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Relationship Between Firms' Performance and Forced CEO Turnover: Empirical Evidence from US Market

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Abstract

Firm performance (ROA) is widely used as a primary metric of CEO ability. So far, empirics have highlighted the relationship between ROA and forced CEO turnover. In the current study, we extend the literature by highlighting the forced CEO turnover and performance relationship by introducing the firm's historical aspiration level of performance metrics. A panel data set of 445 US firms listed on NYSE for 2010-2023 was collected as a sample for this study. We used historical performance and the ROA of the last three years as a proxy of the aspiration level when the CEO was removed due to poor firm performance. First, we find the acceptable negative relationship between ROA and forced CEO turnover. However, the negative relationship is stronger when CEO performance is below the aspiration level. In addition, the negative relationship has persisted for the last two years. Thus, our findings show the likelihood of forced CEO turnover is higher when CEO performance is below the aspiration level. Our findings provide a novelty in the existing literature that the previous two years' performance provides a significant historical-based aspiration level related to the removal of the CEO when firm performance is poor. The study offers several managerial implications for the dismissal of the CEO.

Introduction

Replacing a CEO with a suitable candidate for the executive position is known as turnover (Eisfeldt & Kuhnen, 2013; Mobbs, 2013). Firing a CEO too soon is expensive since most CEO contracts include severance packages and/or golden parachute benefits if the CEO is replaced before the agreed term expires (Fluharty-Jaidee, 2018; Kania, 2015). Voluntary and involuntary or forced CEO turnover are two types of turnover (Harris & Ellis, 2018; Larcker et al., 2022; Ma, 2022). The former explains the Board of Directors' decision to remove the CEO, and this kind of turnover is usually observed in corruption,

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fraud, policy issues, and when a firm does not perform according to the Board's expectations (Liu et al., 2023). The Board fires the CEO and takes corrective measures to improve the firm performance (Dasgupta et al., 2018). Now, there is a question of the criteria, expectations, and aspiration targets of corporate boards of firms that the Board expects the firms to fulfill and how they compare with the firm's performance. The Board of the firm is responsible for corporate governance (Gallego-Álvarez & Pucheta-Martínez, 2020). The decision of the Board to replace the CEO is influenced by how well the business is performing compared to its aspiration level(Aslam et al., 2019; Connelly et al., 2020). To assess the CEO, the Board uses a vital tool, "The aspiration level", to compare the firm's performance (Shin & You, 2023). It is complicated for the Board to make accurate and proper decisions due to information asymmetry (Tian, 2014). The Board sets its aspiration level for the company's performance based on the firm's past performance and those of similar companies in the industry (Haleblian & Rajagopalan, 2006). Therefore, it is difficult for the CEO to influence the evaluation of the Board based on the aspiration level (Shin & You, 2023). The Board considers it a failure when a corporation performs below its aspiration level (Smulowitz et al., 2020). A key method for rectifying errors and enhancing company performance is the termination of the CEO (Lee et al., 2012). The CEO's termination is influenced by performance compared to aspiration level (Haleblian & Rajagopalan, 2006). So far, empirics do not lay any foundation for the critical issue of forced CEO turnover and performance related to the aspiration level of the corporate Board. For this purpose, the aspiration level of performance was constructed based on the historical aspiration level (HROA) in this study. They may help to find the performance-based criteria in the likelihood of CEOt(forced CEO turnover), where three years past performance is used to find the performance relative to (HROA) historical aspiration level. How do institutions establish aspiration levels based on the performance to the likelihood of forced CEO turnover? This research suggests and evaluates the ASP (aspiration level of performance) model with a three-year ROA as the historical aspiration level.

This study is based on the prospect theory (Kahneman and Tversky 1979) and the behavioral theory (Cyert and March, 1963). Both theories consider the below aspiration performance as risk-seeking and performance above the aspiration level as risk aversion. According to behavioral theory, aspiration level is determined by comparing social or historical performance (Kim et al., 2015). Moreover, the decision-maker(the corporate board) is perceived as successful when performance exceeds the aspiration level and as a failure when performance is below the aspiration level(Greve, 2002). The board makes decisions and efforts to overcome the performance failure to show serious concerns and consider this situation riskier than the above aspiration level(Einhorn, 1980). Therefore, the likelihood of a forced CEO may be affected by performance below aspiration. The study aims to establish the relationship between the firm's performance and the likelihood of forced CEO turnover (Magnusson & Enarsson, 2017). We obtained performance-induced forced CEO turnover data from the "open-sourced Database for CEO Dismissal

1992-2023" and financial data of S&P 1500 US firms from Thomson Reuters. The ROA strongly and negatively affects the likelihood of CEOt in the first two previous years before the removal of the CEO; however, current-year firm performance influences the likelihood of CEO turnover, but in an acceptable form. We employ the corporate governance Index (CGI) to show the control variables of board governance, which is significant for all models showing the relationship between ROA and CEOt (Arora & Bodhanwala, 2018). The study finds a relationship between the probability of a CEO and the historical aspiration level of businesses, which may help the board and policymakers choose the right CEO, based on correct performance perception and prevent CEOs from being inappropriately dissipated, improving company performance.

The literature review is covered in section 2, the data and sample are in section 3, the probit regression model is covered in section 4.1, the empirical findings are covered in section 5, and Section 6 is the conclusion, which wraps up the paper.

Literature Review

CEOt(forced CEO turnover) increases when a company performs poorly, even if the poor performance might be linked to outside shocks to the market and industry(Jenter & Kanaan, 2015). Recent research offers more creative explanations for the factors influencing CEOt and ROA sensitivity (Bernard et al., 2018; Firth et al., 2006; Gao et al., 2012; Jenter & Lewellen, 2021). A significant body of literature has emerged, based on the Carnegie School and driven by an interest in how businesses react to performance to aspirations using models of aspirational adaptation (Abernethy et al., 2019; Cyert & March, 2015; Shinkle, 2012; Simon & March, 2015). Aspiration levels change over time in response to past performance and industry performance. Afterward, organizations assess how well they perform at this desired level (Cyert & March, 2015). Two limitations have hindered our understanding of aspiration adaptation. Studies use various proxies to measure aspiration instead of direct measurement, and researchers construct these proxies based on past performance, the performance of similar organizations, and some aspects of past success(Neely, 2005). Most research examines how attainment disparity affects corporate behavior, as opposed to permitting distinct influences of performance and aspiration(Bromiley, 2009).

The Board is looking for the willingness to take risks regarding performance (Lim & McCann, 2014). When the company's performance falls short of the ASP, the Board uses this information to label the results as losses(Kahneman & Tversky, 2013). According to the behavioral theory of the company, performance below expectations is perceived as failure, and performance beyond the aspiration level is perceived as success (Lewin & Gold, 1999). Therefore, the board might be ready to fire the CEO to improve the ROA of a firm when the firm performs below the aspiration level (Hu et al., 2011). Similarly, when the firm's performance is above expectations, this might reduce the possibility of CEOt (Kahneman & Tversky, 2013). To create an organizational aspirational level, researchers have improved the process of choosing social reference groups and fusing them with

historical reference points(Nason et al., 2019). Furthermore, studies tended to see organizational desire as a combined weighted average of social and historical goals(Stinchcombe, 2013). In particular, managers have enough justification to set aspirations closer to their actual working environment given the availability of multiple reference points and the ambiguity that results in identifying social reference points. This suggests that the historical ASP is more significant(Berchicci & Tarakci, 2022; Holm, 2017; Kim et al., 2015).

This is because when a company's performance exceeds the Board's aspirational level, the board tends to respond more strongly to threats than to opportunities and is afraid to take more risks or make changes (Wang, 2022). This is supported by the Cyert and March"(1963). The likelihood of CEOt increases when a firm's performance is below the Board's desired level (Mobbs, 2013).

H1: The likelihood of forced CEO turnover increases when performance is below the performance relative to the aspiration level of the Board.

H2: The likelihood of forced CEO turnover increases when performance is below the historical performance relative level of aspiration of the Board.

Data and Sample

The sample for this study consists of S &P 1500 US firms listed on NYSE from 2010-2023. The 610 CEOs were removed involuntarily from 445 firms in the sample period of this study (table#1). The main reason for the sample period is to avoid the global financial crisis, and a reasonable period to discuss the performance induces forced CEO turnover in the companies listed on the NYSE. We obtained the financial data of these firms from the Thomson Reuters database and CEO data from the "open-sourced Database for CEO Dismissal 1992-2023". Information on CEO removals—both voluntary and involuntary—is accessible in this dataset. Although there are eight categories for the causes of CEO turnover, only performance-induced forced CEO turnover is covered in this study. Our sample selection is restricted to standards. First, a company includes a sample listed in the S&P 1500 during the sample period. Secondly, Thomson Reuters ought to make these companies' financial information accessible. Third, the sample only includes CEO turnover due to bad performance.

All observations with missing data for the relevant variables are eliminated. Lastly, a sample of 445 distinct companies' worth of company-year observations was the foundation for our analysis. Due to these limitations, our data set was reduced to 445 companies from various industries (see Table 1), and forced CEO turnover in the firms is 610.

Methodology

Regression Model

The bivariate probit regression models examine the ROA relative to aspiration level on the likelihood of CEOt relationship, where two independent variables have one dependent variable. The probit regression technique for analysis is used in this study. This is a specialized form of regression used to model binary outcome variables (Cakmakyapan & Goktas, 2013; Vasisht, 2007). In our study, the dependent variable, forced CEO turnover (CEOt), has only two possible outcomes (Stannard, 2019). If the CEO of the firm changes in the fiscal year, the CEO turnover is equal to one; otherwise, it is zero.

$$\emptyset^{-1}(CEOt = 1) = \beta_0 + \beta_1 HROA + \beta_2 Control\ Variables + \gamma_1 year\ effect + \gamma_2 industry\ effect + \epsilon$$

Where

The cumulative distribution function of the standard normal distribution is denoted by Φ.

β_0=intercept, $\beta_1 = coefficient\ of\ HROA$, β_2=vector of coefficient of control variables, Υ_1 and Υ_2 are coefficients of year and industry effect.

Table 1: Sample Distribution (Industry-wise)

Industry name	Number of firms	Forced CEO turnover
Support Services	11	15
Chemicals	19	29
Tobacco	5	8
Technology Hardware and Equipment	17	21
Software and Computer Services	18	20
Electronic and Electrical Equipment	15	22
Personal Goods	21	29
Aerospace and Defense	8	10
Food Producers	5	9
Industrial Engineering	21	34
Industrial Metals and Mining	13	21
Gas, Water, and Multi utilities	18	26

Industry name	Number of firms	Forced CEO turnover
Oil and Gas Producers	20	29
Beverages	13	21
Industrial Metals and Mining	18	25
Mining	20	25
Industrial Transportation	7	10
Electricity	9	15
Construction and Materials	19	21
Automobiles and Parts	12	20
General Retailers	21	24
General Industrials	11	17
Pharmaceuticals and Biotechnology	17	22
Technology Hardware and Equipment	19	31
Real Estate Investment Trusts	18	21
Travel and Leisure	23	26
Leisure Goods	15	18
Media	9	11
Health Care Equipment and Services	14	18
Food and Drug Retailers	9	12

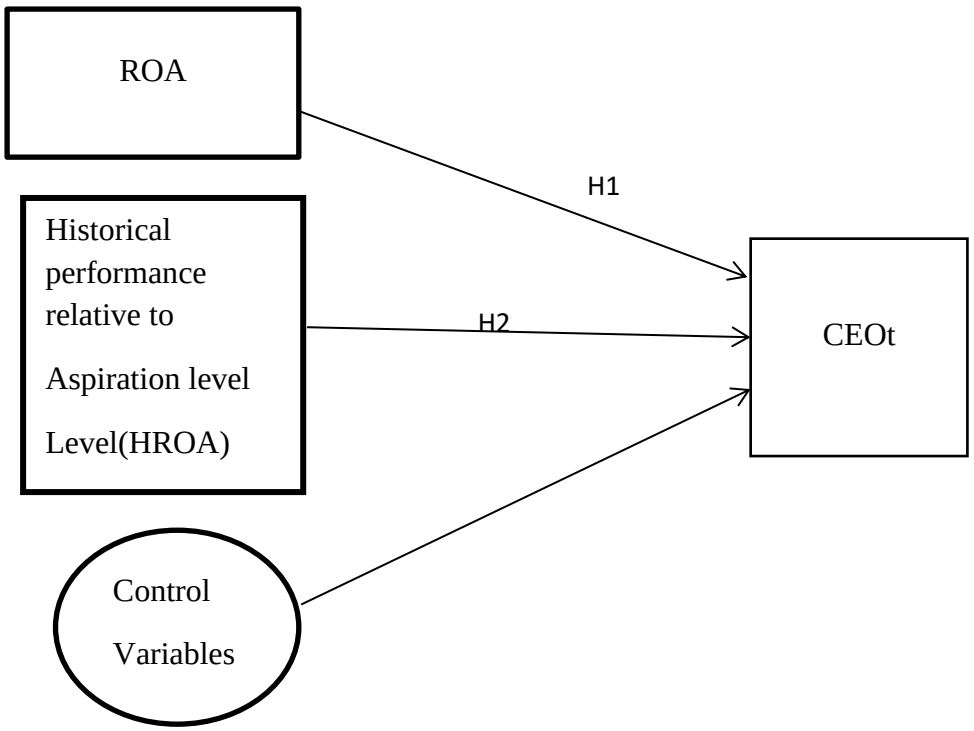

Figure 1: Research Framework

Detail of Variables

Dependent variable

CEO turnover is classified into "voluntary CEO turnover" and "forced CEO turnover", depending on the reasons for CEO turnover (Zhang, 2023). However, retirement, age, death, further education, corporate governance reforms, or other circumstances might be the reasons for CEO turnover (Miyajima et al., 2018). Forced or involuntary CEO turnover occurs due to policy-related issues and the firm's poor performance (Gentry et al., 2021). The CEOt (forced CEO turnover) is a dummy variable.

Independent variables

(1) Return of Assets (ROA)

Return on Assets=$\frac{NP_T}{TA_t}$

(2) Performance relative to Historical Aspiration level

This is calculated as

Performance relative to historical aspiration level (HROA) = Firm performance – Historical Aspiration level

The three-year ROA before CEO removal is used to calculate the historical aspiration level.

Control Variables

Control variables enhance a study's internal validity and make it simpler to understand how independent variables affect dependent variables by lessening the impact of confounding and other irrelevant factors (Onwuegbuzie, 2003). The study's control variables include donations, business size, the CEO's social capital, firm age, leverage (refer to the appendix for details), and the corporate governance index (CGI).

The CG Index measures governance effectiveness, which focuses on the internal workings and traits of the Board of directors(Adams et al., 2010). The Board has a desired level of performance for the business that they would like it to reach(Nadler et al., 2005). There may be a significant correlation between this goal level and the probability of forced CEOt. The variables that make up the index are derived from indicator variables. When the variable's value is either above or below the median, these indicator variables take on the value of 1. The board size (BSIZE, (BIND), Gender diversity (GD), CEO duality (CEOD), Ownership structure(O/ST), CEO duality (CEOD), Block holdings(B/holdings), tenure, attendance, and meeting frequency are the variables in CGI, creates by aggregating all these factors.

$$CG - Index_{i,t} = Bsize_{i,t} + BIND_{i,t} + GD_{i,t} + CEOD_{i,t} + BOwneship_{i,t} + Block\ ownership_{i,t} + Bage_{i,t} + Btenure_{i,t} + Battendance_{i,t} + Bmeeting\ frequency_{i,t}$$

Results & Discussion

The researchers use bivariate probit regression to examine the direct relationship between ROA and CEOt. Findings show a negative and statistically significant impact of current year ROA on CEOt (β=-0.026, t-value=-1.836 and p<0.10; refer to table 4) (Gerged et al., 2023). The negative association indicates that better performance leads to negative CEO turnover in US markets. Performance is one of the primary matrices that define the CEO Job level. Negative ROA creates uncertainty in the markets, and this results in a forced CEO turnover. The results also align with earlier studies showing a negative relationship between ROA and CEOt (Dasgupta et al., 2018; Jenter & Kanaan, 2015). However, the current study's findings show only an acceptable level of significance for the association between current year ROA and CEOt (P<0.10). Thus, hypothesis 1 is supported. The corporate governance index (CGI) has a strong relationship with model 1(β=-0.133, t-value=-4.235, and p<0.01). Firm size (lsize), firm age (Lage), donations (ldon), leverage (lev), and CEO social capital(CEOSA) all are insignificant, which shows that ROA has mainly affected the CEOt and corporate governance and other factors like size, age,

donations, leverage, and cash flows might not have any significant impact on CEOt. The pseudo_Rsq. is 0.023.

Table 2: Descriptive statistics

Descriptive Statistics					
Variables	**mean**	**0.25%**	**median**	**Std. Dev.**	**0.75%**
CGI	4.951	4	5	1.843	6
lfage	3.509	3.258	3.638	0.347	3.784
lfsize	2.8	2.758	2.801	0.094	2.855
CEOt	0.147	0	0	0.354	0
CEOsa	2585.17	1239	2272	1677.55	3485
lev	0.326	0.186	0.314	0.187	0.435
Ldon	16.638	15.451	16.528	1.755	17.862
ROA	0.021	-2.084	-0.01	3.87	2.129

The descriptive statistics for the primary variables are shown in Table 2. The table reports that the CEOt is notably low, as the mean (median) is 0.147 (0.000) with a standard deviation of 0.347. These numbers are similar to those reported by (Cao et al., 2017). The ROA, on average, is 0.021. Since the average leverage (lev) is 0.326, one-third of the total assets are made up of liabilities.

Table 3: Correlation matrix and variance inflation factor

Correlation matrix and variance inflation factor									
	VIF	**CEOt**	**LROAA**	**LFSIZE**	**LFAGE**	**LEV**	**LDON**	**CGI**	**CEOSA**
CEOt	-----	1							
ROA	1.32	0.0085	1						
LFSIZE	1.64	-0.0005	-0.0038	1					
LFAGE	1.14	0.0035	-0.0157	0.3204	1				
LEV	1.05	-0.0326	0.0134	0.1639	0.1329	1			
LDON	1.48	0.0027	-0.001	0.5428	0.232	0.0079	1		
CGI	1.39	-0.1147	-0.4743	0.2005	0.1019	0.0449	0.0154	1	
CEOSA	1.02	-0.0093	-0.0395	-0.0285	0.058	0.0095	-0.0913	-0.0201	1

Table 3 reports the results of Pearson pairwise correlation between variables. The correlation matrix indicates no problem with multicollinearity because the correlation

between the variables is less than 0.54. Our regression model exhibits no multicollinearity problem since all VIFs are less than 2, and VIFs are 1.29, below the permissible range of 10(Nwankwo Chike & Nnaji Peace, 2022).

In Table 5, the researcher tests the impact of ROA of the year (t-1), (t-2), and year (t-3) on CEOt for the historical performance of a firm on CEOt. Historical aspirational level firm performance refers to the performance targets a firm set based on past performance trends, achievements, and capabilities. Instead of comparing against external benchmarks or industry standards, the historical aspiration level focuses on continuous improvement relative to the company's historical performance. The historical firm performance of three years of ROA as aspiration level is used in this study. The finding shows a negative and statistically significant impact of ROA (t-1) on CEOt **(β=-0.076, t-value=-0.015 and p<0.01; refer to table 5)** in model 2. The same negative relationship persists in model 3 **(β=-0.031, t-value=0.009and p<0.01; refer to table 5)**. The historical performance of the previous two years has a very strong and negative relationship with CEOt and HROA. It indicates that consecutive two years of bad firm performance provide the base for removing the CEO when a firm performs below the ASP level. The board does not focus on the current year's firm performance only.

This supports the researcher's argument that the firm's three-year performance is essential to consider in the relationship of ROA and CEOt, compared with the historical aspiration level of three years. The performance has had a negative and strong impact for two consecutive years; reports that as performance falls further short of the ASP, the likelihood of change increases rather than decreases. This result indicates that when a business performs below expectations, there is a greater chance of a significant change occurring (Cao et al., 2017).

However, model 4 gives negative but insignificant results **(β=-0.006, t-value=-0.767; refer to table 5**) for year (t-3)) which supports the argument that year 3 impact of firm performance might not have any significant impact on CEO removal. The control variable, the corporate governance index (CGI) is significant in all models. The pseudo_Rsq. is 0.052, 0.034, and 0.019 in models 2, 3, and 4, respectively.

***Table 4**: Performance and Forced CEO Turnover*

	Model 1		
Variable	**B**	**S/E**	**z-Stat**
ROA	-0.026*	0.014	-1.836
CGI	-0.133***	0.031	-4.235
LFSIZE	0.634	1.444	0.439
LFAGE	0.075	0.15	0.502
LEV	-0.275	0.279	-0.984
LDON	-0.024	0.036	-0.659
CEOSA	0	0	-0.497
C	-2.072	2.857	-0.725
Industry FE	Yes		
Year FE	Yes		
Pseudo-*R sq*	0.023		

Significance is indicated at the 1%, 5%, and 10% levels, respectively, by ***, **, and *. β, S/E, and Z-statistics stand for coefficients, standard error, and Z-statistics, respectively.

***Table 5**: Historical performance and Forced CEO turnover*

	Model 2			**Model 3**			**Model 4**		
Variable	**B**	**S/E**	**z-Stat**	**β**	**S/E**	**z-Stat**	**β**	**S/E**	**z-Stat**
HROA(t-1)	-0.076***	0.015	-4.892						
HROA(t-2)				-0.031***	0.009	-3.663			
HROA(t-3)							-0.006	0.008	-0.767
CEOSA	0.000	0.000	-0.382	0.000	0.000	-0.542	0.000	0.000	-0.420
LDON	-0.010	0.038	-0.265	-0.024	0.034	-0.717	-0.019	0.034	-0.560
LEV	-0.253	0.286	-0.883	-0.297	0.267	-1.113	-0.284	0.265	-1.073
LFAGE	-0.065	0.159	-0.410	0.076	0.151	0.505	0.074	0.150	0.492
LFSIZE	0.537	1.476	0.364	0.784	0.657	1.193	0.636	0.653	0.974
CGI	-0.052***	0.032	-1.642	-0.137***	0.029	-4.735	-0.109***	0.028	-3.915
C	-1.676	2.920	-0.574	-2.325	1.522	-1.528	-2.134	1.515	-1.409
year effect	Yes			yes					Yes
industry effect	Yes			yes					Yes
Pseudo-*R* sq	0.052			0.034					0.019

Significance is indicated at the 1%, 5%, and 10% levels, respectively, by ***, **, and *. Moreover, coefficient, standard error, and Z-statistics are denoted by β, S/E, and Z-Stat.

Conclusion

We examined how aspiration level of performance relates to CEO performance–induced turnover. Our results show a significant negative relationship between the firm's

performance and the historical performance relative to the aspiration level, indicating that CEOs delivering below the aspiration level of the Board concerning performance should be replaced. However, this relation is not very strong in the current year's performance.

The historical aspiration level as a strong measure of performance outcome is observed; the firm's performance played an important role in establishing the aspiration level of the Board. The previous two-year performance strongly correlates with the likelihood of forced CEO turnover. Our study adds to the body of research on how the ASP of the current year and previous three years affects the likelihood of CEOt when it is below the ASP level, using the 445 listed on NYSE in the US market in 2010-2023. We provide empirical evidence on the aspiration level of the Board based on the historical performance of the firm, which has a strong impact on the decision to force CEO turnover when it does not meet the aspiration level of the Board. The study broadens the empirical approach to forced CEO turnover by applying firms' behavioral and prospect theories.

Our results indicate directions for future research. To expand on the current research, a similar study is required to be conducted in other economies. Similar to previous research projects, this one also has some limitations. First, industry aspiration can be added to the organizational aspiration level. Most of the time, the cause of forced CEOt is unclear. The true causes of CEO turnover are never disclosed, mainly when they perform poorly. This raises questions about the data’s reliability. Moreover, various accounting techniques can conceal Poor performance in a company's yearly financial accounts. These criteria restrict the study's scope, and future research can examine the impact of additional factors on forced CEO change. We have limited our analysis to the US market. It can also be expanded to include developing markets. Additional event studies may yield distinct findings. This study significantly impacts managers. Solving the root reason for forced CEO changes may be possible by improving performance above aspirational goals. Policy solutions like corporate compliance boards would provide the desired performance and comprehension levels.

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Appendix

Variables	Definition
ROA	Net income=Total assets
Firm size	Natural log of total assets
leverage	Total debt/Total assets
Firm Age	Difference between the year of incorporation and the year of observation
Ldonation	Log of total donations
CEOsa	Social network of removed CEO based on his education, employment, and other social activities.