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Chief Executive Officer (CEO) Tenure in Initial Public Offering (IPO) Firms: An Event History Analysis of the Determinants of Turnover

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**CHIEF EXECUTIVE OFFICER (CEO) TENURE IN INITIAL PUBLIC
OFFERING (IPO) FIRMS: AN EVENT HISTORY ANALYSIS OF THE
DETERMINANTS OF TURNOVER**

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ABSTRACT

Relying on network theory and power dependence theory, we develop a series of hypotheses that focus on determinants of Chief Executive Officer (CEO) turnover in IPO firms. We studied CEOs who had been with their companies at the IPO with a sample of 120 firms. The results indicate that having outsiders on the board of directors, selling shares at the time of the IPO, and being a part-time CEO all increase the risk of CEO turnover. CEO tenure at the time of the IPO, however, reduces turnover. Contrary to what we expected, being the founder of the company has no effect on CEO turnover.

Keywords: CEOs, Turnover, Event History Analysis

A major theoretical concern that entrepreneurship researchers have is that academic research is biased toward large established organizations (Daily & Dalton, 1993; Snell, 1992). Research on organizational leaders is no exception. While it is certain that such studies as Begley and Boyd (1986), Castaldi (1986), Daily and Dalton (1993), and Miller and Toulouse (1986a, 1986b) have contributed to advance our understanding about roles and characteristics of Chief Executive Officers (CEOs) in entrepreneurial firms, it is hard to claim that our knowledge in this research field is sufficient.

Particularly, it seems that little effort has been made to research CEO turnover in initial public offering (IPO) firms. Given the importance of the IPO as a stage in the firm's growth cycle (the IPO results in cash that will finance the organization's future growth), an understanding of leadership at this stage could aid in our knowledge of leadership, entrepreneurship, and firm growth. CEO turnover after the IPO may have significant negative or positive associations with organizational performance (i.e. Carroll, 1984; Haveman, 1993). CEO tenure may also be associated with the firm's ability to adapt to the changing environment (i.e. Pfeffer & Salancik, 1978; Tushman & Romanelli, 1985). However, with some exceptions (i.e. Bruton, Fried, & Hisrich, 1997), few studies have examined the determinants of CEO turnover in entrepreneurial firms (Rubenson & Gupta, 1996).

The role of the CEO may be particularly important in entrepreneurial firms where each individual's contribution is more manifest. In addition, the impact of the CEO may be even higher for IPO firms, which are newly in the public eye, which must make internal changes to manage the new reporting requirements of the Security and Exchange Commission (SEC), and which are now more accountable to the general public. Being at this stage in the firm's growth cycle (the IPO) may accelerate cycles of organizational change and give more importance to CEO turnover. Given the potential criticality of CEO presence in entrepreneurial firms, particularly at the time of the IPO, our study contributes to the entrepreneurship and leadership literatures by examining the determinants of CEO tenure for up to five years after the IPO.

The purpose of this study, therefore, is to predict causes of CEO turnover in IPO firms. Particularly, we focus on CEOs who were in their jobs at the time of the initial public offering (IPO). We use network theory and power dependence theory to construct seven hypotheses. We predict that (1) embeddedness of the firms stabilizes resource inflows and then extends CEO tenure, (2) co-optation enables firms to secure resource inflows but increases CEO turnover, and (3) CEO power reduces the risk of turnover. We use organizational and CEO

data from 120 firms that initiated their IPO in 1988 to test these hypotheses with an event history methodology.

THEORY AND HYPOTHESES

We use two interrelated theoretical discourses to develop hypotheses on CEO turnover in IPO firms: network theory and power dependence theory. It should be noted that, because power is considered to be an outcome of relationships (Emerson, 1962), it is not correct to emphasize a clear distinction between these two conceptual approaches. In fact, Davis and Powell (1992) point out the entangled connections between the two theories. However, as will be evident below, in operationalizing CEO power, we did not use relationship variables to measure levels of CEO resource dependence. Instead, we utilized variables that describe contexts and historical paths that should be associated with CEO power.

Network Theory

One of the fundamental theses that we use to predict CEO turnover in IPO firms is that ongoing social relationships shape organizational behavior in combination with each organization's characteristics and problems. Network theory presumes that "one's behavior is really explicable without reference to previous and persisting effects of interaction with others and the overall pattern of such interactions in groups" (Granovetter, 1986: 31). Organizational actors are embedded in a network of relationships that restrict and constrain options of and choices of behavior. In a broader theoretical context, the theory provides a counter argument against the rational economic model in that behavior is not an outcome of rational calculations for maximizing self-interests.

Empirical studies have supported this fundamental idea by providing evidence that social linkages and connections indeed shape various aspects of behavior. At the organizational level, for instance, linkages and connections shape evaluations of other organizations (Galaskiewicz & Burt, 1991), adoptions of organizational strategies (i.e. Davis, 1991; Greve, 1995; Haunschild, 1993), and adoptions of organizational structures (i.e. Burns & Wholey, 1993; Palmer, Jennings, & Zhou, 1993).

Another crucial contribution that network theory has made is that linkages and connections are sources of resources. It is possible to trace the origin of this idea to the cybernetic view of organizations (Emery & Trist, 1965; Terreberry, 1968). The cybernetic view holds that organizations are not self-sufficient and need to interact with other organizations for procuring resources for their survival. Interorganizational linkages, that provide access to resources, help organizations procure necessary resources, cope with environmental

uncertainty, and increase their survival rates (Baum & Oliver, 1991; Podony, 1994; Sterarns, Hoffman, & Heide, 1987; Wiewel & Hunter, 1985).

Previous research found that environmental stability extends CEO tenure, and environmental instability enhances CEO turnover. This is because CEO succession is a means for organizations to facilitate adaptation to a changing environment (Osbron, Jauch, Martin, & Glueck, 1981; Pfeffer & Salancik, 1978; Tushman, Newman, & Romanelli, 1986; Tushman & Romanelli, 1985). Thus, if the CEO can create a situation where environment stability is increased, risk of CEO turnover is reduced. One way to enhance environmental stability is for the CEO to create interorganizational linkages. By doing so, the CEO stabilizes resource flows and the environment. Therefore, the greater the number of linkages, the lower the risk of CEO turnover.

Hypothesis 1: Linkages with the external environment reduce CEO turnover.

There are indeed various types of interorganizational linkages (e.g. customers, suppliers, government, financial institutions etc.). Monge and Eisenberg (1987) discussed the multi-dimensionality of social ties. They noted that various types of interorganizational linkages may have different effects on organizational outcomes. This multi-dimensionality argument suggests the importance of analyzing effects of different types of interorganizational linkages as well as the total number of ties within the firm. In our study, we examine three types of interorganizational linkages: ties with (1) suppliers, (2) financial institutions including investment banks, banks, venture capitalists, and investing firms, and (3) government. We will save an articulation about how different types of interorganizational linkages have different effects on CEO turnover until later in the manuscript.

Co-optation and interlocking are additional forms of interorganizational linkages that are particularly effective to stabilize the political environment. A series of co-optation and interlocking research has found that organizations are able to manage and coordinate interdependence between organizations by incorporating representatives from external organizations into their own decision making processes (i.e. Palmer, 1983; Pfeffer, 1973; Selznick, 1949). By having organizational goals and objectives reflect external demand and interest of others, co-optations enable firms to increase political support from the environment.

However, this stability is not obtained without costs (Burt, 1980). For example, incorporating outsiders on the boards of directors influences organizational governance structures that may reduce organizational autonomy. Reduced autonomy enhances outsider power to choose organizational leaders (Weisbach, 1988). Indeed, Allen and Panian (1982)

found negative effects of presence of outsiders in the board of directors on CEO tenure. We expect that firms risk CEO tenure to gain political support through co-optation. As a result, the presence of outsiders on the board of directors should be linked with CEO turnover after the IPO.

Hypothesis 2: Outsiders on the board of directors increases CEO turnover.

Power Dependence Theory

Previous research about CEO tenure found positive effects of CEO power on tenure: the more power a CEO has, the longer her/his tenure (Allen & Panian, 1982; Hambrick & Fukutomi, 1991; Ocasio, 1994). It is not hard to imagine a close connection between CEO power and the tenure when we reconsider the definition of power. Power is defined as “the potential ability to influence behavior, to change the course of events, to overcome resistance, and to get people to do things that they would not otherwise do” (Pfeffer, 1992: 30). Power enables CEOs not only to increase support to themselves but also to reject threats to replace them. Replacements of CEOs are least likely to take place when CEO power is institutionalized (Hambrick & Fukutomi, 1991; Ocasio, 1994).

First, Ocasio (1994) found that dynamic changes in organizational environment trigger de-institutionalization of CEO power that leads to the turnover. Going public is a major event in the firm history that involves major change. It occurs when owners of organizations (i.e. entrepreneurs and equity of owners of the ventures) sell some part of the company to the public by registering a statement with the Securities and Exchange Commission (SEC). Going public enables firms to obtain capital, borrow more capital from external sources, raise their equity, and increase prestige and trustworthiness (Hisrich & Peters, 1992).

On the other hand, it also involves some drawbacks such as requirements of information disclosure and loss of organizational autonomy. While going public is certainly a major event for all CEOs in entrepreneurial firms, we anticipate that going public has more impact on CEOs who are founders of their firms. This is because founder CEOs may not have management know-how and experience for running firms that have reached the IPO stage. If so, going public is an opportunity for founder CEOs to be evaluated by external actors (in terms of whether or not they have right competencies to continue to lead the firm to the post-IPO stage). Given this logic, we speculate that founder CEOs are more likely to leave the company after the IPO.

Hypothesis 3: A founder CEO is more likely to leave the firm after the IPO.

Second, skewed information distribution in organizations creates skewed power distribution and enhances power of the information holders (Michels, 1949). In some entrepreneurial firms, CEOs occupy a position of “President” as well as that of CEO. This multi-position occupation increases information concentration so that President CEOs may have more information and more power than do non-President CEOs. In addition, CEOs in IPO firms may work as part-timers. This part-time commitment reduces their capability to procure information and, thus, decreases their power.

Hypothesis 4: A “President CEO” is less likely to leave the company after the IPO.

Hypothesis 5: A “Part-time CEO” is more likely to leave the company after the IPO.

Third, Hambrick and Fukutomi (1991) and Ocasio (1994) suggest an association between CEO power and years of service. Longer tenure means more experience in the organization. This experience helps CEOs map new phenomenon on their cognitive frameworks, and this information can be used to respond to emerging environmental challenges (Cohen & Levinthal, 1990; Levitt & March, 1989). Also, the experience facilitates learning about crucial actors surrounding organizations and about ways to get along with them for acquiring resources and supports. Tenure provides CEOs with political information about their organization and the social know-how about how to run the firm. This knowledge contributes to the institutionalization of CEO power, which reduces CEO turnover after the IPO.

Hypothesis 6: Tenure of the CEO at the time of the IPO reduces turnover after the IPO.

Finally, researchers argue that ownership structure can influence aspects of CEO behavior and status (i.e. Allen & Panian, 1982; Goodstein & Boeker, 1991; Mangel & Singh, 1993; Salancik & Pfeffer, 1980). Going public changes ownership structure and makes firms become less financially dependent on certain actors like CEOs because these individuals sell their stocks to the public. This reduced dependence on the CEO decreases CEO power and increases the risk that he/she may leave the firm.

However, in order to spur trading in the company’s stock, the owners need to sell shares. Thus, a firm that is performing well may be doing so, in part, because the CEO chose to sell shares (thus increasing the number of shares that can be openly traded). Because previous research has found that successful organizational performance (e.g. stock price increases) extends CEO tenure (Osborn et al., 1981; Puffer & Weintrop, 1991; Tushman & Romanell, 1985), it may be that high levels of CEO selling at the IPO (reduction in their ownership) may decrease turnover (because firm performance is increased). Hence, direction

of the effects of change in CEO ownership at IPO on CEO tenure may be either positive or negative. The following hypothesis, therefore, does not specify the direction.

Hypothesis 7: Reduction in CEO ownership at the time of the IPO will be related to her/his tenure after the IPO.

METHOD

We examine data obtained from 120 firms that initiated their IPO in 1988 and completed the process in either 1988 or 1989. Approximately 250 firms filed securities registrations with SEC in 1988. Our data includes firms for which we could obtain a prospectus and a proxy statement for 1989. In addition, we only studied firms that provided a good or service (some firms did not have employees, were real estate trusts or other financial types of institutions without employees).

The data were created from two different sources: (1) the prospectus and (2) the annual proxy statement for each firm (see Appendix 1 for the variable list). The prospectus is the document provided to the Securities and Exchange Commission prior to the public offering. It is also the document circulated by the underwriters to assess demand for the firm's stock. The prospectus for 1988 was not readily available in public sources. Therefore, copies were obtained from Disclosure, which is a data clearing house for the Securities and Exchange Commission. We coded the prospectus to obtain measures of all covariates in the model.

Independent Variables

Independent variables were all obtained from the company's prospectus. We read through the prospectus and obtained all data that are listed in Appendix 1. The coding process involved was done in two separate steps to assure accuracy in recording of the data. The first step involved summarizing the prospectus in a five-page summary. The second step involved using the summary data, along with the prospectus (as a cross check) to code the variables of interest.

All relationship or external tie variables were obtained by reading the biographies of the directors (both inside and outside directors) listed in the prospectus and scanning all information in the management section (see Andrews, 1995 for details about the data and the coding scheme process). Because the affiliations must be disclosed to the SEC (required by law), this seemed a reasonable way to obtain the data. All ties with various groups (such as financial institutions or government) were coded and then summed for each company (multiple people can have different types of contacts). Therefore, the 'tie' variable is not dichotomous.

If a firm has multiple affiliates with ties, then the number is higher. The sum of the ties with various organizations is used as our measure of linkages.

Other variables such as tenure of the CEO at the time of the IPO, full-time or part-time status of the CEO, percentage of outside directors, reduction in CEO stock at the time of the IPO, industry, firm size, and whether the firm has international operations were also coded from the prospectus. The coding was all done in two steps (described earlier), thus assuring accuracy of the data.

Dependent Variable

We obtained the annual proxy statements for each firm from 1989 to 1993 in order to trace changes of CEOs in these IPO firms. The proxy was updated annually so that the time unit for CEO tenure is year, rather than day or month. We read through the management section of each proxy statement and coded our CEO turnover variable as a "1" if the CEO who was with the company at the time of the IPO (data obtained from the prospectus) was no longer CEO of the company. We coded a "0" if the CEO who had been with the firm at the time of the IPO was still CEO at the time the proxy was written.

The maximum years of CEO tenure are five. As noted above, we limited our focus to tenure and turnover of those who were CEO at the point of IPO. The detailed description of this data set is also available in Cyr and Welbourne (1997) and Welbourne and Andrews (1996).

Control Variables

We used the following three variables as control variables. The first is industry (whether the firm was in manufacturing or service). Given the relatively small sample size, we chose not to use a more extensive industry coding scheme (due to degree of freedom needed for the analysis). The second is organizational size. And lastly, we controlled for whether the firm was international (had international sales and/or operations) at the time of the IPO. Both size and international status may have effects on CEO power; therefore, we decided to include those two variables as controls.

RESULTS

Table 1 presents descriptive statistics and correlation matrix for the covariates. The highest correlation coefficient is found between CEO Years of Service and Size of Organization ($r = .44$), meaning that larger firms tend have CEOs with longer years of service. The relatively low correlation between the covariates in Table 1 ensures that an issue of multicollinearity will not hinder our analysis.

Table 1: Descriptive Statistics

	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11	12
1 Executive ties with suppliers	0.33	0.83	1.00											
2 Executive ties with financial institutions	0.14	0.29	0.18	1.00										
3 Executive ties with government	0.10	0.52	0.13	0.12	1.00									
4 Percentage of outside directors	0.56	0.20	0.14	0.02	0.02	1.00								
5 Founder CEO	0.40	0.49	0.04	-0.12	0.07	-0.16	1.00							
6 President CEO	0.46	0.50	0.02	0.15	-0.06	0.23	-0.25	1.00						
7 Full-time CEO	0.87	0.34	-0.09	-0.11	-0.13	0.14	0.21	0.06	1.00					
8 CEO's tenure at time of IPO	6.18	6.35	-0.05	-0.14	-0.09	-0.03	0.01	-0.30	0.20	1.00				
9 Reduction of CEO's stock	0.69	0.15	0.11	0.04	-0.03	0.07	-0.22	0.02	-0.09	0.05	1.00			
10 Industry (service vs. manufacturing)	0.53	0.50	-0.15	-0.07	-0.08	-0.05	0.20	-0.07	0.04	-0.18	-0.04	1.00		
11 Size (number of employees)	4.78	1.98	0.06	0.09	-0.15	0.18	-0.08	-0.05	0.27	0.44	0.17	0.01	1.00	
12 International status (yes/no)	0.05	0.21	-0.08	0.12	-0.04	-0.14	-0.19	-0.06	-0.32	-0.14	0.27	-0.08	-0.21	1.00

Of our sample, 58 % were in service industries, and 5 % were firms coded as being international. The average firm size is 681 (s.d. = 1,670). However, 50 percent of the firms had less than 130 employees. Of CEOs in our sample, 40% were founder CEOs, 46 % were President CEOs, and 13% were part-time CEOs. A methodological concern for our analyses is the skewed distribution in *Executive Ties with Government*. A total of 94 % of the firms in the sample do not have any executive ties with government. About 4 % of the firms have one tie with government, about 1 % has three ties, and the other 1 % has four ties

Table 2 presents results of the life table analysis. The life table analysis informs us of characteristics of CEO tenure and timing of the turnover. It should be noted that, due to either bankruptcy or mergers, some firms disappeared in the very short time after IPO.

Table 2: Life Table Analysis

		N of CEOs	N of CEO Turnover	Survival Rates	Cumulative Failure	Hazard Rates
All	1988	119	25	1.00	0.00	0.00
	1989	94	10	0.92	0.08	0.08
	1990	84	16	0.79	0.21	0.16
	1991	68	8	0.72	0.28	0.09
	1992	60		0.65	0.35	0.10
Founder CEO	1988	42	7	1.00	0.00	0.00
	1989	35	2	0.97	0.03	0.03
	1990	33	8	0.79	0.21	0.21
	1991	25	3	0.72	0.28	0.09
	1992	22		0.66	0.34	0.09
Non-Founder CEO	1988	62	7	1.00	0.00	0.00
	1989	55	8	0.89	0.11	0.12
	1990	47	7	0.79	0.21	0.11
	1991	40	5	0.71	0.29	0.11
	1992	35		0.64	0.36	0.11

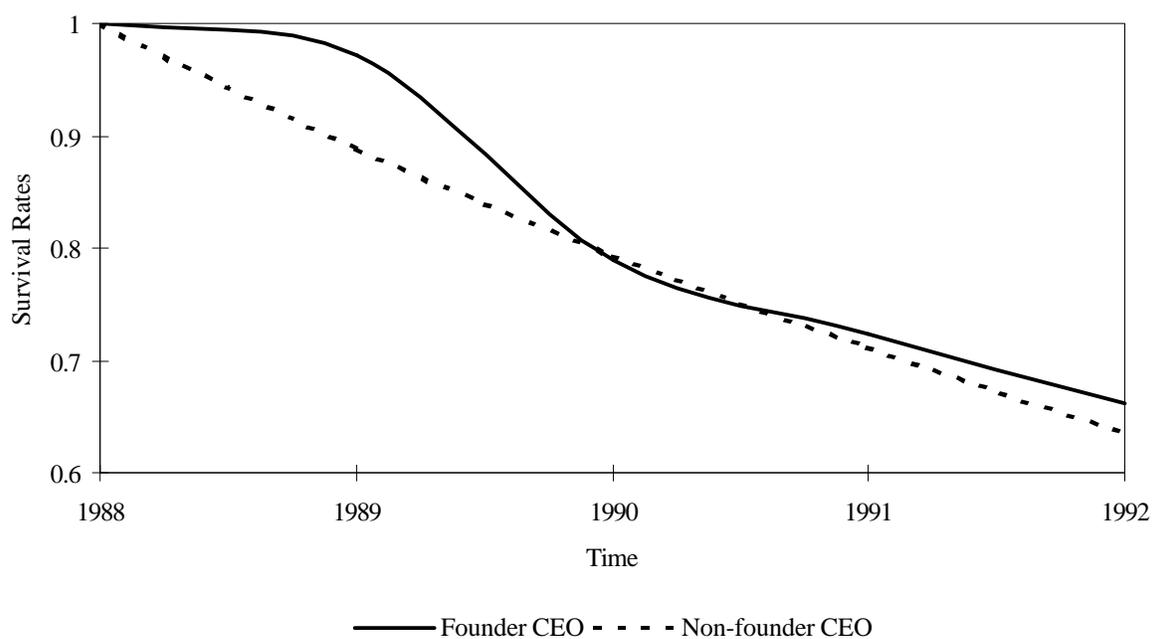
Given that our sample is a group of fairly high risk firms (due to their engaging in their IPOs and being relatively younger and smaller), we had to deal with the fact that firm survival unfortunately confounded our CEO survival measure. A firm may have gone out of business during the five year period of our study. Thus, we needed to make decisions about how to handle the data when a firm went out of business but retained the original CEO until that point in time (e.g. is this to be considered turnover for our CEO data?). After five years, about 70 per cent of the firms in our sample were still in business as of year-end 1992 (5 years after the IPO). When we “count” CEO turnover as an event when a firm disappears, then about 43 per cent of the CEOs left during this five-year period. When we assume that CEO turnover does not occur when the firm goes out of business, then 35 % of the CEOs left the firm during this five-year period.

There were several options available for handling the firm survival and turnover, and we decided to use the most methodologically conservative option data (See Clarkberg,

Stolzenberg, & Waite, 1995). We presumed that in firms going out of business CEO turnover did not occur, even though CEOs may have lost their job due to firm disappearance.

If we take this approach to identify CEO turnover, of the CEOs who left their corporations, 40 % of the turnover events took place between the second and the third year after the IPO. CEO risk of leaving is highest during this time period. Table 2 also presents two different life tables that reports effects of *Founder CEO* on the turnover (see also Figure 1).

Figure 1: Survival Rates by Founder CEO



We expected in hypothesis 3 that founder CEOs would be more likely to leave. Results reported in Table 2 and Figure 2, however, do not support the hypothesis. The survival rates of founder and non-founder CEOs who left in the fifth year after the IPO are .66 and .64, respectively. A slight difference, however, resides in the survival rates in the first three years after IPO. While the founder CEO's risk of leaving in the first year after IPO is just .03, the non-founder CEOs' risk is .11. The founder CEO's risk increases faster after this initial safety period and catches up with the non-founder CEO's risk before the end of fifth year.

Table 3 presents results of additional hypothesis testing. We used the Weibull model, an event history method, in which we do not have to presume that effects of independent variables are constant all the time (see Bloosfeld & Rohwer, 1995; Yamaguchi, 1991).

Table 3: Results of the Weibull Models

	b	s.e.	b	s.e.	b	s.e.
Executive Ties with Suppliers			-0.14	0.29	-0.29	0.30
Executive Ties with Financial Institutions			-0.19	0.65	-0.62	1.02
Executive Ties with Government			0.60	0.33 +	2.47	1.30 *
% of Outside Directors			1.15	1.04	3.50	1.66 *
Founder CEO					1.08	0.59 +
President CEO					1.04	0.67
Full-Time CEO					-2.65	1.00 **
CEO's Years of Service					-0.12	0.10
Reduction of CEO's Stock					1.86	2.47
Service	0.73	0.40 +	0.82	0.42 **	0.73	0.58
Size of Organizations	0.19	0.10 +	0.17	0.10 +	0.60	0.21 **
Foreign Firm	-13.14	932.11	-12.83	820.05	-20.00	53,839
Constant	-6.18	0.95 ***	-6.99	1.19 ***	-10.32	2.66 ***
Log p	0.89	0.17 ***	0.94	0.17 ***	1.02	0.21 ***
P	2.43		2.57		2.77	
1/p	0.41		0.39		0.36	
Log Likelihood	-56.33		-54.51		-31.74	
χ^2	7.74		11.37		26.32	
$P > \chi^2$	0.05		0.12		0.01	

Note 1: + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Note2: p is a shape parameter in the Weibull model.

Table 4: A Summary of Results

Hypothesis	Support
1. Linkages with external environment reduce CEO turnover.	Mixed support
• Supplier & financial linkages reduced turnover	
• Government ties increased turnover	
2. Outsiders on board of directors increases CEO turnover.	Supported
3. Founder CEO is more likely to leave.	Not supported
4. President – CEO is more likely to leave.	Not supported
5. Part-time CEO is more likely to leave.	Supported
6. Tenure of the CEO at IPO reduces turnover.	Supported
7. Selling shares at the IPO (reducing ownership) increases turnover.	Supported

As stated in hypothesis 1, interorganizational linkages with suppliers and financial institutions slow down CEO turnover, though the coefficients are not significant. By providing stable resource inflows, these linkages may help CEOs hold their positions. However, contrary to what we hypothesized, interorganizational linkages with the government shorten CEO

tenure and speed up replacements of CEOs ($b = 2.47$, $p < .01$ in the full model). As noted above, there is not much variance in the government tie variable. We presume that what we learned here is not significantly important because of this reason¹.

We found significant support for hypothesis two, which posits positive effects on CEO turnover as a result of having outsiders on the boards of directors. As expected, larger proportions of outsiders shorten CEO tenure.

Both hypotheses four and five suggest effects of information concentration on CEO power and, thus, CEO turnover. Only hypothesis five, regarding full-time status of the CEO, received significant support. Full-time CEOs are slower to leave their organizations ($b = 2.65$, $p < .01$ in the full model).

Other hypotheses did not receive significant support. As found in the life table analysis above, the overall speed of founder CEO turnover is not quite different from that of non-founder CEOs.

As suggested in hypothesis six, tenure slows down CEO turnover ($b = -.12$ in the full model). While we did not specify the anticipated direction of effects in hypothesis seven, it turns out that *Reduction of CEOs' Stock* (amount sold by the CEO) has positive effects on CEO turnover ($b = 1.86$). This may be because firms become less financially dependent on CEOs by going public. The reduced dependence on CEOs may enable the firms to dismiss the CEOs. On the other hand, it our results may be due to CEOs voluntarily leaving their firms (they cash out and choose to pursue a different career). This issue is discussed in detail in the next section.

DISCUSSION

Our study was designed to understand the effects of a variety of variables on CEO tenure after the company's IPO. Some of the hypotheses were supported, while some received partial support, and some were rejected. Table 4 summarizes the results.

In summary, we found that (1) presence of outsiders in the boards of directors increases CEO turnover, and (2) CEO commitment to the firm (via tenure and being full time) is associated with longer tenure. We also obtained findings, though not significantly supported, that (1) interorganizational linkages with suppliers and financial institutions slow down

¹ We did not remove the government tie variable for the following two reasons. Many of previous studies (i.e. Pfeffer & Salancik, 1978) suggest the importance of examining ties with the State. In fact, the government ties have been found to have effects on various organizational outcomes. The second reason is that this variable is found to have no high correlation with other covariates. This alleviates our concern that leaving this variable changes the whole regression because of the high multi-collinearity.

replacement of CEOs by providing environmental stability, (2) being the founder is not related to CEO turnover, and (3) selling stock after IPO increases the chance of turnover.

We found support for the usefulness of network and resource dependence theories in understanding CEO turnover in our sample of IPO firms. First, we discovered, consistent with a series of co-optation studies (i.e. Selznick, 1949), that organizations lose autonomy over some of their activities in an attempt to stabilize resource flows and, particularly in their political environment (see also Davis & Powell, 1992; Donaldson, 1995). The lost autonomy in this research context is CEO tenure. Firms may need to sacrifice CEO tenure in order to effectively manage their environment. Given that co-optations enable firms to procure resources for survival, our findings suggest that firms may attempt to increase organizational survival at the sacrifice of CEO tenure.

Our second theoretical contribution is partial support for the positive effects of CEO power on the tenure. However, contrary to our expectations, the effects of CEO power on the tenure are relatively weak. This is probably because power structures in IPO firms are unstable during our observation periods. While external actors may begin to increase and exercise their influences after IPO, their power may not have been institutionalized before year-end 1992 (5 year after the IPO). CEOs may use their power obtained before IPO to respond to external threats to replace them. Dynamic processes are going on just after the IPO between firms and the external actors so that this dynamism may entangle the effects of CEO power on the tenure.

Third, our analysis did not render support to an argument that interorganizational linkages extend CEO tenure by increasing organizational capabilities to manage environment and procure resources. The means and standard deviations in Table 1 for three variables about the interorganizational linkages indicate that IPO firms in our sample indeed do not have many interorganizational linkages. The small variance in these covariates may be a cause of the non-significant findings for the interorganizational linkage argument. Although this data problem explains why we did not obtain significant findings, a question remains unresolved why the IPO firms do not have many interorganizational linkages. This is probably because these firms do not have slack resources so that CEOs and executives need to spend more time and energies on internal concern than on cultivating resource networks (Schermerhorn, 1977). Therefore, we speculate that lack of slack resources in IPO firms creates small variances in our data that result in non-significant findings for the linkage arguments.

Our findings also suggest several practical implications. Many people (venture capitalists, CEOs, academics) think that an entrepreneur / founder who is likely to make a company successful from inception to IPO is often not the person to take the company to the next stage. Our results suggest that if the founder /CEO can make it to the point of the IPO, then he/she is likely to be able to manage the firm in the next stage of growth. We found no significant differences between founder / CEO tenure and non-founder tenure. Additional research on this issue would help our understanding of the process of entrepreneurship, leadership, and the growing firm.

Additionally, we found that having outside board members and selling shares were both associated with CEO tenure after the IPO. These events may be associated with a CEO's intention to leave. If the CEO wants to leave the company, and is concerned about the future of the company, then he/she may 'stack' the board with outsiders in order to bring new perspectives and new contacts into the firm. By selling shares, the CEO may be increasing his/her wealth, but at the same time, the CEO is making the firm less dependent on one person and providing more shares to the public to be traded (thus, creating opportunity for stock price to increase). These two things are associated with the CEO leaving but are also things that should help the organization continue to grow. More research on the actions taken by the CEO after the IPO, and the reasons for those decisions, is needed to further understand our results. Perhaps board members (such as venture capitalists or other investors) would have insights into the topic that would be useful in aiding our understanding.

Limitations

As in any study, our research has limitations that should be taken into consideration when interpreting the findings. First, our measure of CEO turnover was obtained from the annual proxy statements of firms in our sample. This means that we were not able to determine when the CEO left the firm, only if he/she was still there when the proxy was completed. In addition, the measure was confounded by the fact that some firms ceased to exist. Their reason for not being in business may be due to bankruptcy, merger, acquisition, or going private. The CEO at the firm at the time of the IPO may still be with the organization in the case of the merger or if it goes private. Given our lack of data, we could not do as complete a study as we would have preferred. Future research that can assess in more detail the status of the CEO (and perhaps the reasons for their leaving or staying) would be useful.

Second, future research should examine effects of organizational performance on CEO turnover. Findings in previous research about effects of financial performance are mixed.

While some found that poor performance triggers CEO turnover (i.e. Osborn et al., 1981; Tushman & Romanelli, 1985), the others found that performance has small or no effect on the turnover (i.e. Frizel, Luie, & Mentzer, 1990; Weisbach, 1988). Puffer and Weintrop (1991) found that it is differences between actual earning per share and security analysts' forecasts about earnings that trigger turnover. However, most of the previous studies are not based on data from entrepreneurial firms. We do not know much about how organizational performance influences CEO turnover in entrepreneurial companies.

Additionally, our study was conducted on a fairly specific type of sample, IPO firms that initiated their offering in 1988. The 1988 sample may represent a less risky group of firms because it immediately followed the 1987 stock market crash. We do not yet know whether our results are generalizable beyond the year of our data collection or beyond the sample of IPO firms. Future research is needed to address this issue.

Lastly, our measures of CEO power and ties with the environment are somewhat limited. Future research will benefit by choosing samples of IPO firms that are more recent as the SEC requires more data than they did in 1988. In addition, we suggest that researchers supplement archival data with our data sources (such as surveys, press releases, interviews) in order to obtain a richer data set.

Conclusion

Our research examines determinants of CEO turnover in a sample of IPO firms. Our major arguments in developing hypotheses are that (1) interorganizational linkages extend CEO tenure by increasing organizational capabilities to procure resources and stabilize environment, (2) co-optations lead to less organizational autonomy and shorten CEO tenure, and (3) CEO power extends CEO tenure.

CEO turnover in 120 IPO firms is examined with an event history analysis for testing the seven hypotheses. One of our findings supports the co-optation arguments in that co-optations, though allowing firms to manage political environment and stabilize resource inflows, increase CEO turnover. While some of the hypotheses were not supported, these non-significant findings also present several interesting implications about (1) dynamism of power structures after the IPO, (2) lack of slack resources in IPO firms, (3) the role of individual actors and organizational growth in IPO firms, and (4) CEOs' strategic action to use the IPO to cash out.

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Appendix 1: Variable Lists

<i>Executive Ties with Suppliers</i>	Sum of executives' ties with suppliers.
<i>Executive Ties with Financial Institutions</i>	Average of executives' ties with investment banks, banks, venture capitalists, and investing firms.
<i>Executive Ties with Government</i>	Sum of executives' ties with government.
<i>% of Outside Directors</i>	Percentages of outsiders in the board of directors.
<i>Founder CEO</i>	Whether or not is a CEO a founder? (Yes = 1; No = 0)
<i>President CEO</i>	Whether or not is a CEO also a President? (Yes = 1; No = 0)
<i>Full-time CEO</i>	Whether or not is a CEO a full-time CEO? (Yes = 1; No = 0)
<i>Reduction of CEO's Stock</i>	Percentages of CEO's stock shares after IPO divided by percentages of CEO's stock shares before IPO.
<i>Service</i>	Whether or not is a firm in service industries? (Service = 1; Manufacturing = 0)
<i>Size</i>	Logarithm of the number of regular employees.
<i>Foreign Firm</i>	Whether or not is a firm a foreign firm? (Yes = 1; No = 0).