.46	.42	-0.42	0.46	.36	-0.45	0.46	.33	-0.53	0.48	.27
Assets	-0.29	0.42	.49	-0.31	0.32	.33	-0.34	0.24	.17	-0.31	0.32	.33	-0.34	0.33	.29	-0.34	0.33	.31
Net income	-0.27	0.18	.13	-0.31	0.19	.09	-0.21	0.18	.25	-0.31	0.19	.10	-0.30	0.17	.08	-0.32	0.17	.06
Shareholder's equity	0.09	0.29	.75	0.34	0.30	.25	0.35	0.27	.21	0.34	0.30	.25	0.37	0.28	.18	0.36	0.26	.17
Ending share price	-0.78	0.25	.00	-0.72	0.26	.01	-0.77	0.26	.00	-0.71	0.26	.01	-0.74	0.25	.00	-0.72	0.25	.00
Starting share price	0.56	0.26	.03	0.54	0.26	.04	0.58	0.26	.03	0.54	0.26	.04	0.56	0.26	.03	0.56	0.25	.03
Dividends paid	-0.05	0.12	.67	-0.04	0.13	.75	-0.05	0.13	.69	-0.04	0.13	.74	-0.03	0.14	.81	-0.02	0.14	.86
Incumbent CEO age	-0.02	0.09	.80	-0.06	0.10	.55	-0.05	0.10	.57	-0.05	0.10	.57	-0.05	0.10	.57	-0.06	0.10	.56
CEO duality	-0.22	0.19	.25	-0.17	0.19	.37	-0.18	0.19	.34	-0.17	0.19	.37	-0.17	0.19	.39	-0.16	0.19	.40
Total directors	-1.51	0.40	.00	-1.34	0.40	.00	-1.19	0.40	.00	-1.34	0.40	.00	-1.32	0.40	.00	-1.34	0.39	.00
Outside directors	1.38	0.39	.00	1.25	0.40	.00	1.08	0.40	.01	1.26	0.40	.00	1.23	0.40	.00	1.27	0.39	.00
Multiple successions	0.85	0.21	.00	0.84	0.21	.00	0.83	0.22	.00	0.84	0.21	.00	0.84	0.22	.00	0.83	0.22	.00
Heir apparent	-1.50	0.20	.00	-1.42	0.20	.00	-1.40	0.20	.00	-1.43	0.20	.00	-1.44	0.20	.00	-1.43	0.20	.00
Comp committee size																		
CEO pay	0.26	0.20	.20	-0.71	0.32	.03	0.26	0.20	.20	0.37	0.21	.08	0.34	0.22	.12	-0.63	0.32	.05
HPE pay	-0.60	0.23	.01	0.28	0.30	.35	-0.60	0.23	.01	0.02	0.10	.82	-0.77	0.24	.00	0.21	0.31	.50
CEO-HPE pay ratio																		
CS linking pin directors																		
CEO pay × linking pin directors																		
HPE pay × linking pin directors																		

TABLE 2 (Continued)

**Abbreviation:** HPE, highest paid executive.



**FIGURE 1** The marginal effect of highest paid executive (HPE) pay on outside chief executive officer (CEO) succession

to successor choice. Plotting the marginal effect (Figure 1) shows that HPE pay is related to outside CEO succession for virtually all observations with a predicted likelihood between 0.10 and 1.00 and strongest for likelihoods between 0.30 and 0.70.

We further examined the main effect of CEO–HPE pay ratio on outside CEO succession while including the components of the ratio as covariates in Model 3. The results show that CEO–HPE pay ratio is positively related to outside CEO succession ( $b = 0.55$ ;  $p < .001$ ).<sup>7</sup> To interpret the effect size, we calculated the probability of outside CEO succession at low (18.59%), mean (28.35%), and high (40.66%) levels of CEO–HPE pay ratio. Thus, outside CEO succession is 118.72% [(40.66–18.59)/18.59] more likely at the high than the low level of CEO–HPE pay ratio. Given these results, we find support for Hypothesis 1.

Hypothesis 2 proposed that CS linking pin directors positively moderate the relationship between CEO–HPE pay disparity and outside CEO succession. Because we used unscaled measures, we assessed Hypothesis 2 in three ways. First, in Model 5, we added interaction terms between CS linking pin directors and the components of CEO–HPE pay disparity, which suggested a potential interaction between CS linking pin directors and each component pay measure. Second, in Model 6, we included a three-way interaction between the components of CEO–HPE pay disparity (CEO pay and HPE pay) and CS linking pin directors ( $b = -0.02$ ;  $p = .90$ ). Third, we assessed whether there was an interaction between CEO–HPE pay ratio and CS linking pin directors (Model 7:  $b = -0.09$ ;  $p = .29$ ) but did not find evidence of an

<sup>7</sup>Several covariates had VIFs that were consistently above 5, with some over 10, but the interpretation and standard errors of the variables of interest should not be affected: however, dropping total directors and starting share price lowered VIFs. When pay ratio variables were included, CEO pay and HPE pay had VIFs between 5 and 12, so we also ran ratio models without component controls. Results were consistent and are available upon request.

interaction. The marginal effect is also not statistically significant across the range of observations (graph omitted due to space but available upon request). Thus, we did not find support for Hypothesis 2.

## 4.1 | Supplemental analyses

We also conducted several additional robustness tests. First, results were consistent using random coefficient modeling and when analyzed in Stata. Second, findings were consistent when using logged variables for assets and pay components to minimize skewness.

Third, endogeneity concerns are common in executive compensation and CEO succession studies. Thus, we calculated the impact threshold of a confounding variable to assess how strong an omitted variable would have to be to alter our inferences (Frank, 2000). This analysis for Model 3 suggests that 44.89% of our estimate would need to be attributed to bias (i.e., observations with no effect must replace 373 of our 830 observations) to invalidate our inferences. Alternatively, an omitted variable would need to be correlated with outside CEO succession *and* CEO–HPE pay disparity at  $\pm 0.25$  to invalidate our findings. Given that none of our current measures meet this standard, and the large portion of our sample that would need to be replaced with no effect, it is unlikely that our findings result from such confounding variables.

Fourth, a limitation of our CS linking pin director measure is that some firms did not denote responsibility for CEO succession planning in the proxy. Our primary analyses treated these firms as if they did not have any CS linking pin directors, but we reran Models 4–7 (Table 2) using only firms that explicitly denoted CEO succession planning responsibilities in the proxy ( $n = 565$ ). We still did not find evidence of an interaction, but CS linking pin directors did have a negative direct effect on the likelihood of outside CEO succession. This suggests that rather than a moderating effect, coupling compensation and succession planning responsibilities may affect succession planning by using compensation to motivate and retain internal successor candidates.

Fifth, we ran additional supplemental analyses to verify our theoretical arguments and contribution (see Appendix S1). These analyses suggest that variation in pay over time and between executives are meaningful signals of CEO successor choice. We find that CEO–HPE pay disparity trend enhances the CEO–HPE pay disparity—outside CEO succession relationship, suggesting that it is important to consider signal change or consistency over time. Additionally, when an inside successor is chosen, the pay disparity between the HPE and the next highest paid executive is positively related to the HPE being chosen as CEO. Lastly, following guidance in the over/underpayment literature (cf. Quigley et al., 2020), we predicted CEO and HPE pay using firm, industry, and position characteristics to generate a residual representing individual executive human capital. We then included this residual measure as a control and a predictor in our models and found results that were effectively the same. In combination these robustness tests increase our confidence that the CEO–HPE pay disparity is a CEO succession signal.

## 5 | DISCUSSION

Influential practitioners claim that executive pay disparities signal succession planning (in) effectiveness; however, researchers rarely consider compensation and CEO succession in

tandem. The current study attempts to reconcile this by leveraging signaling theory to explain how and why executive pay disparities reliably signal future CEO successor choice. Our findings reveal that pay disparity between the CEO and the firm's next highest paid executive (HPE) is positively associated with outside CEO succession. In doing so, we shed light on the signaling strength of compensation regarding the board's future CEO successor choice.

Overall, we contribute to signaling theory, succession planning, and executive compensation research. First, we explain how and why executive pay disparities contain information that signals future CEO successor choice. Our findings suggest that boards may be unintentionally signaling future outcomes. Research should continue to explore both intentional and unintentional board signals to assess their reliability and stakeholder implications.

Second, we contribute to research on executive compensation by illustrating how compensation decisions reveal insight into other board domains. Thus, contrary to prior research that focuses on the motivational consequences of executive pay disparities, we find that pay disparities can also explain meaningful relationships between board actions that may not be intentionally related. By considering compensation as a signal, we can expand the outcome scope of executive compensation to include CEO succession.

Third, our findings reveal the importance of choosing appropriate executives when considering the influence of pay disparities. Our findings show differences between examining individual executive compensation and the average pay of named executives. Prior research finds no relationship between executive pay disparities and outside CEO succession when using the ratio of CEO pay to average named executive officer pay; however, we find a strong relationship when examining CEO–HPE pay disparity. Additionally, in supplemental analyses, we show that similar signals exist when comparing HPE pay to the next highest paid executive. Thus, our results suggest that executive pay disparities contain reliable information about individual differences which may be lost when combined into an average.

We did not find support for a moderating effect of CS linking pin directors; however, the supplemental analysis suggests that CS linking pin directors may directly affect CEO successor choice. More CS linking pin directors may ensure that compensation is equitable to effectively retain and motivate talented executives. Future research should continue examining the role of linking pin directors and their positions on the board that can enhance corporate governance.

It should be noted that our findings may not generalize to smaller, private firms or non-U.S. firms because signaling theory requires that signals be visible to receivers. In such firms, a lack of transparent pay may mean that compensation does not signal successor choice.

## 5.1 | Practical implications

Our findings support assertions that executive pay disparities signal CEO succession planning effectiveness. Boards should be aware that larger differences in pay between the CEO and HPE signal a higher likelihood that the board will choose an outside CEO. HPEs may interpret large pay gaps as indicators that they will not be the next CEO, resulting in turnover and reducing the internal talent pool from which the board can select a successor. Larger pay gaps between the HPE and next highest paid executive also suggest a higher likelihood that if the board chooses an insider, it will choose the HPE. Consequently, recognizing the source of the pay disparity signal should help boards identify when to develop internal talent or recruit external talent.

Executive pay disparity signals also have implications for other stakeholders. Investors may react negatively to the loss of talented internal candidates or a perceived lack of succession

planning (Tian, Halebian, & Rajagopalan, 2011) because of the unknown quality of potential outside hires; however, this signal may be viewed positively by the marketplace if investors desire change from the CEO successor. Since this signal can be unintentional, actions that contradict this signal may result in unexpected stakeholder reactions (Shen & Cannella, 2003)—boards must recognize that pay disparities signal stakeholders about CEO succession and assess whether the signals reflect the information they wish to convey.

## 6 | CONCLUSION

CEO succession planning is the board's most important responsibility, and compensation plays an implicit role in succession planning, but until now, researchers have rarely considered how or if boards co-manage these responsibilities. By incorporating signaling theory into succession planning research, we show how and why CEO–HPE pay disparities signal future CEO successor choice, departing from prior motivational explanations of CEO-executive pay disparities.

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## ORCID

Donald J. Schepker  <https://orcid.org/0000-0003-2089-370X>

Anthony J. Nyberg  <https://orcid.org/0000-0002-6653-5126>

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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