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Determinants of CEO Age at Succession

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Abstract. Based on Brickley's (2003) call for research on the CEO/turnover relation, we examine determinants of CEO age at succession. Utilizing the similarity–attraction paradigm, we propose that board members will select new CEOs that are similar to their own age. We find a strong positive relation between successor CEO age and average board member age. Thus, the similarity–attraction paradigm seems to play a role in board of director selection of CEO successors. However, we also propose that poor prior performance may mitigate similarity–attraction. Our results are also consistent with this hypothesis because we find no relation between successor CEO and board age following poor prior performance. Finally, the hiring of an age-similar CEO does not reduce the companies' subsequent financial performance and may even have a slightly positive impact on it.

1. Introduction

In a corporation in which managers and owners are not the same, various mechanisms have developed to help ensure that managers act on behalf of shareholders and thereby mitigate potential agency problems (Fama and Jensen, 1983). One such mechanism is the board of directors. Directors are supposed to serve as the group that represents shareholders' interests with management. One of the key functions of the board is to hire and fire the top managers in a company, particularly the CEO.

There have been numerous studies in the accounting, finance, and management literature on determinants of CEO turnover. The results of these studies have found many explanatory variables, but there seems to be no overall consensus of when and why CEO turnover/succession occurs. After reviewing the turnover/succession literature, Brickley (2003) states "...I am struck by the limited explanatory power of the various performance measures in the CEO turnover regressions" (p. 232). To further develop our understanding of the turnover process, Brickley calls for research in other facets of turnover and argues that "...the turnover/age relation has the potential to provide important insights on CEO turnover ..." (p. 232).

In this paper, we examine the relation between board demographics such as age and CEO selection. In particular, we propose that attraction theory will help explain CEO choices that boards of directors make.

We find that boards tend to hire CEOs whose ages are similar to their own. This result is consistent with the similarity–attraction paradigm. However, we find that similarity–attraction does not explain CEO selection following poor prior performance.

Whether or not the organizational homogeneity created by similarity–attraction is a desirable outcome is a separate question. Our finding that similarity–attraction is stronger in better performing firms suggests that its use in board selection of CEO successors may be related to financial outcomes. If organizational homogeneity is not a desirable outcome, its use may be an agency problem whose costs would be borne by shareholders. We, however, do not find evidence that similarity–attraction reduces firm performance, and it may slightly improve subsequent performance.

2. Theoretical Background

2.1. SIMILARITY–ATTRACTION

There has been considerable research on similarity–attraction that spans both the management/organizational behavior literature (e.g., Tsui and O'Reilly, 1989) and psychology literature (e.g., Jackson et al., 1991). Schneider (1987) developed the attraction–selection–attrition model, ASA. This model suggests that organizations evolve toward interpersonal homogeneity. People are drawn to organizations through similarity–attraction. That is, people seek out organizations whose members are like them. The organization seeks to attract similar members and screens out dissimilar people. Over time members with dissimilar traits will leave the organization. Thus, across time the organization approaches homogeneity.

Schneider's (1987) ASA model suggests that traits such as personality type and personal values are the personal dimensions that attract new members to organizations. Pfeffer (1983) developed a similar model, organizational demography. Pfeffer's arguments deal primarily with tenure and length of service for organizational work forces. Here the demographic composition of an organization affects organizational structure and communication patterns. Demographic features such as age, religion, sex, and socioeconomic position influence not only individual behavior, but also the actions of organizations.

The differences in the ASA model and organizational demography are subtle. Both would lead to similar conclusions; individuals are attracted to organizations that have people with comparable traits. Likewise, organizations attempt to attract similar individuals.

Tsui and O'Reilly (1989) call this the similarity–attraction paradigm, and Byrne (1971) refers to it as the attraction paradigm. They cite considerable research that documents a powerful association between similarity and interpersonal attraction and an association between dissimilarity and repulsion. As a result, Tsui and O'Reilly (1989) conclude that "people tend to be drawn to those who are similar to them in terms of demographic characteristics" (p. 404). Empirical research on similarity–attraction has generally found supporting evidence particularly in research in performance evaluation (Wexley et al., 1980; Mitchell, 1983; Pulakos and Wexley, 1983; Turban and Jones, 1988; Zalesny and Kirsch, 1989). We propose that similarity–attraction will also play a key role in board decisions concerning who will assume key executive positions. There is related research on this issue that is discussed below.

2.2. SIMILARITY–ATTRACTION AND SUCCESSION TURNOVER

Harrison et al. (1998) argue that social integration, which they define as "the degree to which group members are psychologically linked . . . with one another in pursuit of a common objective" (p. 96), is negatively related to group diversity. They find that this surface level diversity is more important at the beginning of group relationships and decreases in importance over time. Since the hiring of a CEO by a board is often the beginning of a relationship between the board and CEO, the surface diversity issues are probably important in the hiring decision.

Empirical evidence, related to our research, supports the similarity–attraction paradigm in hiring decisions. Westphal and Zajac (1995) find that CEOs seek to nominate new members of the board who are demographically similar. They further find that when CEOs are powerful in an organization, they are able to appoint directors that are demographically similar. However, when boards are relatively more powerful, the new directors are demographically similar to the existing directors. In either case the similarity–attraction paradigm holds, the difference is just that the more powerful party gets to choose the similar new board members. Zajac and Westphal (1996) also find that powerful boards appoint demographically similar CEOs especially when the successor CEO is an outsider.

Borokhovich et al. (1996) also report evidence, related to our research that supports the similarity–attraction paradigm. Firms with relatively more outside directors are more likely to appoint outside CEOs. In their research, the similar characteristic is the outsider designation for board members and successor CEOs. O'Reilly et al. (1989) find that demographic variables influence turnover rates. In particular, they find that age-heterogeneity in groups increases turnover rates. Wiersema and Bird (1993) also find that

demographic heterogeneity increases turnover rates. Wagner et al. (1984) also find age dissimilarity in organizations increased manager turnover. Thus, the relation between turnover and age has been documented. We focus on age and CEO succession decisions.

2.3. THE IMPORTANCE OF AGE SIMILARITY

Brickley (2003) argues that a fruitful area for future turnover research is how boards select successor CEOs. He further argues that CEO age at succession may be an important factor that can help us understand the turnover and succession process.

We have argued that similarity–attraction, in general, may guide board decisions. We now propose that CEO age at succession will be an important criterion in the board's decision. That is, boards will want to hire CEOs that are similar in age to that of their own.

Age similarity may dominate other characteristics because people of similar age will have shared experiences, not necessarily shared personal experiences, but shared experiences on world and cultural events. The board may view the shared experiences engendered by age similarity as a basis for a relationship with the successor, and the lack of the shared experiences as a detriment to communication and their potential relationship. The shared experiences due to age similarity between the CEO and board will likely mean that they may have a similar mindset when approaching problems. Whether or not there is actually a similar mindset, if the board perceives that similarity in age gives a similar mindset, the age similarity may influence the board's succession decision. In addition, people often choose friends base on age similarity, and friendship between the potential successor and board may play a role in the board's succession decision. As Brickley (2003) suggests, CEO age may be an important factor in succession decisions, but we argue that CEO age is a relevant primarily in its relation to board age.

2.4. RESEARCH HYPOTHESES

Consistent with the similarity–attraction paradigm, we suggest that boards will hire CEOs with similar characteristics as the board. Since there is considerable evidence that the paradigm manifests itself in demographic characteristics (Byrne, 1969; Pfeffer, 1983; Tsui and O'Reilly, 1989; Judge and Ferris, 1993), we argue that newly hired CEOs will have similar demographic characteristics as the board of directors. Thus our research hypothesis is:

> H_1: Boards will hire CEOs whose age is similar with their own average age.

Our first hypothesis extends the ideas of similarity–attraction to board of director CEO hiring decisions. We now propose an additional related theoretical argument; similarity–attraction becomes less important when there has been poor prior performance.

As long as a company is performing well it is convenient for the board to hire a new CEO with similar traits to their own. However, when performance is poor, the board may feel more pressure to make changes in the hiring process to adequately perform their fiduciary duties.

For example, there is a considerable body of theory arguing that poor prior performance increases the likelihood of CEO turnover (Engle et al., 2003) and also increases the probability that a new CEO will come from outside the firm (Vancil, 1987; Walsh and Seward, 1990). Farrell and Whidbee (2003) find that perhaps it is the deviation from expectation rather than simply poor performance that influences turnover decisions and the decision to hire an outside CEO. Performance seems to be a mitigating influence on the normal succession process.

We argue that performance may change the selection process of CEOs in other ways. In particular, when performance has been poor, the board may be less motivated by similarity–attraction. To institute change, the board may choose a successor CEO that is perceived as less likely to maintain the *status quo*. In some cases this may be an outside successor, but it may also translate into a successor with dissimilar demographic traits. For example, following poor performance a young board may choose a more seasoned and experienced CEO. An older board may choose a younger CEO. In both cases the selection may be based on the perceived ability of the successor to instigate change. This perception may be influenced by the dissimilar demographic traits between the board and the successor CEO.

This leads to our second hypothesis.

> H_2: Boards will be less likely to hire CEOs whose age is similar to their own following poor prior firm performance.

2.5. ECONOMIC DESIRABILITY OF SIMILARITY–ATTRACTION

Our previous two research questions addressed whether boards tend to hire new CEOs that are similar to board members in terms of age and whether similarity–attraction would play a lesser role when companies have performed poorly prior to the succession. Our third research question investigates the economic consequences of the paradigm. Is CEO/board member similarity–attraction in terms of age desirable from the shareholder's perspective? We propose that there may be both costs and benefits when boards hire demographically similar CEO successors.

On the one hand, similarity–attraction motivated hiring might not be beneficial to shareholders because board members may appoint more similar CEOs primarily to preserve their own jobs' security. Directorships are often seen as desirable and can be lucrative. Directors would not want to lose a board position, and they may believe that a demographically similar CEO would be less likely to replace them. Given a slate of potential candidates for the CEO position, directors may choose a candidate that is best for maintaining their directorship but one that is not the best candidate from the shareholders' perspective. Here, the costs of a similar appointment for shareholders would be that the best person does not receive the appointment and the new similar leader would not be as effective as other candidates in leading the company. Shareholders would bear these costs, and under these conditions, we could view the outcomes of similarity–attraction as an agency conflict.

On the other hand, similarity–attraction motivated hiring could lead to a neutral or an economically desirable outcome. When faced with a succession decision, boards may have a slate of several viable candidates. If there is very little that can distinguish one candidate over another, boards may use similarity–attraction to guide their decisions. Since this would not lead to the hiring of a suboptimal candidate, there would be no cost to the shareholders.

In addition, organizational homogeneity achieved through similarity–attraction could facilitate effective/efficient communication and decision-making, and it may ultimately enhance the financial performance of the firm. Board members may feel more comfortable working with a demographically similar CEO helping to maintain lines of communication and allowing open discussion. Here, the hiring of a similar CEO would be beneficial for shareholders because the improved communication could lead to better decision-making and subsequently to better company performance.

There are several theories that predict how similarity within organizations affects organizational outcomes and decision-making. As Harrison and Klein (2005) discuss, some of these theories propose that organizational diversity will facilitate new insights, improve creativity, foster innovation and enhance group decisions (e.g., Finkelstein and Hambrick, 1996; Hoffman and Maier, 1961). In addition, diversity can increase the number of approaches used to solve problems (Maier, 1967). On the other hand there are theories suggesting that diversity will cause conflict and division within groups (e.g., Chatman, 1991) which would reduce the effectiveness of the group's decision-making abilities. Given that theories predict conflicting outcomes, the solution may be in empirical work. However, Harrison and Klein also point out that there were over 134 studies on the outcomes of group diversity in 2003 alone, and that the findings "have been weak, inconsistent, or both" (p. 4). Webber and Donahue (2001) performed a meta-analysis and found diversity to have no impact on performance.

Even in those cases where similarity–attraction may benefit shareholders, when there has been poor prior performance, the potential benefits may diminish as the board searches for candidates with other characteristics. Board members may be less likely to make suboptimal decisions for their own benefit in times of low performance because they have fear of external disciplinary forces in the market. Board members may believe that to meet their fiduciary responsibilities (or be perceived to have met them) that they must select a dissimilar CEO with new ideas and with the ability to lead the firm in new directions.

While there may be both costs and benefits to similarity–attraction guiding board decisions, we believe that the benefits will outweigh the costs. Boards will not want to make decisions that will hurt company performance. Thus, when boards hire CEOs that are demographically similar, we expect that this will lead to better long-run performance. Hence our third hypothesis is:

> H_3: When boards hire CEOs that are similar in age to average board age, subsequent company financial performance will be enhanced.

3. Method

3.1. SAMPLE

Our sample is composed of corporations and their CEOs included in *Business Week's* 1992 report on "The Corporate Elite – The Chief Executives of the 1000 Most Valuable Publicly Held U.S. Companies." This report is a compilation of large firms in the public eye. This *Business Week* report provides a large cross-section of industries and contains our initial sample.

The benefits of utilizing a sample from this time period are that the takeover market was much more active than in later time periods and boards that make non-optimal succession decisions would more likely face the external discipline of the takeover market than in later periods.

We constructed our final sample using the following steps. We culled from the initial sample 49 firms not listed on COMPUSTAT. We then identified CEO succession announcements over the years 1982 to 1992 by tracing the announcements back in time. We used the *Wall Street Journal Index* and *New York Times Index* to identify the succession announcements and to obtain important information about the CEOs at the time of succession. From these reports we obtained the dates of announcements, the CEOs' origins and/or prior positions with the firms, and the executives' ages and other demographic data. We then obtained proxies for all firms with specific news announcements and found 244 announcements of the CEO successions.

3.2. EXECUTIVE DATA

3.2.1. *Executive age*

We traced each CEO's career back from 1992 to the initial announcement of their succession. Thus, all CEOs in our sample are permanent CEOs rather than interim CEOs. We calculated age in whole years for each CEO. As Table I shows, the youngest CEO in our sample is 31 and the oldest is 66. The mean is 51.66 years and median is 52.00. There are only five CEOs in their 30s. The most common age decade is the 50s with 131 executives age 50–59 at succession.

3.2.2. *Executive origin*

Our decision to identify an executive as an insider or outsider at the time of appointment is made based on the time span between his initial hiring by the firm and the date of his appointment. An executive that is not previously employed by the firm is clearly an outsider, just as an executive who has been with the firm for a long period of years is clearly an insider. Some companies hire executives for a very short period and then promote them quickly into a senior position. Is someone like this an insider or an outsider? To clarify whether an executive who had been with the firm only a few years before the appointment is an insider or outsider, we classify any successor employed by the firm for two years or less as an outsider. For our sample, only 46 of the 244 succession announcements are outsiders, while 198 executives are insiders.

Table I. CEO age statistics for a sample of 244 CEO successions age determined at the announcement of the succession

	CEO age	Inside board member[a] Ave. age	Independent outside board member Ave. Age	Affiliated board member Ave. Age	Average board member Ave. Age
Mean	51.66	57.03	60.07	62.22	7.28
Median	52.00	57.00	60.20	64.00	7.13
Range	31–66	35.5–77.0	45–73	41–88	−24.73–29.22
CEO Age	*Number*				
30–39	5				
40–49	81				
50–59	131				
60–69	27				

[a]For board members, we first average the age per director category (e.g. inside, outside, affiliated) for each board. The data above is the average for inside board members. For example the range of 35.5 77.0 shows that the lowest board average of insider ages is 35.5 years.

3.3. BOARD DATA

To determine board of director characteristics, we obtained the firms' proxy statements that precede the succession announcements.

3.3.1. *Director affiliation*

We used the director classification in Baysinger and Butler (1985), Byrd and Hickman, (1992), and Lee et al. (1992). We classified inside directors as any director employed by the firm in a role other than director. This category normally includes the CEO, president, assorted vice-presidents, and internal counsel. We classified affiliated outsiders as any director not directly employed by the firm, yet having very close or strong ties to the firm or the top executive officers. This category includes, but is not limited to, major outside counsel, executive retirees of the firm, other members of the founding or controlling family, directors employed by other firms that hold material voting shares of the firm's securities, and employees of material capital providers. We classified independent outsiders as any director who does not fall into one of the two previous categories.

3.3.2. *Director age*

The proxy statements give a director's age in whole years on the proxy date. For each board we separately average the age of the inside directors, affiliated directors, and independent outside directors. In many cases, the successor CEO is already on the board of directors. In these cases we do not include the successor CEO in the average board ages. As Table I shows, inside directors' ages average 57.03 years, affiliated directors' ages average 62.22 years, and independent outside directors' ages average 60.07 years. The average age of board members is 7.28 years older than the CEO.

3.3.3. *Director tenure*

We determined the tenure of the directors by calculating tenure as whole number of years at the time of the primary proxy mailing. However, if a director was added to the board after the proxy statement date but before the executive appointment announcement date, we entered a score of one-half year for the director. We also used the one-half year tenure for all directors noted in the proxy form as having served less than one year on the board. The full sample mean was tenure of 8.91 years. Insiders had a mean tenure of 9.59 years, independents a mean tenure of 8.16 years, and affiliated outside directors a much greater mean of 14.89 years.

3.3.4. *Prior performance*

We measured prior firm performance by computing the cumulative abnormal returns over a 200 trading day period (nearly 1 year) prior to the announcement date, using the equally weighted CRSP index and event methodology as reported in Fama et al. (1969) and as used in numerous other studies. This procedure controls for overall stock market movement and the firm's level of risk. The average CPE is −0.53% (and statistically insignificant) which is very close to zero when averaged across our sample firms.

3.3.5. *Other board and company data*

Evidence on the impact of board size on performance and other agency related questions is equivocal (Yermack, 1996; Dalton et al., 1999). We, therefore, control for board size, but we have no specific hypothesized or expected sign of its relation to the type of CEO selected. As shown in Table II, in our sample board size ranged from 4 to 30 members with a mean of 12.91 members.

Vafeas (1999) relates the number of meetings by a board as a proxy for board activity. More active boards seem to be positively associated with better performance. Xie et al. (2000) find more active boards to be associated with a lower incidence of earnings management. We controlled for any possible effects of board activity by examining the relation between the number of board meetings and executive demographics. We determined the number of times the board actually met in the preceding year. The most popular number of meetings per year was 6 (with 11 being the next most common number), while the mean value was 8.45.

We also obtained the percent of shares owned by managers and the board (which averages 7.04% in our sample) and the percent of shares owned by non-inside blockholders. Any shareholder, individual or institution, owning or controlling more than 5% of a firm's shares is listed in the proxy statement. The most common blockholders are trusts, insurance companies, pension funds, and other investment firms. Blockholders own an average of 11.4% of the sample firms' shares. Joos et al. (2003) argue that large firms tend to hire older CEOs, so we control for firm size with the natural log of assets.

3.4. STRUCTURE OF STATISTICAL TESTS

Race and sex have been found to be predictive in social categorizations (Stangor et al. 1992). However, because we do not have any variability on CEO race or sex, we can only examine the CEO's age at succession. To do this, we first examine and compare the board variables across the CEOs' succession ages grouped by age decade, 30–39, 40–49, 50–59 and 60–69. We

Table II. ANOVA comparison of board and firm characteristics across CEO age categories. Age determined at CEO succession

	Total Sample			Age 30–39	Age 40–49	Age 50–59	Age 60–69	ANOVA	Kruskal Wallis
	Mean	Median	Range[a]	Mean	Mean	Mean	Mean	*F*-statistic	Chi-square
Board size	12.91	13.0	4–30	10.40	12.91	13.23	11.81	1.62	5.27
Director age	58.94	59.27	40.27–69	53.75	58.50	59.22	59.93	4.15**	9.70*
Director tenure	8.91	8.62	1.04–23.71	10.79	8.80	8.56	10.57	2.76*	4.18
Inside director age	57.03	57.00	35.5–77.0	49.60	55.81	57.57	59.56	8.73***	22.76***
Proportion inside directors	25.85	23.00	0–100	30.00	24.45	25.53	30.70	1.98	2.47
Inside director tenure	9.59	8.33	0.5–34	11.55	9.60	8.91	12.61	3.17*	5.06
Outside director age	60.09	60.20	45.3–73.0	54.98	59.89	60.12	61.53	3.46*	5.91
Proportion outside director	67.09	71.00	0–100	67.8	66.38	68.37	62.89	0.92	0.91
Outside director tenure	8.16	7.73	1.0–23.0	10.07	8.15	7.87	9.30	1.58	1.03
Affiliated director age	62.22	64.00	41.0–88.0	64.00	61.66	62.66	61.76	0.13	0.37
Proportion affiliated director	7.05	0.00	0–67	2.2	9.11	6.06	6.33	1.98	4.39
Affiliated director tenure	14.89	13.00	0.3–66.0	25.00	13.56	15.69	14.75	0.56	3.57
Block share ownership	11.40	5.30	0.0–87.6	3.29	12.79	11.42	8.68	0.66	1.83
Board and manager votes	7.04	2.29	0.0–80.9	15.6	9.08	4.78	10.36	3.78*	15.05**
Number of board meetings	8.45	8.00	3–20	6.8	8.53	8.48	8.37	0.47	1.66
Prior firm performance	−0.53	−2.06	−67.74–90.14	−6.31	−4.43	1.96	10.84	1.47	4.98
	$n = 244$			$n = 5$	$n = 81$	$n = 131$	$n = 27$		

[a]Data is measured across board averages.
***Significant at 0.001 or better.
**Significant at 0.01 or better.
*Significant at 0.05 or better.

Table III. Correlations

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Executive age	1.00												
2	Board size	−0.37**	1.00											
3	Average director age	0.40**	−0.58**	1.00										
4	Average director tenure	−0.07	0.45**	0.05	1.00									
5	Proportion of inside directors	0.08	−0.09	−0.04	0.08	1.00								
6	Average inside director age	0.32**	−0.15**	0.44**	0.17**	−0.03	1.00							
7	Average inside director tenure	−0.01	0.28**	−0.01	0.71**	0.06	0.33**	1.00						
8	Average outside director age	0.07	0.01	0.42**	0.16**	−0.15**	0.05	0.03	1.00					
9	Average outside director tenure	−0.13**	0.46**	0.02	0.86**	−0.09*	0.07	0.44**	0.38**	1.00				
10	Percent votes officers & directors	−0.10*	−0.03	−0.16**	0.05	0.27**	−0.08	0.13**	−0.32**	−0.12**	1.00			
11	Number of board meetings	−0.20**	0.48**	−0.23**	0.14**	−0.21**	−0.02	−0.01	0.04	0.23**	−0.23**	1.00		
12	Prior firm performance	0.02	0.01	0.02	−0.04	−0.02	0.01	−0.03	0.04	0.00	0.02	−0.04	1.00	
13	Percent blockholder votes	−0.05	−0.03	−0.08	−0.11*	0.03	−0,05	−0.06	0.03	−0.12*	0.10*	−0.17**	0.01	1.00

**Significant at 0.01 or better.
*Significant at 0.05 or better.

also use the CEO's age at succession as a dependent variable in regression tests of our data.

Finally, we measure abnormal returns around the succession announcements and estimate models with these abnormal returns as dependent variables and CEO age and CEO age differences from the board as dependent variables. These tests permit us to determine if the market perceives that there is a cost or benefit to similarity–attraction.

4. Results

4.1. CEO AGE GROUPS

In Table II we show board and company data. In the first set of columns, we show the mean, median, and range of the board statistics. In the next four columns we show the means of these variables by decade of CEO age at succession (e.g. 30–39, 40–49, etc.). The last two columns contain an *F* statistic and Kruskal–Wallis chi-square for the ANOVA models comparing the age group variable means.

The average board size is 12.91 members. This ranges from 10.4 for the 30–39-years-old CEO age group to 13.23 for the 50–59 age group. Neither test statistic is significant at conventional cutoffs so we cannot reject the null hypothesis that board size does not vary across CEO age groups.

The average age of the board members is 58.94 years. We find a monotonic relation between average director ages across the CEO age brackets. For CEOs that are 30–39-years-old, the board members' average age is 53.75, and for the next three groups directors' ages average 58.50, 59.22 and 59.93. Both the *F* and chi-square statistic are significant (at 0.01 and 0.05, respectively).

We also find a monotonic trend for inside director ages across the CEO age groups (49.6, 55.81, 57.57, and 59.56). Both the *F*-statistic and chi-square are significant at 0.001. We again find a monotonic trend for independent outside director age (54.98, 59.09, 60.12, and 61.53) but only the *F*-statistic is significant (at 0.05). For affiliated outside directors there is not a monotonic trend nor are the test statistics significant.

Director tenure averages 8.91 years. The *F*-statistic comparing tenure across the CEO age groups is statistically significant at 0.05 (the chi-square is not). However, there is not a monotonic trend in this variable.

We find a similar relation for inside director tenure. The *F*-statistic is significant at 0.05, but there is no definable trend in the averages. Outside director tenure and affiliated director tenure do not vary significantly nor is there a monotonic trend across CEO age groups.

In our sample, inside directors average 25.85% of the boards. Outside directors average 67.09% and affiliated outside directors average 7.05%.

Table IV. Regression statistics: Dependent variable equals CEO age at succession

Reg. #	Constant	Board size	Average Director Age	Average director tenure	Average proportion of inside directors	Average inside director age	Average inside director tenure	Average[a] outside director age	Average[a] outside director tenure	Votes of officers & directors	Number of board meetings	Prior firm performance	Percent blockholder votes	Adjusted R^2 (F)
1	33.997	−0.034	0.278	−0.012	0.058	–	–	–	–	−0.018	0.062	0.023	−0.006	2.3%
	(5.23)***	(−0.33)	(2.46)*	(−0.10)	(1.73)†					(−0.53)	(0.49)	(1.31)	(−0.27)	(1.71)†
2	18.813	0.051	–	–	0.094	0.498	−0.093	0.050	−0.067	−0.004	−0.003	0.018	−0.012	12.4%
	(2.74)**	(0.52)			(2.65)**	(5.77)***	(−1.19)	(0.48)	(−0.54)	(−0.11)	(−0.03)	(1.15)	(−0.59)	(4.41)***
Inside Exec.														
3	36.760	−0.074	0.186	0.105	0.079	–	–	–	–	−0.016	0.243	0.039	−0.008	3.6%
	(4.90)***	(−0.62)	(1.43)	(0.79)	(2.08)*					(−0.42)	(1.58)	(1.95)†	(−0.36)	(1.92)†
4	15.195	0.012	–	–	0.101	0.620	−0.058	−0.034	−0.019	0.028	0.144	0.033	−0.017	18.2%
	(1.96)†	(0.11)			(2.63)**	(6.07)***	(−0.69)	(−0.30)	(−0.14)	(0.70)	(1.01)	(1.80)†	(−0.73)	(5.34)***
Outside Exec.														
5	32.394	−0.210	0.569	−0.893	−0.041	–	–	–	–	−0.049	−0.379	0.008	−0.020	9.2%
	(2.58)*	(−1.00)	(2.56)*	(−2.55)*	(−0.58)					(−0.78)	(−1.62)	(0.23)	−0.41	(1.57)
6	28.794	−0.232	–	–	0.008	0.424	−0.698	0.278	−0.492	−0.067	−0.623	0.020	−0.045	24.7%
	(2.31)*	(−1.17)			(0.11)	(2.59)*	(−3.58)**	(1.40)	(−1.56)	(−1.07)	(−2.87)**	(0.61)	(−1.00)	(2.44)*

[a]For board members, we first average the age per director category (e.g. inside, outside, affiliated) for each board. The data above is the average for inside board members. For example the range of 35.5–77.0 shows that the lowest board average of insider ages is 35.5 years.

***Significant at 0.001 or better.

**Significant at 0.01 or better.

*Significant at 0.05 or better.

†Significant at 0.10 or better.

None of these statistics vary significantly across the CEO age groups nor are there any monotonic trends.

We also find no monotonic trend for block shareholder percent votes. For number of board meetings and for board and manager percent votes, the *F*-statistic and chi-square are both statistically significant. Prior firm performance does indicate a monotonic trend (−6.31%, −4.43%, 1.96 and 10.84), but neither the *F*-statistic nor the chi-square are statistically significant.

Overall, Table II suggests that CEO age at succession is related to average director age, in general, and to inside director age, in particular. Younger directors seem to appoint younger CEOs.

4.2. REGRESSION RESULTS

In Table III, we present correlation coefficients of our variables. Table IV contains regression statistics with the CEO age at succession as the dependent variable. To conserve space in the tables and because their results are insignificant, we do not show affiliated director results.[1]

In regression 1 we use average director age and tenure variables and in regression 2 we divide directors into inside and independent outside categories (we do not include the insignificant affiliated variables as they add no explanatory power to the regression). We cannot include both the average director age variables and the inside/outside variables because they are highly correlated.

In regression 1 the coefficient for average director age is positive and significant at 0.05. Even after controlling for the other variables, this positive relation remains. The estimated coefficient for the average proportion of inside directors is now significant at 0.10 and is positive. CEO age is lower when there are fewer insiders (more outsiders) on the board. This is consistent with our first hypothesis. None of the other variables is significant.

Regression 2 has similar results. Here, we find that the estimated coefficient for inside board member proportion is positive and significant at 0.01 while the estimated coefficient for the average age of inside board members is positive and significant at 0.001. This evidence is again consistent with our first hypothesis. The average age of outside board members has a nominally positive estimated coefficient, but it is statistically insignificant after controlling for the other variables.

We repeat these tests but now only include the firms with inside successors. The results appear in regressions 3 and 4. In regression 3, the estimated coefficient for average director age is nominally positive, but statistically insignificant. The estimated coefficient for the average proportion of inside directors is positive and significant at the 0.05 level. In regression 4, the

estimated coefficient for the average age of inside directors is positive and significant at the 0.001 level. When the board hires an inside CEO, the average age of inside directors is strongly related to the age of the inside successors. Average age of outside board members is unrelated to successor age.

We repeat these tests for outside successors and the results appear in regressions 5 and 6. In regression 5 we find that the estimated coefficient for average director age is positive and significant at the 0.05 level. In regression 6, we find that the average age of successor is positively related to inside director age (at the 0.05 level) but is unrelated to outside director age.

4.3. PRIOR PERFORMANCE

We have hypothesized that poor prior performance will lessen similarity–attraction. We test this hypothesis on CEO age at succession. The results appear in Table V.

To test the relation of prior performance to similarity–attraction, we establish a binary variable that takes the value of 1 for firms with below average median prior performance and is zero otherwise. In regression 7, we utilize an interactive term created by multiplying the binary variable time average director age. In this model, we also include the proportion of inside board members and average director age. The estimate coefficient for the proportion of inside directors is positive and significant at the 0.10 level. The estimated coefficient for director age is positive and significant at the 0.001 level. However, the estimate coefficient for the interaction term is statistically insignificant. This term measures the average age of board members for only

Table V. Regression results. Dependent variable equals CEO age at succession

Regression Number	Constant	Proportion of board insiders	Average director age	Average inside director age	Interaction performance[a] ×director age	Adjusted R^2 (F)
7	25.281	0.039	0.435	–	0.007	6.5%
	(5.29)***	(1.69)†	(5.49)***		(0.71)	(10.73)***
8	32.540	0.031	–	0.329	0.005	8.2%
	(10.47)***	(1.37)		(6.14)***	(0.49)	(13.48)***

[a]We create a binary variable taking the value 1 if prior performance is below the median for the sample firms. We multiply this binary variable times average director age in regression 19 and times average inside director age in regression 20. This interaction term measures director age for the below average prior performers.

***Significant at 0.001 or better.

†Significant at 0.10 or better.

the poor prior performers. This evidence is consistent with H_2 and suggests that similarity–attraction does not play as strong a role when performance has been poor.[2]

In regression 8, we estimate a model with the proportion of inside board members, average inside director age and an interaction term created by multiplying our prior performance binary variable times average inside director age. The estimated coefficient for the proportion of inside directors is positive and significant at the 0.001 level, but the estimated coefficient for the interaction term is insignificant. These results also support H_2.

4.4. SUBSEQUENT PERFORMANCE

In H_3 we hypothesized that subsequent performance would be positive when boards select a CEO whose age is similar to their own. However, there was theoretical and empirical evidence that suggests subsequent performance would be negative and that when similarity–attraction guided a decision that it could be an agency cost. Since theory supports either view, empirical testing may be necessary to find the answer.

To test this hypothesis we obtain the return on equity, ROE, of each firm in the first full year after the succession. For these tests we eliminate any firm that had another CEO change during this year or that no longer traded publicly due to merger, leverage buyout or bankruptcy. This left 163 sample firms.

Regression 9 is a simple regression with the age difference between the CEO and board as the independent variable and the ROE as the dependent variable. The estimated coefficient for the age difference has a negative sign and is significant at the 0.05 level.

In regression 10 we report regression results for the control variables. Here, we include board size, proportion of inside directors, number of board meetings, executive origin ($d = 1$, if an outsider), percent of blockholder votes and percent votes of officers and directors. None of the estimated coefficients are statistically significant.

In regression 11, we report results for the test variable and the control variables. Here, the age difference variable is negative, but is only marginally significant (at the 0.10 level).

The negative sign suggests that when the age difference is small the subsequent ROE is large. This supports H_3. However, the adjusted R^2 of regression 9 is only 1.1% and for regression 11 is only 0.3%. The results are statistically significant with the predicted sign, but they may not be very economically significant because the age difference explains very little of the variability in the subsequent firm performance. Given the sign of the estimated coefficients in both models, we can at least conclude that the similarity–attraction does not appear to be an agency cost (Table VI).

Table VI. Regression analysis: Dependent variable equals the return on equity in the year following the succession

Regression	Constant	Executive/ Board age difference[a]	Board Size	Proportion of inside directors	Number of board meetings	Outside successor	Percent blockholder votes	Percent votes officers and directors	Adjusted R^2 (F)
9	14.689	−0.043							1.10% (4.05)*
	(7.22)***	(2.01)*							
10	13.592	–	0.053	0.049	−0.447	−1.962	0.004	−0.051	0 −0.46
	(2.35)*		0.19	0.57	(−1.27)	(−0.61)	0.07	(−0.53)	
12	17.199	−0.041	0.038	0.028	−0.418	−1.923	0.015	−0.04	0.30% −0.9
	(2.83)**	(−1.88)†	0.14	0.33	(−1.19)	(−0.61)	0.25	(−0.42)	

[a]To compute the age difference from the board for these tests, we use the Euclidean distance measure as in Zajac & Westphal (1996). EA is the executive's age at succession, DA_j is the director's age and n is the number of directors. It is computed as: $\left[\sum_{j=1}^{n} \frac{(EA-DA_j)^2}{n}\right]^{0.5}$.
[b]The correlation coefficient between the age difference measure and executive age is −0.752 and is significant at better than 0.001. When including both in the regression model, neither variable is significant and the variance inflation factors (measuring multicollinearity) are large. Multicollinearity between these two variables is a problem and they cannot be included in the regression together. Therefore, we do not control for the age of the executive.
***Significant at 0.001 or better.
**Significant at 0.01 or better.
*Significant at 0.05 or better.
†Significant at 0.10 or better.

5. Conclusions

Brickley (2003) has argued that to understand the CEO turnover process, researchers need to turn their attention to factors that may help explain why turnover occurs and how boards select successor CEOs. In particular, Brickley proposes that CEO age may be an important variable that can increase our understanding of the turnover and succession process. We focus on how age relates to the CEO succession process and propose that selection of a CEO may be influenced by the similarity–attraction paradigm. That is, a board will hire CEOs that have similar demographic characteristics as the board. Bringing together Brickley's suggestion about CEO age and the similarity–attraction paradigm, we propose that boards will hire CEOs whose ages are similar to their own. The similarity–attraction paradigm suggests that there is an attraction between similar individuals.

Our results provide support for this paradigm in board of director decisions on hiring CEOs. We find a significant link between CEO age at succession and average board age. Younger boards tend to hire younger CEOs. Thus, the similarity–attraction paradigm as it relates to age appears to play a key role in CEO succession decisions.

Our results complement those in Westphal and Zajac (1995). They find results consistent with the similarity–attraction paradigm in that CEOs seek to nominate demographically similar board members. Our results suggest that similarity–attraction may play a role in board decisions on CEO succession. Whether having demographically similar CEOs and boards facilitates organizational communication or whether it can lead to sub-optimal firing decisions is an empirical question.

Others have studied the similarity–attraction paradigm as it relates to CEO selection (e.g., Zajac and Westphal, 1996). They find powerful boards select demographically similar successor CEOs. Our findings add to this literature by showing that boards hire age-similar CEOs. We also show that the relation is stronger between successor age and inside director age rather than outside director age.

We also add to the similarity–attraction literature because we show that it is primarily inside directors that are demographically related to the CEO. Younger inside directors hire younger CEOs. Hiring younger CEOs has implications for the other insiders. When young insider directors hire young CEOs, this may reduce the chances for upward mobility for the other young directors. With a young CEO in place, the other young insiders may not be able to move into the CEO position.

We also add to the similarity–attraction literature by showing that it becomes less prevalent when there has been poor prior performance. We find no age relation between CEO age at succession and average board age for the bottom 25% of prior performing companies. We thus conclude that although

similarity–attraction plays a role when boards hire CEOs, there may be instances such as poor performance in which the need for change overrides it. Our results are consistent with the hypothesis that poor prior performance mitigates the similarity–attraction relationship in CEO appointments.

There has been debate over whether similarity–attraction leads to better or to worse outcomes (e.g., Hoffman & Maier, 1961; Chatman, 1991; Finkelstein and Hambrick, 1996). Given the varying theoretical perspectives on the outcomes of demographic similarity empirical research may be necessary to solve the debate. We find weak evidence that smaller age differences with the board lead to better subsequent financial performance. Given that the evidence is weak at best, we can at least conclude that age similarity between the board and successor CEO does not lead to agency costs.

Wiersema and Bantel (1992) argue that older people are more risk averse and less change-oriented. Younger people are more risk-oriented and more likely to instigate change. One possible direction for future research is to determine if the young CEOs hired by young boards do indeed instigate greater changes in corporate direction and strategy.

Milliken and Martins (1996) argue that group heterogeneity "may have a negative impact on individuals' feelings of satisfaction through decreasing individuals' sense of identification or social integration within the group" (p. 415). Another direction for future research would be to determine if boards that hire demographically similar CEOs create a better working environment that increases both firm performance and CEO tenure with the firm. Similarly, future research could be directed at whether demographically similar boards and CEOs are related to enhanced job satisfaction for the CEO.

Our study is limited by our sample. There are many other demographic characteristics that may warrant future scrutiny with the role of similarity–attraction and CEO selection. For example, during our sample's time period data sources rarely mention race and gender of CEO successors or of the board members. Future research with other methodologies and different samples may be needed to fully address this issue.

Notes

[1] We estimated a number of other models with other variables. These results do not appear in the tables. For example, we created a series of dummy variables for industry membership based on 2-digit SIC code. We created another variable that takes the value 1 if newly appointed CEOs hold the title of President before the CEO appointment and is 0 otherwise. Finally, we computed two variables measuring education, the first variable takes the value 1 if the CEO had a bachelors degree and is 0 otherwise. The second takes the value of 1 if the CEO has a post-graduate degree (e.g. MBA, Ph.D., law degree etc.) The estimated coefficients for all of these variables were statistically insignificant and their inclusion did not impact the qualitative conclusions of this paper. Kesnor and Sebora (1994) review

numerous succession studies and point out that outside succession announcements seem to be associated with positive abnormal returns in the literature. We, therefore, control for this in our regressions.

[2] We test this observed relation again truncating the sample at the lower quartile of prior performance. When prior performance is really poor (bottom 25% of sample's prior performance) there is no significant relation between either average director age and CEO age at succession nor for average inside director age and CEO age at succession. These results also support H_2.

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