

**STRATEGIC RESPONSES TO AN ENVIRONMENTAL JOLT:  
EXECUTIVE TURNOVER IN INTERNET IPOs**

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Accepted draft dated September 13, 2004.  
Published in the *Journal of Private Equity*.  
DOI: <https://doi.org/10.3905/jpe.2004.450953>

Citation for the published version:

Forbes, D., Manrakhan, S. & Banerjee, S. 2004. “Strategic responses to an environmental jolt: Executive turnover in Internet IPOs.” *The Journal of Private Equity*, 8(1): 63-69.

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We are grateful to Andy Van de Ven and Matt Paschke for their input and to Marina Shukh and Lance Bruner for their research assistance.

## **ABSTRACT**

### **STRATEGIC RESPONSES TO AN ENVIRONMENTAL JOLT:**

#### **EXECUTIVE TURNOVER IN INTERNET IPOs**

We develop a model that predicts the likelihood that publicly-traded startup firms will respond to a sudden drop in environmental munificence by replacing their CEO. The model proposes that CEOs who were founders, those who had prior experience as CEOs and those who also held the position of board chair will be less likely to be replaced. We base these predictions on a set of knowledge-based and political considerations. We test the model on a sample of 127 Internet IPOs during the period following the dramatic devaluation of Internet stocks that occurred in Spring/Summer 2000. Results support all three hypotheses.

A sudden downturn in environmental munificence can prompt firms to undertake dramatic, irreversible strategic actions (Meyer [1982]). Little is known, however, about the factors that influence such actions in such circumstances, especially among new ventures. The dramatic devaluation of Internet stocks that occurred in April 2000 and its concurrent events, which included a sudden reduction in the availability of capital to the sector and a downturn in corporate spending on Internet services, provide a valuable “natural experiment” which we can use to better understand how young, knowledge-intensive startups respond to negative environmental change. Pressures for strategic responses to the Internet crash were felt acutely by those firms that had recently completed an initial public offering (IPO). In these firms, pressures to achieve rapid growth and legitimacy were compounded by the heightened scrutiny to which publicly-traded firms are generally subject. In this paper we help to explain a specific type of strategic action that firms can take in response to negative environmental change: the replacement of the CEO. In particular, we show that characteristics of the CEO him/herself affect the likelihood that their firms will take this action.

## **THEORETICAL BACKGROUND**

We focus on changes in executive leadership as responses to environmental change, because they are among the most significant responses firms can take in such circumstances (Haveman, Russo and Meyer [2001]). Firms

may seek to effect a leadership change because they anticipate that it will precipitate further, similarly significant changes in the firm's strategic activities that enable the firm to better adapt to new environmental conditions (Thompson [1967]; Boeker [1997]). Alternatively, as Meyer [1982] notes, even when firms do not have reason to expect that a new leader will be better able to deal with new conditions, a sudden downturn in environmental conditions may "offer propitious opportunities for organizational learning, administrative drama and introducing unrelated changes" (p. 515). That is, firms may effect a leadership change for symbolic or opportunistic reasons as well as for purely instrumental ones.

Leadership changes can, of course, be voluntary or involuntary. Formally speaking, there is a clear distinction between these types of changes: Voluntary changes in the CEO position involve the resignation of the CEO, whereas involuntary changes are brought about by a decision of the board of directors, the governance mechanism charged with hiring, monitoring and evaluating the CEO. In an informal sense, however, the distinction between voluntary and involuntary changes is often quite blurry in that many turnover events that would appear "voluntary" are really involuntary. People who serve in the upper echelons of corporations are often highly sensitive to the way their actions are interpreted by shareholders, customers, prospective employees and other key constituencies (Westphal & Zajac [1994]), and this sensitivity causes many boards and CEOs to be averse to instances of involuntary termination. Accordingly, CEOs who are in

imminent danger of being fired often resign first, explaining their decisions with reference to a desire to “pursue other interests” or to “spend more time with family”. As a consequence of these subtleties, it is often difficult to distinguish instances of voluntary and involuntary turnover without inside knowledge of the discussions surrounding the turnover event. This paper focuses simply on predicting the occurrence of CEO turnover under the presumption that most CEO turnover in this context is involuntary. One reason for this presumption is the general consideration that incumbent CEOs have strong incentives to maintain their positions (Vancil [1987]). A second reason is specific to this context in that we examine firms during the first two years following their IPO, a context in which many CEOs have additional financial and reputational incentives to not leave their current positions.

In the sections that follow, we propose a set of managerial factors that affect the incidence of CEO turnover. The development of our hypotheses is informed by two theoretical perspectives: the knowledge-based view of the firm and the managerial power perspective. The knowledge-based view of the firm maintains that firms’ competitive capabilities are based upon knowledge that resides in the organization (Kogut & Zander [1992]). Although important sources of knowledge can exist throughout the organization, critical knowledge resources reside within the firm’s top managers (Hambrick & Mason [1984]). To the extent that this managerial knowledge remains tacit and exists at the individual level, as

opposed to knowledge that has been codified or embedded in organizational structures or routines (Nonaka [1994]), firms risk losing this knowledge with the departure of senior executives who possess it. Thus, we expect that firms in which the CEO represents a key source of tacit knowledge will be less likely to experience CEO turnover. The other perspective we invoke is the managerial power perspective. According to this perspective, business firms can be understood as political coalitions (March [1962]) in which individual managers can possess varying degrees of power (Westphal & Zajac [1995]). According to this perspective, CEO turnover can be expected to be less likely in firms in which top managers are more powerful.

### **Founder status**

The logic that founder status is likely to be negatively related to CEO turnover is supported by both the knowledge-based view and the political view. From a knowledge standpoint, founder-managers are likely to possess a relatively complete knowledge of the firm's strategic history, including a sophisticated understanding of the internal and external factors that contributed to the development of the firm's competitive capabilities (Rubenson & Gupta [1992]). Managers who, as founders, better understand the unique historical conditions and complex factors that underlie the firm's competitive position may be able to choose more intelligently among competing strategic alternatives than non-

founder managers. From a political standpoint, too, founder CEOs may possess more power. Because they have an intimate and personal connection with the company's founding and its early history, they may enjoy personal loyalty from important organizational constituencies, including critical knowledge-intensive workers at lower levels in the organization, customers, suppliers and even shareholders. Founder CEOs may also benefit from strong public reputations resulting from press coverage that has highlighted and emphasized their founding role in the company.

Consistent with the preceding arguments, we propose that firms whose top managers are founders will be reluctant to part with the special knowledge they may possess. Moreover, even in instances in which their knowledge is not a major consideration, founder CEOs may possess power rooted in loyalty or reputation that makes them less likely to be replaced.

*Hypothesis 1: Firms in which the CEO was a founder will be less likely to experience CEO turnover in the wake of a dramatic downturn in environmental munificence.*

### **Prior experience as a CEO**

Position-specific experience obtained during a previous appointment as a CEO in another firm represents another important form of knowledge with which

firms may be reluctant to part. Top managers who have previously faced the challenges of their respective positions are likely to be more familiar with the expectations placed on people in such positions and more skilled at exercising the influence those positions carry. For these reasons, they are likely to deal more effectively with management challenges as they arise. In addition, a sudden negative change in environmental munificence is likely to increase the value that the board places on managerial experience. Firms whose top managers have prior experience in their respective positions are likely to be regarded as “seasoned” professionals who are less likely to be surprised or confused by change. On the other hand, firms whose top managers lack this kind of experience may be more likely to effect managerial turnover as a means of clearing the way for more experienced managers to take the helm in the wake of an environmental downturn.

*Hypothesis 2: Firms in which the CEO was previously employed as a CEO at another firm will be less likely to experience CEO turnover in the wake of a dramatic downturn in environmental munificence.*

### **Board chair authority**

Managers can possess many forms of power in their organizations, but one form that is likely to be especially relevant to turnover decisions is power that



derives from their own individual representation or status on the board of directors. CEOs are virtually always members of their own boards of directors within the U.S. system of corporate governance. However, whether or not the CEO also occupies the position of board chair is a factor that varies across firms and is indicative of the degree of power the CEO possesses. When CEOs also serve as Chairs of their respective firms, it represents a high concentration of power within the CEO. Although CEO/Chairs are still accountable to the board as a whole, there is no one individual on the board with higher positional status in such circumstances, and the board's agenda tends to be set by the CEO/Chair him/herself. Consequently, we expect that CEOs who also have the authority associated with the board chair position will be less likely to be replaced.

*Hypothesis 3: Firms in which the CEO also holds the position of Board Chair will be less likely to experience CEO turnover in the wake of a dramatic downturn in environmental munificence.*

## **RESEARCH CONTEXT AND METHODS**

We test our hypotheses on a sample of recent Internet IPOs. The Internet sector is an appropriate setting, because it experienced a sudden downturn in munificence. In the late 1990's it was a highly munificent environment: Rapid growth in the usage of the Internet led to the creation of new markets that

appeared to have great potential, and an abundance of venture capital and other types of funding was made available to new ventures. The sector experienced a sudden jolt in the year 2000.

The magnitude and timing of the jolt is reflected in the fortunes of the NASDAQ, a technology-intensive stock exchange whose sharp rise in the late 1990's mapped the rise of the Internet sector. The NASDAQ reached its highest closing valuation ever on March 10, 2000. However, in correspondence with a sharp decline in corporate spending on Internet advertising and other Internet services, the NASDAQ's value fell 23.5% during April 2000. Its value then fluctuated for several months between 15% and 37% below its March 10 high, as investors and managers alike attempted to assess whether the April devaluation was simply a momentary swing. But by the end of the Third Quarter 2000, its staying power had become apparent, and since October 3, 2000, the NASDAQ's valuation has always been at least 30% below its historic high. For the purposes of this paper, we define the event to include both the initial April devaluation and the subsequent fluctuations that established the crash as a semi-permanent phenomenon, a period lasting between April and September 2000.

### **Sample and data**

Our sample consisted of Internet-related firms that priced their initial public offerings during 1999 and subsequently completed those offerings. We

focused on IPOs that occurred in 1999 in order to control for variations that occur in the types and quality of Internet firms that went public during the 1990's and to diminish variations in the amount of post-IPO experience that sample firms and managers would possess at the time of the crash.

We also sought to focus on firms that competed in the same or similar industries in order to control for the possibility that different parts of the Internet sector experienced the crash differently. Industry boundaries are relatively ambiguous in this sector (Garud & Lant [1998]). Therefore, although distinctions among Internet firms' lines of business cannot be ignored, they may not be well reflected in prevailing industry coding schemes, such as SIC codes. For this reason, we undertook our own coding analysis of each firm. We categorized the firms into four "layers" of the Internet economy identified by Barua, Pinnell, Whinston and Shutter [1999] according to the firm's dominant line of business and restricted our sample to firms that participated in the first two "layers" of the Internet economy. This included "infrastructure" firms, or firms whose products and services help to create an Internet protocol-based network infrastructure, and "applications" firms, or firms whose products or services build on the basic infrastructure of the Internet to facilitate the conduct of business online. Firms' memberships in these categories were determined by coding each firm's line of business based on descriptions of the firm's business activities included in the IPO Prospectus. Firms were assigned the code "0" for infrastructure-oriented

firms and “1” for applications-oriented firms. Codings were conducted independently by two raters, who then met to discuss and resolve discrepant codings.

We excluded from the sample firms based outside the U.S., corporate spinoffs, and CEO-controlled firms, as well as firms that had been merged or acquired during the period under study. We did this because the dynamics of corporate governance can be significantly different in firms headquartered outside the U.S., in corporate subsidiaries and in situations in which the CEO exercises a controlling ownership interest in the firm, and we did not expect our predictions to apply in such circumstances. The resulting sample included 127 firms. Data for all variables were obtained from various online databases, including Edgar Online, Yahoo! Finance and the COMPUSTAT and CRSP databases.

### **Measures and analysis**

The dependent variable was a categorical variable that reflected the incidence of turnover in the CEO position during the one-year period between October 1, 2000 and September 30, 2001. The variable was set to “1” when turnover occurred in this position during the designated period and “0” when that did not occur during this period. Data on CEO turnover were gathered from news reports, press releases and company documents from during and after this period. We excluded turnover events that occurred after September 2001, because after

that point firms' strategic actions may no longer be accurately characterized as responses to the crash of 2000.

The independent variables reflecting managerial characteristics were also categorical and were coded using biographical data on the pre-crash CEOs obtained from the firm's IPO prospectuses. *CEO founder status* was set to "1" when the pre-crash CEO was a founder of the firm and "0" when this was not the case. *CEO past experience* was set to "1" when the pre-crash CEO had previously served as the CEO of another firm and "0" when this was not the case. *CEO-Chair position status* was set to "1" when the pre-crash CEO also held the position of board chair at the time of the IPO and "0" when this was not the case.

We included variables to control for several firm-level factors, including firm size, post-crash performance, the length of the firm's tenure as a public company and the firm's line of business. *Firm size* was measured using the number of persons employed by the firm at the time of the IPO. This variable was logarithmically transformed to normalize its distribution. *Post-crash performance* was calculated as a change in the market value of the firm and was measured as the average market value during the Third Quarter of 2000 divided by the average market value during the First Quarter of 2000. These averages were calculated using closing prices at the end of each day during these quarters. Each firm's tenure as a public company was measured as the *number of days* that had elapsed between the pricing of the firm's IPO in 1999 and April 30, 2000.

Each firm's *line of business* was designated using the coding scheme described in the previous section. We also included two individual-level control variables, CEO tenure and CEO age. These, like the hypothesized predictors, were based on biographical data gathered from the IPO prospectuses. *CEO tenure* was measured as the number of years the manager had been with the firm as of the IPO year, 1999.

Binomial logistic regression analyses were used to test the hypotheses. Two models were specified: one including only control variables, and one including all of the independent variables.

## **RESULTS & DISCUSSION**

Exhibit 1 contains descriptive statistics and correlations among the variables. Exhibit 2 contains the results of the regression analyses used to test the hypotheses. Model 2 within Exhibit 2 shows the coefficients associated with the predictor variables proposed in the hypotheses.

\*\*\* Insert Exhibits 1 and 2 here \*\*\*

As predicted, the coefficients associated with variables representing CEO founder status, prior CEO experience and CEO possession of the board chair role are all negative and significant at the  $p < .05$  level. These results support

Hypotheses 1, 2 and 3, which proposed, respectively, that firms would be less likely to experience CEO turnover when the CEOs of these firms were founders, when they had prior experience as a CEO or when they also served as board chair. In aggregate, the predictor variables contribute considerable explanatory power over and above what is explained by the control variables alone. Nagelkerke's Pseudo  $R^2$ , which is analogous to  $R^2$  in OLS regression, is .55 for Model 2, which features both the control variables and the predictor variables. This represents an increase in the Pseudo  $R^2$  of .20 over Model 1, which features only the control variables.

In interpreting these results, several key limitations should be borne in mind. First, this study measured turnover as a simple binary outcome that occurred within a pre-defined window of time after the Internet crash. This feature of the methodology fails to account for variations associated with the length of time that elapses between the crash and the turnover event and for the effects of performance results and other firm-level events that accumulate during that time. The use of event history methodologies in future studies can help to remedy these limitations. Second, the study's focus on Internet firms may limit the generalizability of the findings. Some distinctive features of the research context include the historical idiosyncrasy of the Internet era – in particular, the prevalence of highly speculative investment behavior that underlay the munificent, pre-crash phase of that era – and the nature of the firms themselves,

which tended to be relatively small, young and knowledge-intensive. Thus, the findings may be more applicable to other contexts characterized by dramatic changes in speculative investment behavior and to firms whose characteristics mirror those of these firms and less applicable to contexts and firms that do not share these characteristics.

In spite of these limitations, however, these results provide at least tentative support for the general contention of this paper: That certain kinds of CEOs are less likely to be replaced in the aftermath of a significant downturn in environmental munificence. This finding has several implications.

From a theoretical standpoint, the results underscore that when firms respond to environmental jolts, they do not do so haphazardly or in a uniform fashion. Popular accounts of the aftermaths of jolt events sometimes imply that firms respond to such events as “corporate lemmings” consumed by mass-hysteria. However, these results suggest instead that at least part of how firms respond to large-scale environmental change reflects firm-specific considerations in ways that are relatively predictable in accordance with existing management theories. The specific finding that the incidence of CEO turnover in the wake of a jolt corresponds with knowledge- and power-based considerations as they are reflected in key characteristics of the CEO him/herself should encourage future researchers to consider the determinants of other possible strategic responses to



environmental change, such as firms' decisions to be acquired or to divest subsidiaries.

Interestingly, the correlation analyses in Exhibit 1 reveal that the very characteristics that make firms less likely to part with their CEOs have no relationship to how these firms performed in the wake of the crash: None of the variables representing CEO characteristics was significantly correlated with the post-crash performance variable. Nevertheless, post-crash performance was significantly negatively correlated with turnover ( $p < .10$ ), indicating that poorly performing firms were, as expected, more likely to remove their CEOs. Thus, it would appear that while it is common for poorly-performing firms to believe that they can improve their performance by replacing their CEOs, these preliminary analyses do not support the view that the CEO characteristics firms appear to value actually enabled those CEOs to guide their firms through the crash any more effectively. Further research is needed, however, to more fully explore this point. In addition, studies could build on Virany, Tushman and Romanelli's [1992] study of the performance implications of CEO turnover and explore whether CEO replacement is actually an effective strategic choice in post-crash contexts.

Finally, from a practical standpoint, these findings help to clarify which managerial characteristics are likely to carry weight with boards of directors and the firms they govern in the wake of an environmental jolt. This knowledge may

prove useful to individual managers and investors who seek to influence organizational behavior in post-jolt settings by enabling those individuals to frame their own actions and advocacy behaviors in their respective organizations in ways that reflect a deeper, more precise appreciation for the importance of these particular managerial characteristics and the theoretical rationales that account for their salience.

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**Exhibit 1.**  
Descriptive statistics and correlations.

Variable	Mean	StDev	1	2	3	4	5	6	7	8	9
1. CEO turnover	.25	.43									
2. Firm size, in # of employees <sup>a</sup>	286.20	804.66	.16+								
3. Days since IPO	267.09	87.81	.05	-.11							
4. Post-crash performance <sup>b</sup>	.60	.41	-.17+	-.11	.16+						
5. Line of business (“Layer 2”) <sup>c</sup>	.61	.49	.02	-.03	-.01	-.23**					
6. CEO tenure, in yrs	3.45	3.81	-.10	.08	.08	-.01	-.05				
7. CEO age	43.90	7.84	-.03	.01	.04	-.11	.03	.08			
8. CEO was founder <sup>c</sup>	.46	.50	-.16+	.02	.02	-.11	.05	.40***	-.19*		
9. CEO was previously a CEO <sup>c</sup>	.38	.49	-.15	.02	-.11	-.08	-.04	-.14	.24**	-.17	
10. CEO is also Chair <sup>c</sup>	.55	.50	-.18*	-.02	.12	-.12	.04	.25**	-.01	.32***	.04

N = 127.

+ =  $p < .10$ ; \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

<sup>a</sup> Logged variable. Descriptive statistics shown on an untransformed basis.

<sup>b</sup> Performance = (Average market value Q3 2000 / Average market value Q1 2000)

<sup>c</sup> Dummy variable. Line of business codes: 0 = “Layer 1” firm (Internet infrastructure); 1 = “Layer 2” firm (Internet applications). All other codes: 0 = no, 1 = yes.

**Exhibit 2.**

Results of logistic regression analysis.

Dependent variable = CEO turnover between October 2000 and September 2001.

Variable	Model 1	Model 2
Constant	-5.81+ (3.06)	-7.06+ (4.25)
Control variables		
Firm size, # of employees <sup>a</sup>	2.22* (.94)	3.17** (1.23)
Days since IPO	.01* (.00)	.01* (.01)
Post-crash performance <sup>b</sup>	-2.79* (1.38)	-4.76* (1.96)
Line of business (“Layer 2”) <sup>c</sup>	.64 (.70)	1.12 (.86)
CEO tenure with firm	-.34+ (.19)	-.03 (.22)
CEO age	-.04 (.04)	-.06 (.05)
Hypothesized predictors		
CEO was founder <sup>c</sup>		-2.11* (.98)
CEO was previously a CEO <sup>c</sup>		-1.90* (.95)
CEO is also chair of board <sup>c</sup>		-1.82* (.86)
$\chi^2$	24.89***	42.49***
$\Delta\chi^2$		17.60
-2 log likelihood	73.60	56.00
Nagelkerke’s Pseudo R <sup>2</sup>	.35	.55

N = 127. Standard errors are shown in parentheses.

+ = p < .10; \* = p < .05; \*\* = p < .01; \*\*\* = p < .001

<sup>a</sup> Logged variable.

<sup>b</sup> Performance = (Average market value Q3 2000 / Average market value Q1 2000)

<sup>c</sup> Dummy variable. Line of business codes: 0 = “Layer 1” firm (Internet infrastructure); 1 = “Layer 2” firm (Internet applications). All other codes: 0 = no, 1 = yes.