CEO Turnover after Poor Performance: Turnaround or Scapegoating?

Catherine M. Rodriguez Milanes

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By: Catherine M. Rodriguez Milanes

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Peter Jaskiewicz	
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Sandra Betton	
_____	Examiner
Harjeet Bhabra	
_____	Supervisor
Saif Ullah	
_____	Supervisor
Thomas Walker	

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ABSTRACT

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Catherine M. Rodriguez Milanes,

This paper explores whether firms that dismiss their Chief Executive Officers (CEOs), due to poor corporate performance, exhibit better performance after the CEO turnover, or whether the CEO dismissal merely serves a scapegoating function. We examine whether companies that were in the eye of the public due to disappointing results recover after dismissing their CEO. We match firms in the same industry, by size, and Altman Z-Score and compare our turnover sample with this matched group of firms that did not dismiss the CEO. Our results suggest that CEO turnovers do not translate into better operating performance, or firm valuation (Tobin's Q). However, we do find that, after some delay, the market reacts positively to CEO dismissals due to bad performance: Underperforming firms that fire their CEOs exhibit positive and significant abnormal returns, while their counterparts, who retain their CEOs, exhibit negative abnormal returns.

Key words: CEO Turnover, Scapegoating, Performance

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CONTRIBUTION OF AUTHORS

In order to complete this thesis an initial data set, containing the firms from that had Chief Executive Officer (CEO) turnover, was provided by my supervisor Dr. Saif Ullah. The dataset contained information collected from SEC filings of companies that underwent difficult states and that as a result had a CEO turnover. The Chief Executive officers of the companies contained in this sample were explicitly named as major responsible for the difficult situation of the company by publications and media. M.Sc. student Zhe Li identified the companies and manually collected part of the data of the initial sample for his work as research assistant to Dr. Saif Ullah.

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1. Introduction

When a company suffers from poor performance, regardless whether it is caused by its CEO, the industry's environment, or the broader market, it creates an uncomfortable situation for managers. The CEOs are the face of the company, they are the leaders, and they are often the first in line to be blamed for the condition of the company. Part of being a leader is taking responsibility, because all other members of the company are subordinates, and all take command. Also, CEOs give the company strategic direction and make important decisions that determine the future of the company. Thus, it is not surprising that if investors' expectations are not met, the CEO's reputation and sometimes even their position may be in jeopardy.

This paper examines firms that have disappointing performance and have undergone a forced dismissal or resignation of their Chief Executive Officer (CEO). We consider a sample of firms that went through difficulties and in which the CEO was identified in the media to have caused that situation. In order to identify CEOs who left their firm due to bad performance, we examine media coverage for the respective firm[1]. Through this manual data collection process we are able to collect a sample that contains firms that have not been included in prior studies, given that most published studies use information that is readily available in widely known Databases such as Execucomp (Brick et al , 2006; Chang et al , 2009; Jin, 2002; Jenter and Kanaan, 2006). Therefore, in this study we are able to examine different scenarios in which firms have been in financial difficulties, CEO turnover, and its effect on performance with a new sample of firms that have potentially been overlooked before.

Certainly, after a firm experiences bad performance, the managerial ability of the CEO may be called into question. Therefore, one would expect that company performance will influence CEO turnover (Allen, Panian, and Lotz, 1979; Brady and Gelmich, 1984; Wagner, Pfefer, and O'Reilly 1984:78). A change in leadership allows for a transition to other practices. Thus, it is not surprising that firms that are going through a critical financial situation may make the drastic decision to replace their CEO. In addition, firms may implement other types of changes. The prior literature has mainly focused on likelihood of CEO turnover, CEO compensation (Jensen

[1] This method of data gathering leads to a sample of firms that is rich in variety and exhibits our desired type of CEO turnover, i.e. CEOs who resign or are dismissed due to bad performance of their company. Once these firms are identified, information about the firm is obtained from SEC filings, specifically in the DEFA14 documents.

and Murphy, 1990), and the implications of whether the newly appointed CEO is an outsider or an insider (Gilson and Vetsuypens, 1993, Chang et al., 2009). We explore a firm's decision to replace its CEO while controlling for a variety of factors. We consider previous operating performance, size, leverage and Altman's Z-Score. Also, other variables described in previous literature: The number of directors and the independence of the board, management quality, CEO age, the entrenchment index, institutional ownership, CEO duality, research and development expenditures, etc.

Nevertheless, the departure of a CEO after bad performance does not necessarily change the situation of the company. This adjustment, i.e. a new person in the lead, could also be a way to look for a positive reaction from the market and other stakeholders, which would not necessarily be able to be attributed to a superior managerial ability of the new CEO, rather than a bet. If a change in command does not improve the firm's situation, it may suggest scapegoating. Several authors have already discussed this possibility and have suggested that turnovers may be used as a tool to show that actions are being taken to improve the situation, that is, dismissals may be used as a mere symbol (Pfeffer, 1981, Boeker, 1992). We want to answer the question: Does CEO turnover improve the situation of the company? If that is not the case, either because the problems of the company remained after the CEO departure, and he (she) was used as scapegoat, or because the new CEO was not able to do a better job.

Even if scapegoating is the explanation, we remain interested in examining whether there is a correlation between our previously mentioned control variables, and different measures of company performance. Furthermore, regardless of the motives, we want to examine the reaction of the market to the news. First, we examine stock performance via an event study analysis; second what factors drive a firm's operational and stock price performance as measured by its industry-adjusted Return on Assets (ROA), buy and hold abnormal returns (BHARs) of the firms in our sample, and finally, proxies of growth expectations and firm value, such as Tobin´s Q and the market to book ratio. We employ a matched sample approach that allows for comparisons between our sample of distressed firms and our control sample.

Our study is organized as follows: First, we examine the relevant literature (Section 2), and develop our hypotheses (Section 3) of this research. Then in Section 4, we describe our data, and in Section 5 our methodology. Section 6 discusses our empirical results, and Section 7 concludes.

2. Literature Review

There is an extensive body of literature that examines the interconnections between CEO turnover, firm performance, and the control variables that are being considered in this study. We present our literature review in several sections. The first three sections cover our main topics of interest: financial distress, CEO turnover and the associated market reaction, and scapegoating. The sections that follow discuss literature on the controls previous studies have used.

2.1 Costs of Financial Distress

Financial distress has many implications that may severely affect the future of a company, and thus make a quick turnaround something that is highly desired. When a company goes through difficult times, it may have repercussions for many years ahead. Opler and Titman (1994) explain that firms with a substantial amount of debt can easily lose market share to their more healthy competitors when the industry goes through a crisis. The authors state that financial distress is also reflected in the market value of equity. Purnanandam (2008) shows how the associated costs may make firms in distress unable to fully recover due to the loss of prospective sales, key employees, and suppliers. It is no wonder, that firms that are in financial distress need to implement drastic measures in order to both improve their financial situation and to indicate to key stakeholders that the situation will change for the better.

2.2 CEO Turnover and Market Reaction

When a company is going through a difficult situation, it may take the assertive (and sometimes desperate) measure of replacing its CEO. A large body of prior research on CEO turnover has examined the likelihood of CEO turnover. In an early study, Allen et al. (1979) are emphatic about the negative relation between performance and the frequency of the replacement of managers of major baseball league teams. However, this issue does not only apply to leadership in sport related organizations. For example, Jenter and Kanaan (2006) provide evidence that bad performance leads to a high incidence of CEO turnover, even though the bad performance can often be linked to general poor industry and/or the market performance. If this is the case, then sub-par managerial performance is not necessarily the culprit for the critical

situation of these firms. However, in that case one may wonder: What was the motivation to dismiss these CEOs?

Perhaps the answer is what CEO turnovers tell the market, and how the markets react to them. Warner et al. (1988) study the relation between stock prices and top management changes. They not only cover the CEO, but also the chairman and the President. In their event study they do not find a big reaction of the market to these turnovers around the announcement day. Nevertheless other studies have found different results that support that the change in control has a positive impact on returns (e.g. Bonnier and Bruner (1986) for CEO turnovers in distressed firms, Weisbach (1988) and Furtado & Rozeff (1987)). Gilson (1989) shows how CEO turnover is more common in firms with financial distress and how these CEOs suffer negative effects in their careers even after three years of leaving the company. In his study of post-bankruptcy performance, Hotchkiss (1995) argues that the results of his analysis of performance and management turnover indicate that continuation of the same management after a bankruptcy filing is linked to underperformance. Farrell and Whidbee (2002) study a sample of firms that had CEO turnover against a matched sample that did not. They find that press coverage (in the Wall Street Journal), influences the probability of having a CEO replacement. According to the authors, the pressure from the press moves the board of directors to make drastic decisions because they are concerned about the impact on their own reputations. The authors also explain that the greater the press coverage, the more the CEOs care about improving performance because they want to avoid decreasing their human capital in the labor market.

2.3 Scapegoating

As previously noted, replacing the CEO could potentially lead to an improvement in performance as it opens the door to many opportunities for change. Of course, the CEO may be truly responsible for the poor performance of the firm. Nevertheless, the dismissal of the CEO could also be used as a way to send a signal to the market. Sometimes the departure of a CEO after bad performance does not necessarily imply that replacing the CEO will be the key to change the situation of the company. It may also be the case that this adjustment, a new person in the lead, could be create higher expectations, about a possible turnaround in the short term that might not necessarily come to happen. If the change in command does not improve the situation, this could be a case of scapegoating. Several authors have already discussed this possibility, with

arguments on how a turnover can be used to show that actions are being taken to improve the situation, that is, dismissal can be used as a mere symbol (Pfeffer, 1981). Boeker (1992) talks about scapegoating as well, but focuses his attention on how powerful CEOs can use scapegoating by firing their subordinates. In our study, which focuses on CEO turnover, scapegoating could explain the results found by Jenter and Kanaan (2006) who show that after poor performance CEOs are more likely to be dismissed, even if the bad situation was common to the industry or the market. Results suggest that boards give more weight to managerial performance during recessions than in regular times. Interestingly, boards appear to use a rule of thumb when electing a benchmark to compare the performance of the CEO, selecting those that are more visible. With this imperfect benchmark they tend to dismiss underperforming CEOs. In a more recent study, Jenter and Lewellen (2010) state that boards do not apply the logic used in many Bayesian models, which assign equal weight to each performance signal, but rather, they put more weight to recent CEO performance; in a never ending learning process of CEO ability in which tenure does not seem to have a major impact. In this study, the authors employ a different metric, identifying all CEO turnovers that could be attributable to performance, rather than the commonly used Parrino (1997) selection of forced CEO turnovers.

2.4 CEO Compensation

CEO compensation has been broadly discussed in the financial distress literature. Gilson and Vetsuypens (1993) identify distressed firms that either filed for Chapter 11 bankruptcy protection or restructured their debt in the period 1981-1987. They focus on CEO compensation under these extreme circumstances. They explain that firms in financial distress may change managers´ compensation as a strategy to improve the situation. Their findings indicate that the compensation of senior managers is sensitive to the situation of the firm. First, a large portion of CEOs in their sample were fired, and if they were not, at least they suffered reductions in their compensation. On the other hand, Jensen and Murphy (1990) explain that CEO compensation is not dramatically impacted by the reductions in the profitability of solvent firms; they believe that, in fact CEO compensation is weakly linked to performance. One of their recommendations is that firms need to increase the sensitivity of CEO compensation to performance. Taking a closer look at the findings of Gilson and Vetsuypens (1993), one may argue that the sensitivity of compensation to performance disappears when mixing data on new CEOs, and by failing to differentiate insiders

from outsiders. There are different views regarding the question whether it is advantageous to have an outsider or an insider as the newly appointed CEO. For instance, outsiders could potentially bring more benefits following poor performance of the firm or in cases in which the firm wants to explore new markets or strategic plans (Warner et al., 1988). Yet, Lazear and Rosen (1979) note that appointing an outsider can have a negative impact on the motivation of insiders who may realize that it is unlikely for them to acquire a higher position in the company since an outsider has been preferred. Also, the outsider CEO has to go through an adaptation phase, for example, learning more about the industry, the operations of the firm and its culture.

Another study by Chang et al. (2009) concentrates on the compensation and incentives offered to newly appointed CEOs of financially distressed firms. The authors mention that given the existence of possible damages to human capital, i.e. one´s reputation and the possibility of being hired again in a senior management position, the incoming CEOs will demand a higher compensation at high to moderate levels of human capital risk, proxied by the ex-ante risk of financial distress. Chang et al. (2009) distinguish between low, moderate, and high financial distress risks and find support for the conclusions given by Gilson and Vetsuypens (1993) in that senior management compensation is indeed affected by financial distress risk, but it is only significant when the risk is at moderate to high levels. Another important contribution is that, given that CEOs are concerned about reputational consequences, high distress risk can act as a control for agency problems, and hence, the need for equity-based incentives decreases the higher the firm´s distress risk is. The authors also introduce the age of the CEO as a variable, finding that younger newly appointed CEOs would receive a higher human risk premium in their compensation, given that for them damage to their reputation would have worse consequences than for older CEOs.

2.5 CEO Age

As previously mentioned, another factor that has been found to affect performance is age. Fama (1980) explains that managers greatly care about their human capital. If their performance is unsatisfactory, it can give a bad signal to the labor market, and endanger their future rents or/and future employment possibilities. Therefore there may be self-monitoring by managers who are worried about their future. Fama and Jensen (1983b) explain how human capital can be sensitive to performance. Following this logic, the impact of human capital would be greater in

firms that are in financial distress or on the verge of bankruptcy. Fama and Jensen (1983a) also mention that the market for takeovers can affect the behavior of agents as they will not want to lose control. Moreover, they propose a positive influence by independent directors who want to signal to the labor market that they are good in control activities and decision making.

2.6 Board size, Independence and CEO Duality

The board of directors plays an important role in the power aspects of firms with their supervising and controlling responsibility. In his analysis of control systems Jensen (1993) criticizes the effectiveness of boards throughout the modern industrial revolution. As one of the main problems the author names the oversized boards, more specifically boards with more than 8 members. An oversized board would allow the CEO to have more power over the decisions, especially if there is a majority of insider board members, as independent board members can have less access to information than insider board members. The author also emphasizes how CEO duality can weaken the control system of firms since there should be an independent leader, with no personal interest, leading the board. Yermark (1996) also finds evidence of support of smaller board sizes being more favorable to performance measured by Tobin´s Q. His study also provides evidence in support of CEO´s pay being more linked to performance, higher CEO turnover in response of bad performance, and better response from investors when the size of the board is small. Weisbach (1988) also finds evidence of a positive relation between board independence and CEO turnover taking into consideration past performance of the firm. Similar results were obtained for the study of board structure and monitoring done by Guo and Masulis (2012).

Cheng (2008) found evidence in support of the existence of a negative impact of board size on performance measured as returns, Tobin's- Q and \ROA. More specifically he addresses that as the board size increases, the variability of performance decreases. This led him to believe that there is in fact more difficulty in agreeing in the process of decision making, reaching consensus can take more time and less risky decisions would be taken.

On the other hand, Raheja (2005) shows that that the need of a larger board increases as the complexity of the firm increases, because now there is a growing need of expertise and specialized advice. Linck et al. (2008) have also argued that there should not be a specific rule as

to whether smaller or bigger boards are best, and that firm's characteristics would dictate which is more appropriate in each case. For example, firms with many growth opportunities and subject to a lot of volatility would require agile boards of just a few members, whereas big and complex firms would require a larger board size.

2.7 Governance

Core et al (2006) discuss the impact of governance on performance, both in returns and in operating performance measured as Industry-adjusted ROA. They employ the GIM-Index constructed by Gompers, Ishii and Metrick (2003), who found a relationship between this index and firm value measured as Tobin's Q. The GIM Index uses the number of governance provisions in the firm provided by the Investor Responsibility Research Center (IRRC). Core et al (2006) discover that even though governance does not seem to impact returns, firms with weak governance experience weaker operational performance than firms with strong governance. Why the previously mentioned authors did not find a relationship between governance and other variables could be explained by the arguments presented by Bebchuck et al (2009). In their paper they express doubt in the validity of the G-Index to properly proxy entrenchment. To accomplish this, they developed their own index known as Entrenchment index, which considers only 6 provisions. Other provisions were found to be unrelated to firm value and abnormal returns. The selected provisions are: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes and supermajority requirements for mergers and charter amendments. When using this new index, Bebchuck et al happened to find that this index has a significant negative correlation with firm value, measured as Tobin's Q, as well as with returns, during the same period studied by Core et al (2006). The authors explain that managers of firms with low firm value could be motivated to seek protection in the form of these provisions, and that doing so exposes the firms to repercussions of entrenchment, manifested in a further reduction of firm value.

Nevertheless in existing literature it is argued that it is also possible that entrenchment could have positive effects. Stein (1988) describes the negative effect of managerial myopia. In his model the author shows, in order to avoid takeovers, managers would chose to sacrifice long term results and would therefore fall into wasteful signaling. In the presence of information asymmetry, antitakeover provisions could in fact avoid falling victim of raiders that buy undervalued stocks.

Bebchuck et al (1993) explained in their publication that it is also possible that when managers are less concerned in giving positive signals in the short term; to for example obtain higher compensation, or avoid losing control; then they can have a more beneficial investment behavior, reducing detrimental managerial choices, namely under investment or overinvestment in long term projects.

2.8 Management Quality

In order to convey a certification effect, firms in distress can allocate efforts on improving the management quality of the management team and the overall reputation of the firm. As explained by Chemmanur and Paeglis (2005), a higher management quality can increase the intrinsic value of the firm by conveying a positive signal to investors and other stakeholders such as financial institutions and underwriters. Also, given that managers´ quality implies better management, higher management quality also leads to better decision making, selection of better projects and as a result better performance. Perez-Gonzalez (2006) study the impact on performance - among different measures using Adjusted OROA- of CEO positions filled by inherited individuals. The author considers a main criteria whether or not the CEO has received education from a recognized institution (based on a ranking of universities: Barron's Profiles of American Colleges) or not. Both firms with CEOs promoted by family ties and with CEOs with lower education were linked to underperformance.

2.9 Institutional Ownership

Parrino, Sias and Starks (2003) take the matter of institutional ownership to the setting of forced CEO turnovers comparing a sample with turnovers with a matched sample that did not experience it. They discover that there is a decline in institutional ownership variables prior to forced CEO departures, the greater the institutional selling, the greater the probability of forced CEO turnover. Institutions supposedly possess more information, and decide to sell partly in response to recent undesirable results, in what the authors called a momentum trading motive. Nevertheless, after the CEO has been replaced, institutional ownership increases in the following couple of years. This is not the case though, if there are dividend cuts after the CEO turnover because of prudency concerns. Hotchkiss and Strickland (2003) find evidence that the composition of institutional owners affects the stock performance of firms, and that this, whether

they behave more as traders (short-term oriented) versus as owners (long term oriented), will guide the impact on price after news releases. Also, Cornett et al (2007) find evidence of a relationship between operating performance, measured as the cash flow returns of a firm and institutional ownership. This effect is found to be created by institutional owners, but specifically those that do not have a business relationship with the firm and that therefore would not be permissive. In these cases, the variables percentage of stock ownership and the number of institutional shareholders are found to have a significant relation to operating performance.

2.10 CEO Ownership

CEO ownership is another variable to be considered as it can potentially be an important determinant in CEO behavior. There has a wide discussion in literature regarding this variable and its potential to deal with agency issues. McConnell and Servaes (1990) talk about the interesting nature of the relationship between Tobin's Q and insiders' ownership. They mention how after reaching a point, 40% to 50%, the positive relationship becomes negative. In another interesting result, Pi and Timme (1993) discuss how CEO ownership can have either a positive or a negative relation to performance in the sample of banks in their study. For CEOs who were also chairmen the relation was negative, whereas for those who were not the relation turned positive. Kim and Lu (2011) argue that the negative relation after a certain threshold might not be caused by the problems arising from the entrenchment of the CEO, but because of the fact that an additional stake in the company can make the CEO more risk averse and make him reject value enhancing projects that also pose a higher risk for him, as CEOs do not optimally diversify. But authors also state that this curved relationship can turn insignificant when there is strong external governance, such as an industry with a lot of competition in which CEOs have to be bolder.

2.11 Bankruptcy Risk

Given that the Altman Z-Score will be employed in the matching process of this study, it is important to mention its origins[2]. It all started when, after the raising doubts on the effectiveness of simple ratio analysis to evaluate the situation of a company, Altman (1968) created a method to estimate the probability of bankruptcy of a company. He used a combination

[2] I would like to express my gratitude to Dr. Harjeet Bhabra for his contributions. The method of matching with the Altman Z-Score as main criteria was proposed by him.

of financial ratios in a multiple discrimination analysis (MDA). The function that results in the bankruptcy index Z-score is described as follows:

$$Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5 \quad (1)$$

In which X_1 is the ratio of working capital over total assets; X_2 is the ratio of retained earnings over total assets; X_3 is the ratio of earnings before interest and taxes over total assets; X_4 is the ratio of market value equity over book to value of total debt; and X_5 is the ratio of sales over total assets. The interpretation of the results is that if a firm presents a Z-score of over 2.99 then it will be considered in the non-bankrupt area, and those that obtain a Z-score of less than 1.81 will be in the bankrupt area. In regards of the values in between these two breaking points, more than 1.81 to less than 2.99, firms that obtain them will be considered in a gray area, providing an overall midpoint of 2.675 after further analysis.

3. Hypotheses

It is of our interest to evaluate the differences between our sample of firms that had the CEO turnover versus a comparable control sample. The control sample, which contains similar firms to those in our turnover sample, and in a similar level of financial distress, did not dismiss their CEO. The starting point is to investigate the perception of the market to the news of departure of the CEO in our sample and its impact on returns. Then conversely evaluate the impact on a control sample, with firms that did not have a CEO turnover, even though they were in a similar state in terms of financial distress, measured by the Altman Z-Score.

The main difference between the sample and control sample is the breaking point, at which the firms in the sample have their CEO departing. When this happens it opens the door to many changes. In our sample we have firms that were going through difficult times, and it is with more reason that a change in command could be considered an opportunity for improvement.

Following this logic, we expect that the sample with CEO turnover will have a positive reaction in the market once the news of the CEO leaving the company are shared[3].

H1: For the turnover sample: There will be a positive reaction from the market after the news of the CEO departing reflected in the abnormal returns.

On the other hand, we might see that the control sample is negatively affected, as they did not take a drastic measure, in this case CEO turnover, to improve their situation. The market could take this as a negative sign, seeing how a competitor, the firm in the sample, which stands in a similar situation has already taken steps towards improvement and the control firm has not. Consistent with results found by Bonnier and Bruner (1986), Weisbach (1988) and Furtado and Rozeff (1987) views on continuation of the same management and a link to underperformance. Then if this is the case, our second hypothesis is:

H2: For the control sample: There will be a negative reaction from the market after the news of the CEO of the competitor's firm departs, while the CEO of the control firm does not, reflected in the abnormal returns.

With the previous hypotheses we intend to answer the question: What is the reaction of the market? For this purpose a daily-event-study is employed. Subsequently, we want to explore, if in case of a reaction as expected, the turnover sample will have favorable results, and the control sample will not, considering other measures of performance. If this is not the case, it is possible that the dismissal of the CEO was a simple case of scapegoating, or that the newly appointed CEO did not make any difference in the situation of the company. Therefore we have two possible scenarios:

H3a: The CEO turnover leads to an improvement in performance, when compared to the performance of the previous CEO, and to the performance of the control sample.

[3] We are aware that there might be anticipation of this news, and therefore it would not be a surprise if there is turbulence before the day that news are released.

H3b: The CEO turnover does not lead to an improvement in performance, when compared to the performance of the previous CEO and the control sample indicating no drastic change with the CEO turnover and the possibility of a case of scapegoating.

In order to test the two previous hypotheses, regressions will be employed using several measures of performance as independent variables against several explanatory variables and a variable indicating if there was a CEO turnover or not. These tests will be explained in detail in Section 5.

4. Data

Our initial sample of financially distressed companies that replaced their CEO consists of 200 firms. They were identified by searching for firms that had a CEO turnover related to poor performance. News publications close to the date of departure indicate that the CEO was responsible for the bad results of the company. This makes the selected sample special. The prior literature in this area mostly focuses on forced CEO turnovers without discriminating between turnovers caused by scandals, disagreements with the board, and bad results attributed to the CEO. For example, some studies use the methodology proposed by Parrino (1997)[4]. We consider it important to be able to discriminate between the three possible reasons for forced turnover. For that purpose we employ publications available in Factiva and important news providers. A main characteristic of our sample is that there were news stories regarding the poor performance of the company, and that the CEO turnover occurred afterwards. Firms that are included in the sample openly communicated the turnover and the association of the CEO to the bad performance[5]. To see an example of different news stories regarding the three forced turnover classifications please refer to Appendix 1.

The samples contain data from 1993 to 2010. Information is mainly collected from SEC filings in the DEF14A documents. As previously mentioned, this study is special because of the

[4] In his research he considers the following: firstly, the reports or news of the CEO departure specifies either that the manager has been fired or that is ambiguous about the reasons of dismissal, for example, stating that the reasons are classified. Also, if the news does not say that the CEO leaves because of health issues, due to a change of jobs or because he/she is retiring but did not announce it in previous months

[5] This methodology highly differs from Parrino (2006). The turnover selection process is also different from studies like Jenter and Kanaan (2006), and Jenter and Lenwell (2010) in the sense that to be included in the sample firms must have voiced the relation between bad performance and the CEO.

hand collection of data from the DEFA14 documents. Firms that may have been overlooked before are included, as most previous studies exclusively rely on firms available in Execucomp, and our study does not. We believe that the fact that we include these firms gives our sample more representativeness since a wider spectrum of firms of different sizes is considered.

In the process of cleaning data and collecting information, our first step was to obtain the GVKEYS for the 200 firms in our initial sample. The sample was reduced to 189 firms, all of them located in North America. Then, due to reduced amount of information in annual fundamentals in the year of the CEO turnover the sample (which is necessary to match the turnover firms to their controls) was reduced to 112 firms. We believe that in this step we lost those firms that due their poor relevance or size did not even have information in the COMPUSTAT database.

Another criterion we employed is that firms are kept in the sample if it had compensation and CEO characteristics during at least +/- one year around the CEO turnover. Only 79 firms have this information and a possible match. The process of creating a control sample, obtaining a match for each firm that had a CEO turnover, identifies firms that although similar, did not have a CEO turnover[6]. Therefore, our initial sample is matched against companies that were in a similar situation in terms of financial distress (measured by the Altman Z-score[7] in the year in which the firm in the turnover sample had the CEO turnover), the same industry (based on two-digit SIC codes) and a similar size. For the latter, we considered the firms´ total assets (70% to 130% of the size of the firm in the sample was allowed). Also, to be included in the control sample the firm must not have had a CEO turnover during our sample period. This is because what is most important about the matched firms is that even though they were also going through similar difficulties, they decided not to fire the CEO.

[6] The finance literature control samples have been widely used. They comparison allows to draw conclusions regarding a special aspect that makes the two samples different. Some papers that have used this methodology are Ritter (1991), and Bhabra and Pettway (2003).

[7] Given that the terms used in the Altman Z-score capture the essence of several firm's characteristics, this was considered an appropriate matching criteria, for robustness purposes, results of the paired differences we employed and presented in the Summary Statistics Section for year -1.

After matching our 79 sample firms with 79 control firms, our sample consists of 158 firms. Table 1 displays the list of different industries present in the total sample[8].

4.1 Variables and Sources

In order to obtain our data, different sources are used. Compustat (Fundamentals Annual – North America) is used to obtain the information of the financial statements information. Mainly to obtain data of several control variables such as leverage, size, R&D expenditures, market-to-book ratio, to compute the Altman Z-score, and likewise to obtain information on miscellaneous variables, such as number of employees. We access Risk Metrics (Directors and Director's Legacy) and SEC filings to retrieve information regarding board size and board independence[9]. Finally, we use Execucomp, Incentive Lab Databases, and SEC filings to obtain information regarding Executive's compensation and CEO duality.

In this phase of data collection the Entrenchment index of governance is included. Data on this variable is obtained through the governance section of Risk Metric, specifically from the subsections Governance and Governance Legacy. Lastly, information regarding management quality proxied by whether or not the CEO had graduate level education is obtained from SEC filings and online information available on Forbes and Business Bloomberg Week. These same sources as well as Execucomp provide information about the CEO's age.

Whether or not the CEO was an inside promotion or an outsider is obtained from several business publications available in Factiva and on the SEC´s DEF14A' filings. Thomson Reuters provides information regarding institutional ownership. Lastly, the Center for Research and Security Prices (CRSP) provides information on the returns for both the firms in the sample and the benchmarks.

We use Kent and Titman´s (1997) methodology for our Book of Equity calculation and employ the values necessary to calculate the market-to-book ratio, Tobin's-Q and Altman Z-score using Mousawi´s SAS code available in WRDS. Table 2 contains a summary of variables that we collected, as well as their description and source.

[8] It is to note that given the limited amount of firms in the sample we did not exclude firms in the Financials and Utilities Industry, but to compensate decided to Control for Industry in further tests.
[9] Bloomberg is also used to look for missing data regarding board related variables.

4.2 Summary Statistics

In this section we present the summary statistics for the independent and dependent variables used in this study taken from the previous year to the turnover of the CEO, that is year -1. Therefore this provides statistics of the CEO that will leave the company in year 0 for the turnover sample, versus the CEO that was not dismissed at the same point in time, even though the situation of the firm was similar. The results are displayed in Table 3. The variable CEO Duality is a dummy variable that takes the value of 1 when the CEO is also Chairman of the board, 0 otherwise. By the results of the mean paired difference we see that there is no significant difference between the two samples., same happens with the Dummy variable Education that takes value of 1 when the CEO has graduate studies, 0 otherwise.

In terms of compensation, we see that the means between the two samples are very similar, with the sample having a greater value and more dispersion; but when looking at the median, the matched sample has a higher central tendency value (median of 629.71 for the sample, 695 for the match, in thousands of dollars). In terms of bonus, the matched sample presents a higher median, yet a lower mean. Regarding the dispersion of this variable, it is also greater for the turnover sample, than for the control sample. Notably, only incentives based compensations has a significant difference with a p-value of 0.0220 among the compensation variables, with its value being higher for the firms in the turnover sample (positive mean difference of 2497.7 thousand dollars, unreported in table). It would be, therefore, safe to assume that it is this portion, which carries most of the difference between the total compensation of these samples, p-value of 0.0388 (positive mean difference of 2435.1 thousand dollars, unreported in table). The dispersion in these two variables, incentives and total compensation, is also higher for the turnover sample. CEO Ownership is also significantly different, with a p-value of 0.0057 (Negative mean difference of -0.0277, i.e. 2.77% higher for the matched sample).

Regarding the board of directors, we see that the number of members is higher in the turnover sample than in the matched sample, with a mean and median of 11.48 and 11 for the sample, and of 9.4 and 9 for the matched sample. Nevertheless, the difference proves not to be significant in the paired mean difference test. About the independence of the board we see that neither the

number of independent directors, nor the percentage of the board of independent directors has a significant difference between the two samples, nor does any of the measures of institutional ownership.

In terms of one of our proxies for size, total assets we see that the samples are not significantly different, with a p-value of 0.2335. In terms of median for example, we see that for the sample the value is 1,160.09, whereas for the matched sample it is 1,733.3. Here it is important to remember that the turnover sample was hand collected, while for the matched sample these are all firms that had compensation provided by Execucomp, database in which we would more likely obtain information of larger firms. Examining another proxy for size, number of employees, even though the mean of the turnover sample is larger than that of the control sample, 28.4 versus 18.6, the difference in these results is also not significant, with a p-value of over 0.25, and the median is also lower for the turnover sample (5.23 versus 7.87). The dispersion for both proxies of size is higher for the turnover sample.

In unreported results, for variable Property, plant and equipment, we see that for the turnover sample the mean is higher (2,187.14 vs 1715.64), but for the control sample, the median is (209.55 versus 264.54), which in turn yields that the difference is not significant. The standardized CAPEX (by sales), is also found to be not significantly different.

Regarding leverage, the difference is not significant, with a p-value of 0.24. But when looking at the means and medians these values are slightly larger for the matched sample. The ratio has a median of 0.5669 for the turnover sample, and of 0.579 for the matched sample.

In terms of market-to-book ratio we also see that the difference is not significant, with a p-value of 0.9379. The means are very similar, 3.2152 vs 3.2284. But the dispersion is higher for the turnover sample, in terms of standard deviation and range.

The Altman Z-score, our matching criteria, even though it is a year before the year of the turnover, which is the year chosen to make the matches, shows no significant difference in means. Nevertheless, the dispersion for the turnover sample is wider.

For the Adjusted Tobin's-Q we also have a not significant difference in the paired mean difference. And similar central tendency values, with again, more dispersion for the turnover sample.

Lastly, in terms of operational performance, the difference is significantly different, with a p-value of 0.0297 for ROA calculated with operating income before depreciation and amortization, and of 0.0111 with operating income after depreciation and amortization. The higher values corresponded in both cases to the matched sample, which is more evident for ROA after depreciation and amortization when we see that the mean and median for the sample were negative.

4.3 Correlation Table

When evaluating the correlation coefficients, provided in Table 4, we see that our dependent variables have significant correlations with several explanatory variables. In case of Adjusted ROA (After depreciation and Amortization), there is a significant relationship with Total Compensation (0.1214, p-value: 0.001). Positive and significant correlations were also found between variables percentage of independent directors (0.1834, p-value: <0.001), number of institutional shareholders (0.2006, p-value: <0.001), total institutional ownership as a percentage of Shares Outstanding (0.1572, p-value: <0.001). Control variables Market-to-Book Ratio (0.109, p-value: 0.0019), Log of Total Assets (0.1186, p-value: 0.01), Log of total employees (0.228 p-value: <0.0001), log of PPE (0.1972, p-value: <0.001), log MVE (0.2558 p-value: <0.001), Leverage Ratio (0.0296, p-value: 0.3991), and Altman Z-Score (0.1673, p-value: <0.001) were also significantly correlated to Adjusted ROA.

For Adjusted Tobin´s Q on the other hand, we see that there are also significant correlations, but none of them being significant at the 0.01 level, except for the usual control variables in literature, log MVE (coefficient: 0.1546), Leverage (coefficient: -0.13) and of course, Market-to-book that was highly correlated as expected (coefficient: 0.78256) and Altman Z-Score (coefficient:0.7093). At the 5% level, with a positive correlation with total compensation (0.0801, p-value: 0.0312). Then interestingly, CEO Age presents a negative correlation (-0.1127, p-value: 0.0068), and Education a positive correlation (0.08971, p-value: 0.0237). Lastly, our measure

Tobin´s Q is also correlated to percentage of independent directors (0.1123, p-value: 0.006) and to Number of block institutional Shareholders (-0.1067, p-value: 0.005).

Taking into consideration the magnitude of their coefficients it is important to mention that the proxy for size that had the least issues with correlations with other variables was Log MVE, and therefore this was the preferred proxy for size[10].

5. Methodology

This section provides explanation on the different tests that are employed to examine the dynamics present in our samples. First, the event study methodology; followed by the evolution of central tendency measures, the analysis of difference in differences, and the regression models.

5.1 Event Study

Regardless of the CEO turnover being a real solution in the case of the turnover sample or not, one aspect that is of great interest is the reaction of the market to the CEO turnover, or absence of it. In order to assess the behavior of our two samples in terms of the market impact we employ the daily event study methodology[11], ran for each one of them separately.

Both the market model and the Fama-French model are used using an estimation window of (-296,-46). Value weighted and equally weighted results are examined, but for sake of briefness we will only report one. CAARs are calculated to then be analyzed in the two different scenarios.

The output of results and models are obtained from Eventus available in Wharton Research Data Services[12]. Market adjusted returns are used and the estimation periods before the event date (our

[10] Likewise, for each type of variables, for example, among the institutional ownership kind, we select just one in our models considering the relationship with the dependent variables and the correlation with other explanatory variables within the models.

[11] In order to follow the event study methodology we employ a set of assumptions: (1) The market has a semi strong efficiency, (2) the true asset price model is at hand, (3) the returns of the stocks have a normal distribution, (4) there is no contamination in the information and (5) the underlying risk of the stock does not change after the event happens. This methodology is used being aware that there could be some anticipation of CEO turnover and that this could potentially affect our results, especially regarding the turnover sample.

[12] WHARTON RESEARCH DATA SERVICES. (Oct 2014) Web. Retrieved from: http://wrds-web.wharton.upenn.edu/wrds/

day 0, date in which there was the CEO turnover) are from -296 to -46. For the event period results are shown from -30 to +30 days of the event day and different windows are calculated. To draw inferences the Average Abnormal Returns (AARs) of the days in the event period and the Cumulative Average Abnormal Returns (CAARs) of the event windows are analyzed.

In order to test for hypotheses (1) which expects a positive reaction from the market to the CEO turnover; and (2) which expects the market to have a negative reaction to the absence of CEO turnover for the control sample. We examine the significance and magnitude of abnormal returns, evaluate the CAARs of different windows, and analyze a graphic illustration of the evolution of these.

The following two sections show in detail the two models that are used. Market Model and Fama-French Model results.

5.1.1 Market Model

In order to obtain the abnormal returns of the securities it is necessary to find the difference between the actual returns obtained after the events, and the expected returns that the companies would obtain had the specific event had not occurred. To find the coefficient that represents the expected returns the Market model uses the following procedures from MacKinlay (1997):

$$R_{it} = R_{mt} + \varepsilon_{it} \quad (2)$$

In which R_{it} is the return on security "i" at day "t", R_{mt} is the return on market at day "t" and ε_{it} is the error term which will be the unexpected return. To calculate the abnormal returns the following formula is used:

$$AR_{it} = R_{it} - E(R_{it}) \quad (3)$$

Then for Cumulative Abnormal Returns the formula is the following:

$$CAR(t_1, t_2) = \sum_{t-t1}^{t2} AR_t \quad (4)$$

5.1.2 Fama French Model

The second model employed is the Fama-French (1993) that uses daily factors as Benchmark. The model takes into account the effects of size, book-to-market and momentum characteristics. The resulting formula that is employed is the following:

$$R_{pt} - R_{ft} = a_p + b_p(R_{Mt} - R_{ft}) + S_p.SMB + h_p.HML + e_{pt} \quad (5)$$

Where R_{pt} represents the return on the stock, R_{ft} stands for the risk free return, R_{mt} represents the return of the market, SMB represents the difference between returns for small and big firms, and HML is the difference between high and low book to market ratios. These factors help sophisticate the results of the study.

5.2 Evolution of Central Measures

In order to view a graphical representation of specific variables through the years we first take companies that at least have at least 5 years of observations. Then the median of the variables for each year are calculated and displayed in a graph; this in order to examine these measures of central tendency of the firms that had a turnover and those who did not along the years. This analysis is made for growth variables, adjusted-ROA, size of the company, and other variables of interests in a setting of CEO turnover such as Altman Z-Score, Leverage and ratio of CAPEX to sales. In addition, BHARs[13] of the following years (first to fifth year after the turnover) are also evaluated.

Overall, in this section we intend to have a graphical display of any changes from within each sample, and then also, be able to compare the evolution of the mentioned variables, one sample next to the other. If results indicate that the turnover sample does not necessarily have a superior performance than the control sample, this would be an indication that the CEO turnover did not represent a real solution for the situation of the firms in the turnover sample and lean towards the scapegoating hypothesis.

5.3 Difference in Differences Analysis

In order to further assess changes in time and between the two samples we use the Difference in Differences methodology. Use of it can be found by authors such as Ashenfelter and Card (1985) and Perez-Gonzalez (2006). In this methodology there are two groups, each have observations for at two time periods. One group is subject to a treatment in the second

[13] To see the formula used to calculate BHARs refer to Appendix 2.

period, and the other is not. The basic structure of the model is the following, as presented by Wooldridge (2007):

$$y = \beta_0 + \beta_1 dB + \delta_0 d2 + \delta_1 d2 * dB + u \quad (6)$$

Where y is the variable that we are interested. dB is a dummy that takes value of one when the observation is of the group of the treatment, 0 otherwise. d2 represents the second time period taking the value of one when it is, 0 otherwise. Therefore, for our analysis, the treatment is CEO turnover, and period 1 and 2 represent the before and after. The dependent variable takes the value of the average of the years -1 and -2 before, and 1 and 2, after the turnover dates for the turnover sample and control sample. The main assumption to be taken into consideration when using this methodology, other than those present in the OLS models, is the parallel trend assumption, which tells that the two groups would have followed the same trend if no treatment had been applied.

In this analysis the goal is to determine if: (1) being in the turnover sample makes any difference, and if so, if it adds or subtracts to the variable of interest. (2) if the period after the turnover is significantly different from the period before the turnover, and in what direction. (3) If there is significant difference between the differences from one period to other between the two samples. (4) We want to answer the question, from the before and after period, how did things change for the two samples?

If the CEO turnover was actually a remedy, we would expect the difference of differences to be significant and favorable for the turnover sample.

5.4 Regression Analysis

It is of our interest to evaluate the impact of CEO turnover and other controls on firm performance. We include a dummy variable for each year y_t, where t: -3,-2,-1, 0, 1, 2 or 3 for pre/post CEO turnover. For a graphical illustration of this logic refer to Figure 1. Following this

intuition, for the control sample year 0 will be the year in which the firm in the turnover sample had the CEO turnover[14]. Our general regression model, has the following structure:

$$\hat{Y}_i = DUMyear_{t=-3\,to\,2} + ZScore_{t-1} + Leverage_{t-1} + DUM_{turnover} + \log MVE_{t-1} + ROA_{t-1} + Leverage_{t-1} + e \quad (7)$$

Where Y_i is the dependent variable, taking the values of market-to-book[15]. This same model is used for BHARs of the following 3 years after the turnover, with regressions for each of these years. The dummy for turnover tells if the observations pertains to the turnover sample or the control sample and is of deep interest to evaluate the differences between the two. Then controls for bankruptcy probability, size and profitability are included in every regression.

The Tobin's-Q regression has the same basic model, but also includes additional controls, as seen in equation (8):

$$Adjusted\,Tobin's - Q = DUMyear_{t=-1\,to\,2} + ZScore_{t-1} + Leverage_{t-2} + DUM_{turnover} + Size_{t-1} + ROA_{t-1} + Leverage_{t-1} + CEO\ Own._{t-1} + BoardSize_{t-1} + Numblockinst_{t-1} + Eindex_{t-1} + CEOAge + logTotal\ Comp. + \log Incentives + board\ size_{t-1} + DUMR\&D + e \quad (8)$$

Compensation variables[16] that are included in the regression are log of total compensation and log of incentives[17]. In order to proxy for entrenchment we decided to use the E-index constructed by Bebchuck et al (2009)[18]. Lastly, CEO ownership, board size, number of block institutional shareholders, CEO age and dummy for research and development expenditures are also included in the model.

[14] For data analysis purposes, regressions that involve CEO specific data, do not take year 0 into consideration since the turnover happens on different dates within this year and data can belong to either the CEO that departs or the incoming CEO.

[15] For regressions having Market-to-book, Tobin's-Q, and Adjusted ROA (the models for these last two are further ahead explained), The models include dummies that represent each key year, -3,-2,-1, 0, 1, 2 and excluding year 3.

[16] These variables are adjusted for inflation, taking as base year 2006, using Joost I.´s (Sept.2014) macro SAS program.

[17] Incentives is calculated as total compensation minus salary and bonus, to capture the effect of incentive based compensation (ex. Restricted stock, stock options and long-term incentives).

[18] As previously mentioned, the G-index (Gompers, Ishii and Metrick 2003) has been considered a kitchen sink approach, whereas the E-index only considers the provisions that were found to be related to firm value and abnormal returns.

On another note, we also want to determine the relation between operating performance, using ROA as dependent variable versus our explanatory variables. As expressed by Cornett et al. (2007), this measure of operating performance does provide results that are independent of our measure of leverage and offers in itself a variable that is not affected by the perception of the market. We utilize a model with different combinations of the independent variables displayed here:

$$Adjusted\ ROA = DUMyear_{t=-1\ to\ 2} + ZScore_{t-1} + Leverage_{t-2} + DUM_{turnover} + \log MVE_{t-1} + Leverage_{t-1} + CEO\ Own._{t-1} + BoardSize_{t-1} + Numblockinst_{t-1} + DUM_{Dual_{t-1}} + DUM_{Edu} + board\ size_{t-1} + \%indepdirectors_{t-1} + CAPEXtosales + e \quad (9)$$

In this model we include additional variables directly related to the CEO, such as education and CEO duality to explore their incidence on performance. Also, independent directors, a measure that according to vast literature proxies for objective control and supervision over the CEO. Also, CAPEX to sales, a variable that could be affected presence of bad performance in the firms.

Overall, the most interesting variable in the regression analysis is to examine the coefficient of the turnover dummy. If the CEO turnover does imply an improvement we expect to find a positive and significant coefficient. Otherwise, an insignificant coefficient would bring support to the scapegoating hypothesis. Also, if the turnover coefficient is negative, this would suggest that the firms that had a CEO turnover actually performed worse, compared to those that did not.

Other comments on our Methodology

- In our models, the dependent variables ROA and Tobin´s-Q are adjusted subtracting from the value for the company, the value of the median for the industry for each year in question, identified by the two-digit Standard Industrial Classification, SIC.
- We obtain the results of the regressions considering a possible violation to the assumption of independence of the residuals in our panel data. In our regressions we account for clusters of firm and time. We follow the suggestion of Petersen (2009) on correctly estimating standard errors considering the presence of a firm effect (which means a correlation of several observations of the same firm) and a time effect[19]. The author came

Petersen, M. A. Programing advice. *(December 14, 2014), Retrieved from:* http://www.kellogg.northwestern.edu/faculty/petersen/htm/papers/se/se_programming.htm

to this recommendation, estimating cluster standard errors with two dimensions, by having run a simulation to determine what method to use to correctly estimate standard errors. What Petersen explains is that researchers need to consider that the residuals may be correlated, and that therefore we need to account for within cluster correlations in terms of firms and time.

- For the regressions using BHARs as dependent variable we consider clusters for industry and year.

6. Empirical Results

In this section we present the results of the several analyses that are used in this study. First, the even study results are examined, then the evolution of central measures, followed by the difference in difference results, and lastly, we discuss the regression analysis on several measures of performance as dependent variables.

6.1 Event Study

It is interesting to see how the market reacts when the CEO that presumably led to the precarious situation of the firm departs. But also, to see the contrast for similar firms that did not have a change in command, compared to those that did. For this matter, we employ a daily event study for each of the samples. Day 0 will be the day of the departure of the CEO[20].

First we examine the results for the turnover sample and then the results for the control sample. For the two samples the market model and the Fama French model, value weighted and equally weighted are employed. Nevertheless only one will be tabulated for the sake of brevity[21].

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[20] What this means is that the event day is common for both the turnover sample and the control. For the control sample we intent to determine what is the impact on returns when another company in the same industry and in the same level of financial distress does have a CEO turnover and they do not.

[21] For the market model the results for both the equally weighted results, and the value weighted results are qualitatively similar (similar magnitude and equal sign), but with higher significance in the value weighted results. Similarly, the results for the Fama-French model are also qualitatively similar, with higher significance in the value weighted results, but with a smaller magnitude in abnormal returns. This leads us to believe that the effect of smaller firms may have affected the equally weighted results.

6.1.1 Event study: Turnover Sample

In Table 5 the abnormal returns for the turnover sample are reported. Before the turnover date there are significant abnormal returns, several with an absolute value higher than 1%, also with several signs indicating turbulence an indication of possible anticipation to the event. For example in day -24 there is an abnormal return of 1.18%, significant at the 0.01 level. Then at day -19 the abnormal return is -1.36%, also significant at the 0.01 level. Closer to the announcement day we see that in day -7 the abnormal return is equal to -1.33% and in day -5 it is of 1.43 with the same level of significance at 0.01. Then at day 0 there is an abnormal return of 0.32% but not significant. Out of the 68 firms in the sample, 36 had a negative abnormal return. In following days closer to the announcement day most of the abnormal were negative but most of them were not significant. For example at day 4 there was an abnormal return of -0.76% significant at the 0.1 level. Then as days progress the abnormal returns of more and more firms start to present more positive than negative signs. In day 16 there is an abnormal return of 1.36% and in day 19 of 1.12%, significant at the 0.01 level and 0.05 respectively. In later days the sample has also other peeks with positive abnormal returns, such as days 22 and 26 with abnormal returns of 1.14% and 1.06% significant at the 0.05 level.

When examining the cumulative abnormal returns the results start to become more interesting. As seen in Figure 2, in the results for the bold line, our initial thoughts on anticipation could be validated. There are several peaks and valleys before day 0. This is to be expected as news of dismissal of a CEO can be easily leaked or anticipated. After day 0 we see that the cumulative average abnormal returns keep their negative sign[22], but then after getting to a midpoint between -2% and -4% the cumulative abnormal returns begin to improve, reaching 0% at day 16, and presenting a peak of 5% at day 26. The improvement on returns after the CEO departure goes in hand with previously discussed benefits of CEO turnover as a mechanism of internal corporate control by Bonnier and Bruner (1989).

The analysis of the cumulative average abnormal returns of the windows, seen in Table 6. When examining the windows, we see that the results from the window (-5,-2) is a cumulative abnormal

[22] Jenter and Lewellen (2010:page 28) mention how after the announcement of a CEO turnover there can be an initial negative reaction when the market realizes that the departure of the CEO had been affected by information that was only known by the board (based on Hermalin and Weisbach (1998)). This means that the market only realizes how bad the situation really is up to this point.

return of 1.63%, significant at the 0.05 level. Window (-10,0) on the other hand presents negative abnormal returns of -0.93 but not significant. When examining around the announcement day of the CEO departure, we see that the CAAR in window (-1,1) has a magnitude of -0.65% is also not significant. Whereas in window (-1,+5), it is of -2.39% significant at the 0.05 level. It is in the later windows that we see evidence of an improvement in cumulative abnormal returns, with a positive return of 6.11% on window (10, 30), significant at the 0.01 level; and then also for window (15,30) with 5.26% with the same level of significance. The proportion of the firms with negative signs also has decreased, to a point in which in this last window there are 47 firms with positive returns versus 27 with negative.

6.1.2 Event Study: Control Sample

As in the turnover sample, we only report the results for the Fama-French model, value weighted for the control sample. In Table 7 we present the abnormal returns from day -30 to day 30. We see that the absolute value of the magnitude of the abnormal returns for the matched sample is never above 1%, except for days -8 and -6. Day -8 has an abnormal return of -1.07%, with a level of significance of 0.1, and day -6 of -1.24%, significant at the 0.01 level. Then for day 0 the abnormal return is -0.71% significant at the 0.1 level. Interestingly, we see that at day 0, the proportion of firms that had a negative abnormal return was 42 out of 69. Then, as what we could call another indicator of a following trend, at day 6 there is a negative abnormal return of -0.79%, significant at the 0.001 level according to the generalized sign Z test. Also, at days 14 and 15 we obtain negative abnormal returns of -0.33% and -0.08% significant at the 0.05 and 0.1 level respectively. And then we can also see that for most of the days, following the announcement day, the proportion of firms with negative abnormal returns is greater than those with positive abnormal returns. Then for example, for day 30, the proportion of firms with negative abnormal returns has increased even more compared to day 0, with 47 firms out of 69.

In Figure 2 we see the evolution of the cumulative abnormal returns of the control sample in the dashed line. From the abnormal returns table we know that before day 0, day of the CEO turn over for the firm in the turnover sample, there were not many days that had abnormal returns that were significant. We see that at the days surrounding the announcement the cumulative average abnormal returns changes sign, and that as days progress the value decreases more and more, up to a point when at say 30 it is of -4.86%.

Evaluating the results from Table 8, which contains the cumulative average abnormal returns for the windows for the matched sample, we see that cumulative abnormal returns for the window (-10,0) are -0.69% but not significant, nor for window (-5,-2) with a non-significant value of 0.62. Analyzing the days around the turnover day, in window (-2,2) there is a negative abnormal return of -3.10%, significant at the 0.01 level. Then, we see that for window (10,30) there is a negative abnormal return of an even higher magnitude, with -3.18%, significant at the 0.1 level and there is a proportion of 45 firms with negative cumulative abnormal returns out of 69 firms.

Event Study: Summary

After examining the results from both event studies, for the turnover sample and the control sample, we can point three important differences:

- Only the control sample presents negative abnormal returns at Day 0.
- There is a decline in CAARs for the turnover sample, to then peek with a positive sign; whereas for the control sample the CAARs also decrease to only become worse afterwards, as seen in Figure. 2.

We see that for both the turnover sample and the control sample there was a decline after day 0, perhaps as the market interpreting the turnover as a sign of a situation worse than what they had accounted for, as explained by Hermalin and Weisbach (1998). But then, we see that the trend changes for the turnover sample, the cumulative abnormal returns turn positive. For example, for the same window, (15, 30) the CAARs for the sample were 5.26% and for the matched sample they were -3.06%. This is consistent with the firms that did not recover from the negative impact and go to an even worse situation at the absence of a CEO turnover that was considered to be needed by the other firm in the industry with the same level of financial distress[23].

[23] For robustness, the event study analysis was done again, this time excluding financial and utility firms, which deducted 8 firms from each event study. Results remained robust, describing the same pattern in the evolution of CAARs, keeping the sign, significance and similar magnitude in the windows of interest for both the turnover sample and the control sample.

6.2 Evolution of Central Measures

Following the results of the event study, it is interesting to examine the evolution of central tendency measures, which are the mean and median for several of our variables.

In this step it is important to consider that those firms that had at least 2 observations for the before and for the after period were kept in order to be able to examine an evolution of the variable.

6.2.1 Adjusted Tobin's Q

In the evolution of the mean of this variable both samples suffered a sharp decline from year -2 to -1, and then recovered in a very small amount, with better results for the turnover sample. This is also the case for the results for the evolution of the median as shown in Figure 3 Panel a. except for years 2, in which we see that the median of the firms in the control sample presents a negative value, but then to be contrasted to how it peaks and surpasses the turnover sample by year 3.

6.2.2 Market-to-Book Ratio

Figure 3 Panel b. shows the evolution of Market-to-Book. We see that again, values for year -1 are very similar for turnover sample and control sample after having dropped from their values at year -2, as shown in the results for the median. And after the turnover date we see that the two samples' difference grows apart, with better results for the turnover sample. Nevertheless, there are better results for the control sample at year 3, with a difference of -1.4.

6.2.3 Adjusted ROA

For the adjusted ROA Figure 4 Panel a shows that by year -3 the turnover sample is in a better position than the control sample, with medians of 0.0837 versus -0.008. Then this big difference got smaller and by year two there was only a difference of less than 0.004, with better results still for the turnover sample. By year -1 both samples were even much more alike in terms of this variable, with medians of 0.007 for the sample and 0.009 for the control. Then the evolution after the turnover date showed mixed results, for year 1 and 2, although with no big difference, being year 1 better for the control sample, and better for the turnover sample on year

2. Then in year 3, the difference between the two remains very small, but for the sample it takes a negative value.

6.2.4 Log of Total Assets

In terms of the evolution of this variable there is very small fluctuation around the years as seen in Figure 4 Panel b. The illustration shows a very flat figure. Nevertheless, it is important to mention that in the after period, that which covered years 1, 2 and 3 after the turnover date, the values for Log of Total Assets for the turnover sample remains smaller than that of the control sample.

6.2.5 Leverage

Regarding the evolution of the leverage ratio, Figure 5 Panel a. shows us that it is quite similar for both samples before the turnover date. For example, regarding the median, it was 0.58 for the turnover sample, and 0.56 for the control sample in year -1. After the turnover date in years 1 and 2 we see that both samples increase their leverage. By year 3 the difference between the two grows by a marked decline of the leverage of the turnover sample (0.54 to 0.40 in terms of mean, and 0.56 to 0.30 for the median).

6.2.6 CAPEX to Sales ratio

Evaluating the evolution of this standardized measure in Figure 5 Panel b. we see that both samples presented a decline moving from the years before the turnover, to after it. In terms of median we see that in year -1 their values were 0.05 for sample and 0.046 for the turnover sample and control sample respectively. Then by year 1 both levels fell to 0.03 the turnover sample and 0.02 the control sample. During the following years the turnover sample kept the highest ratio in both median and mean but for both samples the fluctuation was not very sharp as seen in the illustration.

6.2.7 Altman Z-Score

The results for the Altman Z-Score show how by year -1 the probability of bankruptcy increases for both samples, as seen in Figure 5 Panel c. In year -1 our samples present very similar mean and median, which is to expect given that this was an important criteria to match them. After the turnover date we see that the situation does not improve for either of them, in fact

slightly gets worse. Then by year 3 we see favorable results for the match in terms of median, but better for the sample in terms of mean.

6.2.8 BHARs

In terms of the mean of BHARs throughout the next 5 years after the CEO turnover, results show that the turnover sample always remained above the control sample. However, this seems to be played by the influence of outliers, especially for year 3. This is evident when examining the evolution of the median of BHARs we actually see that it was during this year that there was the least difference between the turnover sample and the control sample. When examining in detail Figure 6, median and mean next to each other, we see that in reality in year 3 the control sample presents a central tendency value, measured as the median, higher than the turnover sample. The difference becomes even larger by year 4, and then in year 5, even though it is dramatically reduced, the difference still favors the control sample.

Summary of Evolution of Central Tendencies

In this very simple evaluation we do not see the turnover sample over performing the control sample. At the end we see that in terms of adjusted ROA, adjusted Tobin's Q, and market to book results seem to favor the control sample which would favor the scapegoating hypothesis. For BHARs the results show that the market eventually learned about the absence of a change for good caused by the CEO turnover, but it does seem to take a long time to realize, only showing surpassing results for the control sample for year 3 according to this type of evaluation.

6.3 Difference in Differences Analysis

In order to better evaluate the differences between the two samples and the different periods we employ the Difference in Differences analysis for all the variables previously discussed. Table 9 displays the results of the regressions, which take as dependent variable the average of the value of either the two years before the turnover, or the two after. The two groups are the turnover sample versus the control sample, which identifies the treatment being that the firms in the initial sample had a CEO replacement.

For all models we see that the dummy for turnover sample has positive coefficients for variables adjusted Tobin's Q, Market-to-book ratio, Z-score and Capex to sales ratio. Nevertheless none of

these coefficients are significant. Regarding the after period dummy, we see that for models (1), (2) and (3), for Adjusted Tobin's Q, adjusted ROA and Market-to-book the coefficients are negative but insignificant.

On the other hand, leverage and CAPEX to sales ratio have a positive coefficient, but again, not significant. The after period does have a negative sign coefficient, but it is small (-0.00994) and insignificant. Even though the difference between moving from the before to the after period does have a negative and significant coefficient at the 0.1 level for the sample, the difference of differences between the two samples is not significant, as seen in the last two rows of column 7 in Panel A.

We find a difference for the after period is for the variables log of total assets and Altman Z-Score. Moving to the after period does provide a significant difference. For the variable log of Total Assets there is a positive and significant coefficient at the 0.01% level of 0.2217 for the after period dummy, which appears to be driven by the growth in the control sample. This is found to be the case since there is a significant coefficient for the difference of differences coefficient, of being in the turnover sample and in the after period of -0.3323. If we look at the results in Panel B., where we are just examining the after dummy for each of the samples separately, we see that the difference between the after and before period for the turnover sample has a negative and significant coefficient at the 5% level of -0.1106. While the difference between the after and before periods for the control sample is positive and significant at the 0.01% level with a coefficient of 0.2217. Then for the Altman Z-Score the after dummy in Panel A. column 6 results in significant negative coefficient of -2.841 at the 0.01% level, which goes in hand with the results observed in Figure 5 Panel C. of a decline in the evolution of this variable after year 0; and with the results in Panel B., as both samples have a significant decline from the before to the after period, with a coefficient of bigger absolute magnitude for the turnover sample (-3.2236 for the sample versus -2.841 for the control sample).

In Table 9 Panel B. column 1 we can also see that there is a significant difference from moving from the before to the after period in the turnover sample, Tobin's-Q the estimate is negative and significant at the 5% level, whereas for the control sample even though it is negative, the estimate remains insignificant. Then in this same Panel, column 2 Adjusted ROA for both samples has negative coefficients of similar magnitude (-0.1393 for turnover sample, -0.01319 for control

sample) but none are significant. The difference of difference is as well not significant and has a small coefficient of -0.0007.

For leverage the estimate for differences of the before to after period for each sample in Panel b shows a positive and significant coefficient at the 1% level of 0.0611 for the turnover sample, and although positive, an insignificant coefficient of 0.02291 for the control sample. Even if leverage increased for the sample in the after period, the difference in differences of the two samples is not significant, with a -0.3827 coefficient as seen in Panel a, column 5.

Summary of Results Difference in Differences Analysis

After examining the results we summarize the following main results:

- The dummy for the turnover sample is not significant in the models, indicating that being in the turnover sample does not contribute to the values of any of the dependent variables.
- When considering both samples, the after period represents a big decline in the Altman Z-Score but the differences in the decline of both samples is not significant.
- For log of assets there is a significant difference in differences, having the control sample a bigger change from the before to after period. In the after period there is an increase in assets for the control sample, and a decrease for the turnover sample.
- Results show that in terms of both Tobin's Q and adjusted ROA, both samples have negative signs in their coefficients in the after period, but the difference in differences for the samples was not significant.
- Most of the difference in differences coefficients are not significant, showing that it did not make much difference being in the sample or not while moving from the before period to the after period, which provides support for the scapegoating hypothesis.

6.4 Regression Analysis

In this section we present several models, with different dependent variables and combinations of explanatory variables. First we examine the results of the regressions for BHARs of the years following the turnover date, and then the outcomes for the regressions of Adjusted Tobin's Q and Market-to-Book ratio.

6.4.1 Regressions with BHARs

In this section we regress the BHARs[24] of each subsequent year after the CEO turnover date against our turnover dummy variable and other controls. Results are displayed in Table 10.

In an examination for the regressions of the first year of the CEO turnover, we see that in the three models the turnover dummy is positive and significant. In the first model with a coefficient of 0.379 and significant at the 1% level; and in the second model, which adds CEO ownership variable to the picture, of 0.4067, significant at the 0.1% level. Then for regression (3), the magnitude of the coefficient becomes more modest, 0.3107, and so does its significance level, at 0.1. In this last model board size has been added as well as CEO ownership. Board size of the year before the turnover modestly supports the arguments on a positive effect of higher values in this variable, such as that offered by Raheja (2005) or Linck et al (2008). The relation is significant at the 0.1 level.

For the second year we see that the turnover dummy remains positive and significant but that other variables start to take more relevance as well. We see that coefficients of the turnover dummy are of a magnitude that goes from 0.235 in model (3) to 0.3148 in model (1), and that are significant at the 0.05 level for all models, except model two, which has a higher significance, at the 0.01 level and a coefficient of 0.30. As mentioned, other variables take more relevance for year 2. Leverage of year -1 presents a positive coefficient, significant for models 2 and 3, and so does ROA. It seems that for year 2 having had a CEO turnover is still important for BHAR. Past operating performance, as proxied by the lagged ROA variable, presents positive and significant coefficients, indicating that for year 2 the market takes this measure more into account. We see that for Altman Z-Score there are negative coefficients, but only significant for model (1)[25].

Lastly, for year 3 the results of the regressions show that our turnover dummy is only significant for the first model, with a coefficient of 0.379 at the 0.05 level of significance, but then, when adding more controls it loses relevance. In these models none of the explanatory variables from

[24] For the regressions having BHAR as dependent variables we controlled for the presence of spurious outliers by winsorizing (2,98) BHARs, Altman Z-Score and ROA. Also, we used clustered standard errors, accounting for cluster for industry and year. BHARs of each year are regressed to the control variables of year -1.

[25] In unreported results, for this model we created an interaction variable between the dummy for turnover sample and Altman Z-Score. Results showed a negative and significant coefficient of -0.074, significant at the 0.01 level. Nevertheless these results were only significant for model (1) of BHARs of year 2.

year -1 are significant. Naturally, the market would be focusing in more recent information and results[26].

6.4.2 Regressions with Market-to-Book Ratio

The models that are run having as dependent variable Market-to-book were considered with two approaches, displayed in Table 11: the first, considering all the years in the sample for models (1) and (2); and the second, considering information of only year -1 and 1 year , for models (3) and (4).

Models (1) and (2), possess dummy variables for the before period (years -3,-2 and -1) and the after period (years 1 and 2). Year 3 is the omitted dummy for years. As shown in both regressions, none of the dummy for years are significant. When examining these regressions, the only variable that is consistently significant is the dummy for R&D. The coefficient for all the models is around the order of 2.5 and significant at the 0.001 level. Then leverage is also significant but only for model (1), with a coefficient of 4.4826, significant at the 0.01 level. Nevertheless, after considering the possibility of the results on this variable being drawn by cases of extreme leverage[27], for model (2) we add a quadratic variable for leverage, and both coefficients, for leverage and squared leverage turn not significant. Most importantly, the turnover dummy presents negative coefficients and is not significant. Not in models (1) and (2), nor in models (3) and (4), exists an indication that being in the turnover sample or not affects the value of the Market-to-book ratio for the firms considered. Also, in model (3) we see that the dummy for year -1 is not significant, showing therefore no evidence of a difference between the year previous to the turnover and the following.

All of these models lean towards the hypothesis that the CEO turnover does not bring an edge to the firms that took this measure, compared to those that did not.

[26] In non-tabulated results, we also added variable number of institutional block holders for the regressions of BHAR, but this control proved to be insignificant in all models of all years.

[27] Chen and Zhao (2006) argue that most of the results in previous literature that report a negative relation between leverage and market-to-book are driven by a set of firms with very high market-to-book ratios, and that in reality, most of the firms evaluated in their study, 88% of Compustat firms (Chen and Zhao, 2006, page 254), presented a positive relation between these two variables. The authors state that there is actually a non-monotonic relationship between these two variables, with a relationship that turns positive when companies are in a low to medium market-to-book ratio, and negative when they move to a higher market-to-book ratio.

6.4.3 Regressions with Adjusted Tobin's Q

Our other proxy for growth expectations and firm value is also subject to several models. Table 12 displays regression models with the same explanatory variables previously used, dummies for the key years, and lagged Altman Z-score, ROA, leverage, size, dummy of research and development expenditures, and the turnover sample dummy, but with the addition of other control variables: CEO Ownership, board size, number of institutional block holders, the entrenchment index, CEO age, log of incentives based compensation, and log of total compensation[28].

The results indicate that the coefficients for the dummies of the key years are not significant, suggesting no difference to our omitted variable for year 3.

Altman Z-score on the other hand is shown to be positive and significant in all models, but only at the 0.1 level for models (1) to (3), and at the 0.01 level for model (4)[29]. The positive coefficients for variable Altman Z-Score could be interpreted as the probability of bankruptcy being influential on growth expectations, if the company appears healthy, much more growth would be expected. Leverage is only significant for model (1), presenting a positive coefficient, but when more controls are added the results turn insignificant. Size also presents positive coefficients, significant at the 0.05 level for models (2) and (3), and at the 0.1 level for model (4). CEO ownership is significant at the 0.05 level for model (3), and at the 0.1 level for models (1) and (2). All models presenting this variable with a negative coefficient. This result could have two different explanations, entrenchment issues or risk aversion of CEOs with high ownership, as exposed by Kim and Lu (2011). Then, when examining the turnover dummy, we see that it is only significant in model and with a negative coefficient (4); nevertheless, models with more observations, and therefore more conclusive present insignificant results.

When examining other controls, such as the number of institutional shareholders, CEO age, E-Index or variables log of incentives and log of total compensation, only log of incentives was significant, with a coefficient of 0.0472, at the 0.05 level.

[28] Models which included CEO Age, log of incentives, and log of total compensation were not tabulated for the sake of brevity.

[29] Nevertheless when including the E-Index variable, we lose many observations and therefore results for model 4 are less representative and conclusive.

Then when looking at the results in Table 13, which only consider years -1 and 1, and excludes the dummies for years, we find that for all models the coefficients for the turnover dummy are negative, from -0.22 to -0.42 in magnitude, but is only significant for model (1) at the 0.05 level, for models (2) and (3) it is only significant at the 0.1 level. Regarding control variables, there are positive coefficients for Altman Z-score, significant at the 0.001 level for model (1), at the 0.01 level for models (2) and (3), and insignificant for model (4); and for size, significant for models (2) and (3) at the 0.05 level for the first, and at the 0.01 level for the second. Regarding ROA, we see that there are negative coefficients, which could be explained by one of the following: after satisfactory operating performance, the CEO was fired and it reflects negatively on Tobin´s Q measure; or the opposite, after disappointing operating performance the CEO is fired, and it reflects positively in the Tobin's-Q of the following year, nevertheless this result is only significant at the 0.1 and for model (2) only. CEO Ownership is also significant, in model (2) at the 5% level, and in others at the 10% level, again, explanation could lay in the explanation provided by Kim and Lu (2011) that was previously discussed.

6.4.4 Regressions with Adjusted ROA

For our regressions of Adjusted ROA, available in Table 14, we obtain negative and significant intercepts which relate to the bad performance of the companies in our samples. Regarding the dummies for years, only one is positive and significant, in model (2), and only at the 0.1 level.

Notably, the coefficient of the turnover dummy is negative and not significant for all models. Having a CEO turnover does not seem to influence the operating performance of the companies in our samples.

In terms of control variables, results indicate the presence of a correlation between leverage and operating performance as seen in the consistently positive and significant coefficient in all the models. When examining log of market value of equity (MVE), we see that it has positive and significant coefficients as well. And in a marginally small result, number of institutional block owners, this variable is very significant (at the 0.1%) but with a small coefficient of -0.0002.

In non-tabulated results, when adding variables CEO Duality, percentage of independent directors or dummy of research and development expenses, it resulted in non-significant

coefficients. The variable with the highest t-statistic among these was percentage of independent directors, with a positive coefficient. CAPEX to sales had a negative and significant coefficient of -0.0456, at the 0.01 level.

Summary Regression Analysis

The following are the main observations of the Regression analysis:

- Having had the CEO turnover proves to influence positively BHARs for the first two years. Nevertheless, by year 3 it is not relevant any more. Market seems to be accounting for more recent information[30].
- The turnover dummy does not have significant coefficients in any of the regressions ran having market-to-book as a dependent variable. Being in the turnover sample does not have a positive and significant relation with this variable.
- In the regressions for Adjusted Tobin's-Q, we see that the turnover dummy has negative coefficients for the regressions that limit to years -1 to 1. Having a CEO turnover does not translate in higher Tobin's Q.
- Having a CEO turnover is not related to superior operating performance, as seen by the negative and non-significant coefficients of the dummy turnover in the Adjusted-ROA regressions.

7. Conclusions and Discussion

CEO turnover can be seen as a disciplinary measure and as an opportunity for change for firms that have undergone poor performance. However, this does not necessarily apply to all cases. Dismissing a CEO could also be used as a tool to provide a "solution" in the eyes of others. We find that, after some delay, firms that have a CEO turnover experience positive and

[30] In unreported results, in the BHAR regressions a dummy is added that took the value of 1 when a firm was subject of a merger or acquisition in the following 5 years after year of the turnover. This was in with the purpose of determining whether or not high returns were driven by the expectations of a future deal. The dummy results in a positive and significant coefficient for one model, but when an interaction term between the turnover sample and this dummy was created, it resulted non-significant. Also differences of means test is ran, but the difference of means of number of acquisitions within the two samples is not significant.

significant abnormal returns, while firms that did not, experience negative repercussions which translate into negative of abnormal returns. As seen in the evolution of BHARs and regressions there on, this effect appears to last until the second year after the turnover. In contrasting results, when using a difference in differences analysis, our results indicate that firms that have a CEO turnover are not necessarily better off than firms that do not, when examining variables such as Tobin's Q, market-to-book, ROA and Altman Z-Score before and after the turnover year. In our regression analysis, we include control variables related to CEO characteristics, institutional ownership, compensation, as well as governance and board characteristics. When examining the turnover sample we find no indication that CEO turnovers lead to improvements in performance, growth expectations or firm value.

Our study has several important implications. First, it shows that CEOs can potentially be used as scapegoats in order to satisfy, or create false expectations for the market. It also brings to light that the market takes a long time to correct for these expectations, as the positive reaction seems to persist up to the second year after the CEO turnover.

Limitations

The hand collection of this sample made it possible to perform a unique study with CEOs that were dismissed after being declared as responsible for the bad situation of the company. Nevertheless, our results would be more robust and conclusive with a bigger sample. Also, our conclusions rely on the assumption that the firms in our two samples are perfect matches, yet no matching process is perfect as this research could not be done in a setting of controlled experiments.

Future Research

With respects to future research on this topic, it would be interesting to explore the effectiveness of CEO turnover for firms that are privately held. If CEOs are being fired as scapegoats in order to invoke a positive response from the market and other stakeholders, then perhaps for non-public firms (i.e. firms that face no shareholder pressure) CEO turn overs may be made with more grounded considerations and as a result of less public pressure. Nevertheless, in this scenario it would be important to control for CEO replacements that are family successions. It would be very interesting to discriminate more profoundly between cases of scapegoating or justified

dismissal by examining the managerial performance of the departing CEOs. This could be achieved by evaluating the past operating performance of the firm during the whole tenure of the CEO with the appropriate controls.

Also, researchers could explore how the abnormal returns relate to industry concentration and the number of analysts following the company. Perhaps the results are worse for firms in concentrated industries and firms that have more media coverage.

Lastly, changes in volatility of the two samples after the CEO turnover could be examined. The positive reaction of the market could be attributed to a shift in volatility as the new CEO takes lead. If firms are already suffering from bad performance, an increase in risk could be appealing to shareholders, as the limited liability feature of equity protects them. The firm is already in a bad situation; therefore having a bet can result in something desirable to the shareholders[31].

[31] Purnanandam (2008) shows evidence of how firms in extreme levels of financial distressed tend to reduce hedging activities. The explanation that the author provides is that shareholders shield in the limited liability feature of equity and find desirable the additional risk, which in contrast results in more risk borne by debtholders.

8. References

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FIGURES

Figure 1. Key Years for the Turnover Sample and Control Sample.

This figure shows the key dates for the turnover and matched sample. The turnover sample contains 79 firms that experienced CEO turnover after bad performance. The matched sample is obtained by searching for similar firms within the same industry that have a similar Altman Z-Score in year 0 and that have compensation and CEO characteristic information for at least -1 to 1 year. Year 0 for a matched firm equals the year that the firm in the tunover sample had the CEO turnover.

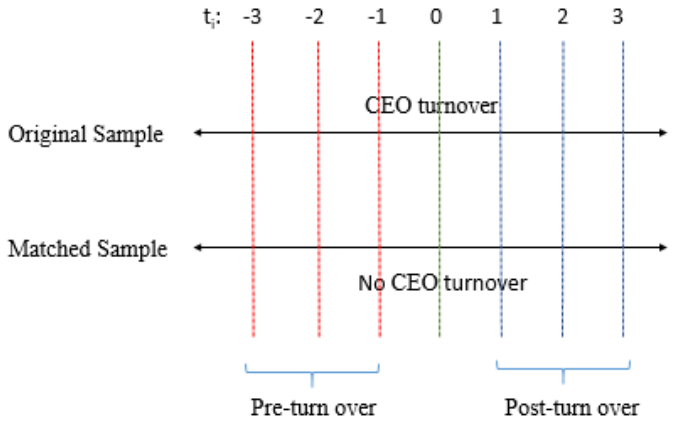


Figure 2. Turnover and Control Samples' CAARs

Event Study windows: Cumulative Average Abnormal returns for turnover sample and matched sample.. The Figure shows the evolution of the mean cumulative abnormal returns defined as $AR_{it} = R_{it} - E(R_{it,})$ for the period (-30, 30) for the turnover sample and the matched sample. Compared to the turnover sample, in the match sample there was no CEO turnover, even though firms were in a similar situation, measured as Altman Z-score. Firms are from North America and from several. The matching was made with the following criteria: year, Altman z-score (proxy for financial distress), industry and size for year of the CEO turnover in the turnover sample. Day 0 is defined as the day that the turnover was announced for the firms of the turnover sample or the following working day. The bold line represents the turnover sample and the dotted line represents the matched sample.

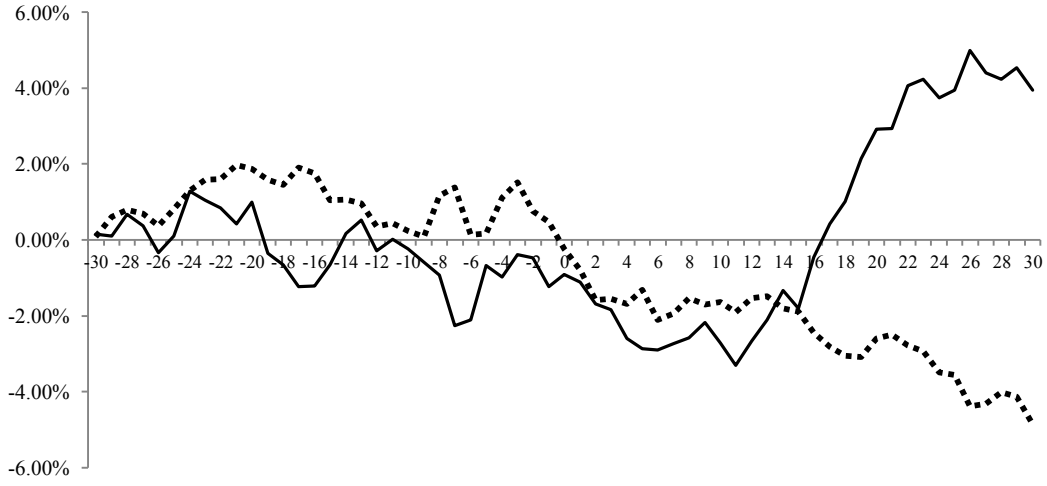


Figure 3. Evolution of Growth Proxies

Figure shows the median's evolution for growth variables Adjusted Tobin'Q and Market to Book ratio from year -3 to 3 from the turnover year. The control sample did not experience a turnover on year 0.

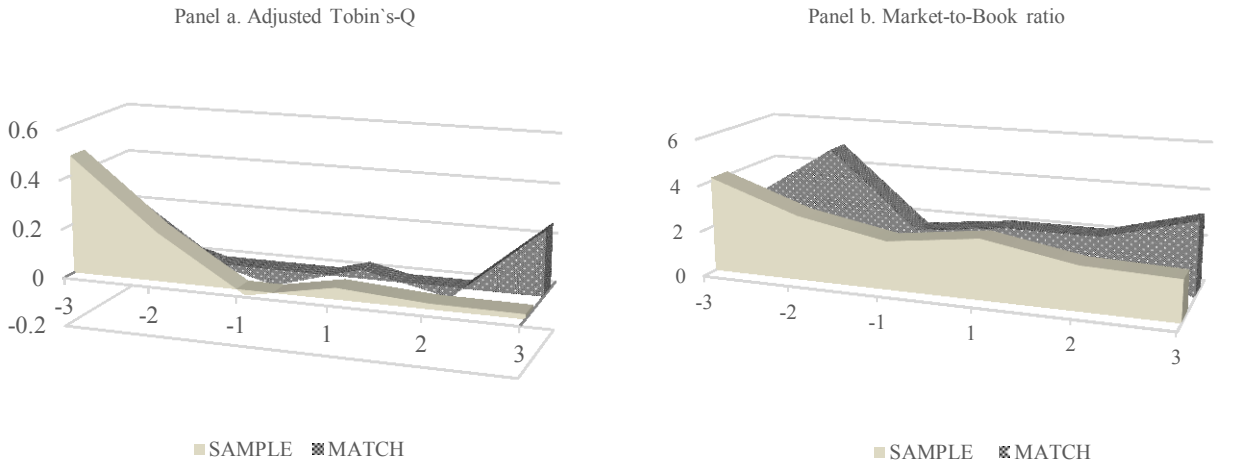


Figure 4. Evolution of ROA and Log of Total Assets

Figure shows the median ROA and Log of total Assets for the turnover sample and the control sample for 3 years, before and after the turnover. The control sample did not experience a turnover on this specific date.

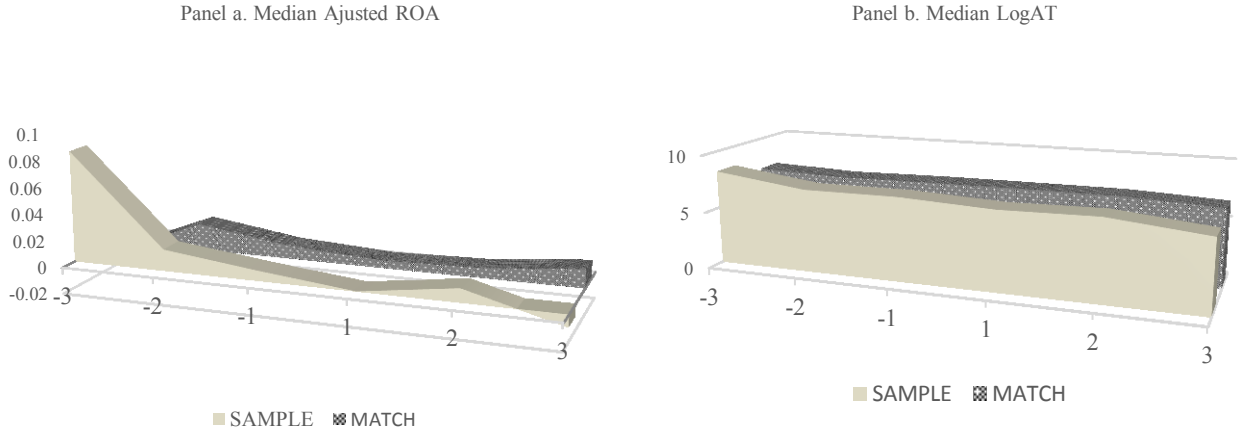


Figure 5.Evolution Altman Z-Score, CAPEX to sales ratio and Leverage

Figure shows the median Tobin's-Q for the turnover sample and the control sample for 3 years, before and after the turnover. The control sample did not experience a turnover on this specific date.

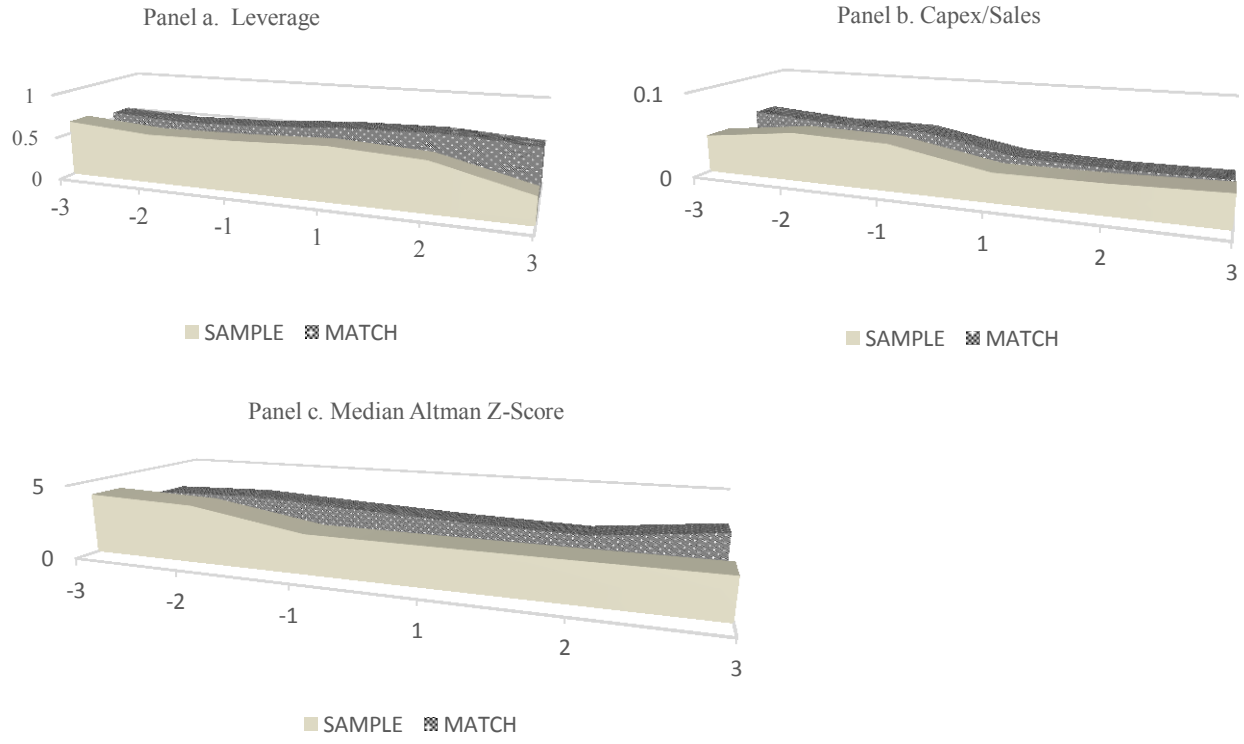
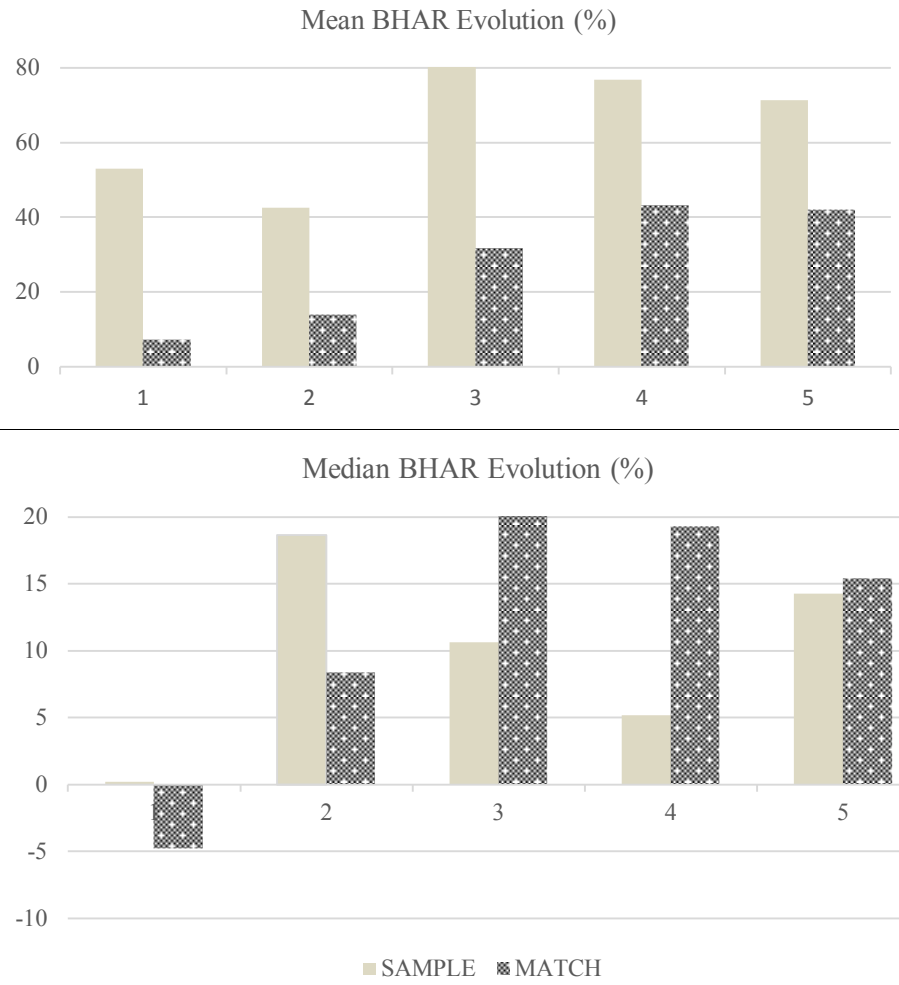


Figure 6. Evolution of Mean and Median for BHAR for Turnover and Control Samples

Figure shows the median BHAR for the turnover sample and the control sample for the next five years following the turnover date. The control sample did not experience a turnover on this specific date. BHARs are expressed in (%)



TABLES

Table 1

Industry Table. Table contains information regarding the Industry of the firms in our sample, that composed by both the turnover sample and the matched sample. The Industry Classification is made by the 2-Digit SIC code of the companies. Frequency of each industry and relative frequency are displayed.

Industry Name	SIC	Frequency	(%)
Oil and Gas Extraction	13	2	1.27
Construction Special Trade Contractors	17	2	1.27
Food and Kindred Products	20	6	3.8
Apparel and Other Finished Products made from fabrics and similar materials	23	2	1.27
Lumber and Wood Products, except furniture	24	2	1.27
Furniture and Fixtures	25	2	1.27
Chemicals and Allied Products	28	10	6.33
Rubber and Miscellaneous Plastic Products	30	2	1.27
Industrial and Commercial Machinery and Computer Equipment	35	12	7.59
Electronic & other Electrical Equipment & Components, excep. Computer Equipment	36	6	3.8
Transportation Equipment	37	2	1.27
Measuring, Analyzing, and Controlling Instruments	38	6	3.8
Miscellaneous Manufacturing Industries.	39	8	5.06
Railroad Transportation	40	2	1.27
Transportation by Air	45	2	1.27
Communications	48	10	6.33
Electric, Gas and Sanitary Services	49	2	1.27
Wholesale Trade-Durable Goods	51	2	1.27
Automotive Dealers and Gasoline Service Stations	55	2	1.27
Apparel and Accessory Stores	56	6	3.8
Home Furniture, Furnishings, and Equipment Stores	57	2	1.27
Eating and Drinking Places	58	4	2.53
Miscellaneous Retail	59	4	2.53
Depository Institutions	60	4	2.53
Non-Depository Credit Institutions	61	4	2.53
Security and Commodity Brokers, Dealers, Exchanges, and Services	62	4	2.53
Insurance Carriers	63	4	2.53
Insurance Agents, Brokers and Service	67	2	1.27
Hotels, Rooming Houses, Camps and Other Lodging Places	70	2	1.27
Personal Services	72	2	1.27
Business Services	73	30	18.9
Amusement and Recreation Services	79	4	2.53
Educational Services	82	2	1.27
Engineering, Accounting, Research, Management, and related services	87	2	1.27

Table 2

Variable Definitions and Sources

Table contains the description and source of the variables included in the study: Independent variables and dependent variables including controls. For variables that were the result of a computation, the source of the items used is reported.

Independent Variables		Source
Adjusted ROA	Adjusted Return on assets (Adjusted ROA) is equal to ROA of the firm (Operating income before depreciation and amortization over total assets) minus the median ROA of the industry.	Compustat
Adjusted Tobins-Q	Adjusted Tobin's-Q is equal to the Tobin´s Q of the firm (sum of total assets and market value of equity minus the book value of equity, over the book value of total Assets) minus the median Tobin´s Q of the industry.	Compustat
Dependent Variables		
CEO Duality	Dummy Variable equals 1 when the Chief Executive Officer (CEO) is chairman as well, otherwise 0.	Risk Metrics
CEO Insider	Dummy Variable that equals 1 if new CEO is not an outsider, 0 otherwise.	SEC filings, BW and Forbes
CEO Salary	The constant dollar value of the base salary (cash and non-cash) earned by the named executive officer during the fiscal year.	Execucomp
CEO Bonus	The constant dollar value of a bonus (cash and non-cash) earned by the named executive officer during the fiscal year.	Execucomp
CEO Total Compensation	Total constant compensation for the individual year, comprised of the following: Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total. (TDC1 Item)	Execucomp
CEO Incentives	Difference between Total Compensation and bonus plus salary. Therefore equal to Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total that compose compensation linked to performance.	Execucomp
CEO Ownership	Percentage of shares owned by the CEO.	Risk Metrics
Board Independence	Percentage of board members that are independent.	Risk Metrics
Bebchuck Index	Entrenchment Index, built by Bebchuck(2009) with 6 governance provisions.	Risk Metrics
Board Size	Board size is equal to the number of members that compose the board of directors.	Risk Metrics
CEO Age	Variable that shows the age of the CEO for the respective year.	Execucomp, SEC Filings, Business Week and Forbes.
Education	Dummy variable that equals 1 if the CEO has had graduate level education, 0 otherwise.	SEC filings, Business Week and Forbes
Inst. ownership	Percentage of shares owned by Institutional Shareholders.	Thomson and Reuters
Number of Institutional Shareholders(1)	Number of institutional shareholders is equal to the number institutional owners that a firm has.	Thomson and Reuters

Cont. Table 2

Variable Definitions and Sources

Variable		Source
Number of Institutional Shareholders(2)	Number of institutional shareholders that have a block ownership of at least 5% of the total shares of the company.	Thomson and Reuters
Log Total Assets	Logarithm of total assets	Compustat
Log MVE	Log of Market Value of Equity	Compustat
Leverage	Ratio of total Liabilities over Total Assets	Compustat
Capex/Sales	Control for investment opportunities	Compustat
R&D	Research and Development (R&D) Expenditures used to create dummy R&D, which takes value of 1 when R&D is greater than 0, 0 otherwise.	Compustat
Employees	Number of people employed by the company and its consolidated subsidiaries	Compustat
Other Variables		
Z-Score	Altman Z-Score, proxy for Financial distress. Calculated for each fiscal year.	Compustat
Market to Book Ratio	Relation between the market value of equity and the book value of equity.	Compustat

Table 3

Summary Statistics. Table reports the summary statistics for independent and dependent variables used in the study. For compensation variables the units are in thousands dollars and the values have been adjusted for inflation to dollars of 2006. Statistics are calculated separately for the turnover sample and the matched sample, each having 79 firms in total. The difference between the two samples is that the tunroversample had a CEO turnover. The matched sample, even though had a very similar distress level, measured as the Altman Z-score did not replace the CEO. The differences are compared using the p-value of the Paired Mean Difference (difference 1-2= Turnover sample - Matched sample). P-values are reported in parenthesis and in italics if significant. The difference will be positive if it has a "+" or "-" otherwise.

	SAMPLE				MATCH				
Variable	Mean	Std Dev	N	Median	Mean	Std Dev	N	Median	P-value
Dual CEO	0.6301	0.4861	73	1	0.7215	0.4511	79	1	-0.2254
Education	0.519	0.5028	79	1	0.5342	0.5023	73	1	-0.8707
Adj salary (000's)	741.38	484.36	78	629.71	728.83	353.6997	79	695	-0.855
Adj Bonus (000's)	628.22	1670.9	79	105.37	675.43	1379.15	79	325.68	-0.8401
Incentives (000's)	5702.69	9546.02	77	1527.93	3372.6	4636.05	78	1425.72	*(0.0220)*+
T.Adj Comp. (000's)	6996.08	10070.43	78	2715.5	4772.8	5363.6	78	2417.93	(0.0388)+
CEO Ownership	0.0274	0.0594	60	0.011	0.051	0.0602	44	0.0257	*(0.0057)*-
Board Size	11.48	3.92	72	11	9.4583	3.162	48	9	*(0.0170)*+
No. Indep. Direct.	6.55	2.98	72	6	6.125	2.8105	48	6	-0.1438
(%) of Indep. Direct.	0.5821	0.2039	72	0.6	0.647	0.1907	48	0.6667	-0.5228
No. of >5% Inst. Block Ownerships	1.8108	1.8384	37	1	1.6491	1.2886	57	1	-0.6843
No. of 13-F Inst. Owners	73676.08	452266.6	38	202	188.7	155.2485	57	137	-0.3259
Total Inst. Ownership (%) of S.O.	0.6236	0.2344	37	0.63856	0.6061	0.2431	57	0.6753	-0.7447
Total Assets	44102.7	233505.9	77	1160.09	12896	39956.67	79	1733.3	-0.2335
Employees	28.4385	63.8471	76	5.2305	18.654	43.7136	76	7.8725	-0.2512
Liabilities - Total	39412.1	21930.51	77	666.926	10548	36394.5	79	877.4	-0.2401
Leverage (LT/AT)	0.549463	0.24	77	0.566951	0.5872	0.21	79	0.579	-0.1064
Market-to-Book Ratio	3.2152	4.6043	77	2.0048	3.2284	3.9357	79	1.8117	-0.9379
Altman Z-Score	4.4468	9.969	76	2.5495	4.0453	8.5887	78	2.5939	-0.7636
Adjusted Tobins-q	0.2177	1.1296	77	-0.0277	0.1884	0.9798	79	-0.0365	-0.8576
Adjusted ROAbf	0.005	0.1349	75	0.0026	0.0429	0.108	78	0.0159	*(0.0297)*-
Adjusted ROAaf	-0.019	0.1784	76	-0.0085	0.0385	0.0978	78	0.0185	*(0.0111)*-

Table 4

Correlation Table. Table contains the correlations between the dependent and independent variables. Data contains information of two samples, an turnover sample that had a CEO turnover in year 0, and a similar company, matched by the Altman Z-Score and size, that did not. Variables include Adj. Tobin's-q, Adj. ROA. Compensation variables that were included are Salary, Bonus, Total Compensation and incentives. The log of the last three was used in the table after evaluating the distribution of the values. Other dummy variables that are included correspond to CEO Duality, Education (whether or not the CEO has a graduate degree) and CEO Age. Variables related to the board are also included: board size and percentage of board independence. Lastly, the E-Index, CEO ownership, Institutional ownership, and number of 13-F and Block institutional shareholders are included. Other control variables include Log of Assets, log MVE, Log PPE, Log Employees the leverage ratio and market-to-book ratio.

	CEO Age	Education	CEO Ownership	Board Size	No Indep. Directors	% Indep. directors	No.Inst. Block Own.	No. Inst.Owners	Inst. Ownership(%)	E_Index
CEO Age	1	-0.12173	-0.01527	-0.03249	0.0771	0.12692	0.08774	0.01918	0.14747	-0.02935
P-Value		0.002	0.7582	0.4681	0.0835	0.0044	0.0406	0.6548	0.0006	0.6607
Education		1	-0.21825	-0.03942	0.1315	0.19711	0.04074	0.04259	0.19392	0.09582
P-Value			<.0001	0.3795	0.0032	<.0001	0.3442	0.3224	<.0001	0.1548
CEO Ownership			1	-0.15233	-0.33654	-0.29342	-0.0717	-0.2914	-0.27557	-0.10319
P-Value				0.0013	<.0001	<.0001	0.1438	<.0001	<.0001	0.168
Board Size				1	0.63801	-0.10748	-0.19585	0.17835	-0.16867	-0.06208
P-Value					<.0001	0.0087	<.0001	<.0001	<.0001	0.3475
NoIndep. Directors					1	0.66593	-0.07993	0.40103	0.09358	0.08996
P-Value						<.0001	0.0608	<.0001	0.0283	0.1684
% Indep. directors						1	0.13575	0.34194	0.34105	0.26957
P-Value							0.0015	<.0001	<.0001	<.0001
No. Inst. Block Own.							1	-0.15232	0.60731	0.10732
P-Value								<.0001	<.0001	0.0854
No. Inst.								1	0.30779	-0.06406
P-Value									<.0001	0.3053
Inst. Ownership(%)									1	0.20492
P-Value										0.001
E_Index										1
P-Value										

Cont. Table 4

Correlation Table. Table contains the correlations between the dependent and independent variables. Data contains information of two samples, an turnover sample that had a CEO turnover in year 0, and a similar company, matched by the Altman Z-Score and size, that did not. Variables include Adj. Tobins-q, Adj. ROA. Compensation variables that were included are Salary, Bonus, Total Compensation and incentives. The log of the last three was used in the table after evaluating the distribution of the values. Other dummy variables that are included correspond to CEO Duality, Education (whether or not the CEO has a graduate degree) and CEO Age. Variables related to the board are also included: board size and percentage of board independence. Lastly, the E-Index, CEO ownership, Institutional ownership, and number of 13-F and Block institutional shareholders are included. Other control variables include Log of Assets, log MVE, Log PPE, Log Employees the leverage ratio and market-to-book ratio.

	Market-to-Book Ratio	Altman Z-Score	Adjusted Tobins-q	Adjusted ROA	Incentives	Log T. Comp.	Log Total Assets	Leverage	Log. T. Employees	Log PPE	Log MVE
CEO Age	-0.06901	-0.09395	-0.10611	0.12785	-0.04962	0.02298	0.06853	0.08848	0.06552	0.02903	0.03162
P-Value	0.0792	0.0169	0.0068	0.0011	0.2047	0.5578	0.0804	0.0239	0.0967	0.4597	0.421
Education	0.08857	0.03227	0.08971	0.02408	0.07756	0.08692	0.17577	0.07816	0.12402	0.12441	0.19844
P-Value	0.0257	0.4181	0.0237	0.545	0.0504	0.0285	<.0001	0.0485	0.0018	0.0017	<.0001
CEO Ownership	-0.10739	-0.00869	-0.06224	0.05615	-0.16439	-0.25365	-0.21043	-0.06044	-0.28894	-0.31712	-0.24061
P-Value	0.0236	0.8552	0.189	0.2361	0.0004	<.0001	<.0001	0.2016	<.0001	<.0001	<.0001
Board Size	-0.00852	-0.06467	-0.03343	-0.08642	-0.03321	0.15281	0.19629	0.03235	0.13139	0.15022	0.15908
P-Value	0.8372	0.1188	0.4192	0.0368	0.4357	0.0003	<.0001	0.434	0.0015	0.0003	0.0001
NoIndep. Directors	0.15287	-0.07915	0.04368	0.08761	0.00364	0.24926	0.43096	0.24385	0.32646	0.34682	0.39363
P-Value	0.0002	0.0549	0.2887	0.0334	0.9315	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
% Indep. directors	0.21313	-0.0026	0.11236	0.18336	0.0199	0.15719	0.31274	0.22071	0.2659	0.2449	0.33235
P-Value	<.0001	0.9501	0.0066	<.0001	0.6408	0.0002	<.0001	<.0001	<.0001	<.0001	<.0001
No. Inst. Block Own.	-0.13017	-0.04862	-0.10673	-0.0056	-0.06101	-0.06689	-0.10404	-0.05993	-0.0713	-0.07775	-0.15474
P-Value	0.0007	0.2095	0.0056	0.8851	0.1333	0.1002	0.0069	0.1204	0.0661	0.0444	<.0001
No. Inst.	0.075	-0.00986	0.04353	0.20065	-0.0062	-0.00103	0.7462	0.24821	0.02013	0.01544	0.81353
P-Value	0.0525	0.7992	0.2598	<.0001	0.8787	0.9798	<.0001	<.0001	0.6041	0.69	<.0001
Inst. Ownership(%)	-0.05307	-0.01463	-0.04164	0.15723	0.01954	0.23854	0.28808	0.05365	0.29084	0.25662	0.34655
P-Value	0.1707	0.7061	0.2814	<.0001	0.6317	<.0001	<.0001	0.1651	<.0001	<.0001	<.0001
E_Index	-0.01756	0.05688	0.00766	0.04635	-0.06472	-0.03888	-0.11152	-0.04476	0.04312	-0.01954	-0.0785
P-Value	0.7744	0.3518	0.9001	0.4473	0.314	0.5455	0.0668	0.4631	0.4813	0.7497	0.1976

Cont. Table 4

Table 4. Correlation Table. Table contains the correlations between the dependent and independent variables. Data contains information of two samples, a turnover sample that had a CEO turnover in year 0, and a similar company, matched by the Altman Z-Score and size, that did not. Variables include Adj. Tobins-q, Adj. ROA. Compensation variables that were included are Salary, Bonus, Total Compensation and incentives. The log of the last three was used in the table after evaluating the distribution of the values. Other dummy variables that are included correspond to CEO Duality, Education (whether or not the CEO has a graduate degree) and CEO Age. Variables related to the board are also included: board size and percentage of board independence. Lastly, the E-Index, CEO ownership, Institutional ownership, and number of 13-F and Block institutional shareholders are included. Other control variables include Log of Assets, log MVE, Log PPE, Log Employees the leverage ratio and market-to-book ratio.

	Market-to-Book	Altman Z-Score	Adjusted Tobins-q	Adjusted ROA	Incentives	Log T. Comp.	Log T. Assets	Leverage	Log. T. Employees	Log PPE	Log MVE
Market-to-Book	1	0.44553	0.78247	0.10905	0.02055	0.10779	-0.11504	0.06982	-0.08026	-0.08576	0.17072
P-Value		<.0001	<.0001	0.0019	0.5814	0.0038	0.001	0.0466	0.0242	0.0154	<.0001
Altman Z-Score		1	0.70935	0.16735	0.02	0.04845	-0.15353	-0.36889	-0.0962	-0.11883	0.09417
P-Value			<.0001	<.0001	0.5919	0.1941	<.0001	<.0001	0.0069	0.0008	0.0072
Adj. Tobins-q			1	0.03305	0.02347	0.0801	-0.10709	-0.13826	-0.08016	-0.10048	0.1546
P-Value				0.3472	0.5281	0.0312	0.0022	<.0001	0.0241	0.0044	<.0001
Adjusted ROA				1	-0.00267	0.12138	0.1186	0.02961	0.22866	0.19724	0.25584
P-Value					0.9429	0.0011	0.0007	0.3991	<.0001	<.0001	<.0001
Incentives					1	0.34795	0.16298	0.00276	0.10614	0.09794	0.18535
P-Value						<.0001	<.0001	0.9408	0.0045	0.0083	<.0001
Log T. Comp.						1	0.48768	0.20852	0.42002	0.42463	0.53983
P-Value							<.0001	<.0001	<.0001	<.0001	<.0001
Log Total Assets							1	0.53156	0.7553	0.81445	0.8545
P-Value								<.0001	<.0001	<.0001	<.0001
Leverage								1	0.34989	0.35067	0.26396
P-Value									<.0001	<.0001	<.0001
Log T. Employees									1	0.82088	0.71707
P-Value										<.0001	<.0001
Log PPE										1	0.75203
P-Value											<.0001
Log MVE											1
P-Value											

Table 5

Fama-French-Momentum Time-Series Model, Value Weighted Index for Turnover Sample. Table shows Mean Cumulative Abnormal returns, which are defined as $AR_{it} = R_{it} - E(R_{it,})$, calculated for the period surrounding day 0, (-30, 30) for the turnover sample. In the turnover sample firms had CEO turnover after disappointing performance. Firms are firms from North America, from several industries and different event days. Day 0 is defined as the day that the turnover was announced or the following working day. Turnover sample was 79 firms but only 68 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
-30	69	0.15%	31:38	0.299	-0.714
-29	69	-0.04%	33:36	-0.072	-0.232
-28	69	0.57%	33:36	1.151	-0.232
-27	68	-0.31%	32:36	-0.635	-0.357
-26	68	-0.71%	29:39	-1.445$	-1.085
-25	68	0.44%	37:31:	0.901	0.856
-24	68	1.18%	38:30	2.401**	1.098
-23	68	-0.23%	35:33:	-0.467	0.371
-22	68	-0.20%	26:42<	-0.409	-1.813*
-21	68	-0.42%	34:34	-0.854	0.128
-20	68	0.57%	35:33	1.152	0.371
-19	68	-1.36%	36:32	-2.762**	0.613
-18	68	-0.30%	30:38	-0.601	-0.842
-17	68	-0.57%	34:34	-1.161	0.128
-16	68	0.01%	34:34	0.022	0.128
-15	68	0.56%	34:34	1.139	0.128
-14	68	0.83%	40:28)	1.696*	1.583$
-13	68	0.36%	33:35	0.725	-0.115
-12	68	-0.81%	27:41(	-1.652*	-1.570$
-11	68	0.29%	28:40(	0.596	-1.327$
-10	68	-0.24%	36:32	-0.487	0.613
-9	68	-0.36%	33:35	-0.733	-0.115
-8	68	-0.34%	36:32	-0.698	0.613
-7	68	-1.33%	25:43<	-2.713**	-2.055*
-6	68	0.15%	32:36	0.3	-0.357

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Cont. Table 5

Cont. Fama-French-Momentum Time-Series Model, Value Weighted Index for Turnover Sample. Table shows Mean Cumulative Abnormal returns, which are defined as $AR_{it} = R_{it} - E(R_{it,})$, calculated for the period surrounding day 0, (-30, 30) for the turnoversample. In the Turnover sample firms had CEO turnover after disappointing performance.. Firms are firms in North America, from several industries and different event days. Day 0 is defined as the day that the turnover was announced or the following working day. tunrover sample was 79 firms but only 68 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
-5	68	1.43%	43:25>	2.907**	2.311*
-4	68	-0.29%	35:33	-0.593	0.371
-3	68	0.58%	30:38	1.178	-0.842
-2	68	-0.08%	35:33	-0.167	0.371
-1	68	-0.76%	35:33	-1.545$	0.371
0	68	0.32%	32:36	0.65	-0.357
1	68	-0.21%	31:37	-0.423	-0.6
2	68	-0.57%	35:33	-1.151	0.371
3	68	-0.15%	28:40(	-0.296	-1.327$
4	68	-0.76%	27:41(	-1.545$	-1.570$
5	68	-0.27%	29:39	-0.556	-1.085
6	68	-0.03%	32:36	-0.058	-0.357
7	68	0.17%	34:34	0.354	0.128
8	68	0.15%	33:35	0.295	-0.115
9	68	0.40%	35:33	0.811	0.371
10	68	-0.54%	29:39	-1.096	-1.085
11	68	-0.58%	30:38	-1.189	-0.842
12	68	0.63%	34:34	1.279	0.128
13	68	0.56%	31:37	1.132	-0.6
14	68	0.78%	40:28)	1.590$	1.583$
15	68	-0.48%	34:34	-0.982	0.128
16	68	1.36%	35:33	2.768**	0.371
17	68	0.88%	34:34	1.784*	0.128
18	68	0.59%	29:39	1.201	-1.085
19	68	1.12%	37:31	2.285*	0.856

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Cont. Table 5

Cont. Fama-French-Momentum Time-Series Model, Value Weighted Index for Turnover Sample. Table shows Mean Cumulative Abnormal returns, which are defined as ARit= Rit – E (Rit,), calculated for the period surrounding day 0, (-30, 30) for the turnover sample. In the turnover sample firms had CEO turnover after disappointing performance.. Firms are firms in North America, from several industries and different event days. Day 0 is defined as the day that the turnover was announced or the following working day. Turnover sample was 79 firms but only 68 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
20	68	0.78%	37:31	1.589$	0.856
21	68	0.01%	34:34	0.014	0.128
22	68	1.14%	35:33	2.324*	0.371
23	68	0.16%	35:33	0.316	0.371
24	68	-0.49%	35:33	-0.991	0.371
25	68	0.20%	30:38	0.407	-0.842
26	68	1.06%	40:28)	2.151*	1.583$
27	68	-0.59%	32:36	-1.195	-0.357
28	68	-0.17%	31:37	-0.352	-0.6
29	68	0.30%	32:36	0.605	-0.357
30	68	-0.59%	34:34	-1.209	0.128

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Table. 6

Windows F**ama-French-Momentum Time-Series Model, Value Weighted Index Turnover Sample**. Table shows Mean Cumulative Abnormal returns ($CAR(t_1,t_2) = \sum_{t-t1}^{t2} AR_t$) for the windows for the turnover sample of firms that had CEO turnover after disappointing performance. Firms are from North America, from several industries and different event days. Day 0 is defined as the day that the turnover was announced or the following working day. Turnover sample was 79 firms but only 67 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive:negative test.

Days	N	Mean Cumulative Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
(-10,0)	68	-0.93%	37:31	-0.573	0.856
(-5,-2)	68	1.63%	41:27>	1.662*	1.826*
(-10,+10)	68	-2.73%	30:38	-1.215	-0.842
(-3,+3)	68	-0.86%	30:38	-0.663	-0.842
(-2,+2)	68	-1.29%	32:36	-1.179	-0.357
(-1,+1)	68	-0.65%	30:38	-0.761	-0.842
(0,+3)	68	-0.60%	35:33	-0.61	0.371
(+6,+9)	68	0.69%	33:35	0.701	-0.115
(+10,+30)	68	6.11%	41:27>	2.713**	1.826*
(+15,+30)	68	5.26%	47:21>>>	2.679**	3.281***

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Table 7

Fama-French-Momentum Time-Series Model, Value Weighted Index for Control Sample. Table shows Mean Cumulative Abnormal returns, which are defined as ARit= Rit – E (Rit,), calculated for the period surrounding day 0, (-30, 30) for the matched sample. Compared to the turnover sample, in the match sample there was no CEO turnover, even though firms were in a similar situation, measured as Altman Z-score. Firms are from North America, from several industries and different event days. The matching was made with the following criteria: year, Altman z-score (proxy for financial distress), industry and size for year of the CEO turnover in the turnover sample. Day 0 is defined as the day that the turnover was announced for the firms of the turnover sample or the following working day. The matched sample was 79 firms but only 69 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
-30	69	0.08%	38:31	0.17	1.138
-29	69	0.52%	40:29)	1.072	1.620$
-28	69	0.19%	32:37	0.404	-0.307
-27	69	-0.09%	32:37	-0.181	-0.307
-26	69	-0.33%	25:44<	-0.694	-1.994*
-25	69	0.44%	35:34	0.905	0.416
-24	69	0.49%	37:32	1.023	0.898
-23	69	0.29%	42:27>	0.6	2.102*
-22	69	0.02%	36:33	0.039	0.657
-21	69	0.36%	35:34	0.752	0.416
-20	69	-0.10%	35:34	-0.199	0.416
-19	69	-0.29%	27:42(	-0.596	-1.512$
-18	69	-0.12%	39:30)	-0.252	1.379$
-17	69	0.45%	35:34	0.94	0.416
-16	69	-0.15%	36:33	-0.312	0.657
-15	69	-0.72%	26:43<	-1.489$	-1.753*
-14	69	0.03%	35:34	0.071	0.416
-13	69	-0.10%	31:38	-0.215	-0.548
-12	69	-0.61%	28:41	-1.266	-1.271
-11	69	0.08%	34:35	0.157	0.175
-10	69	-0.20%	35:34	-0.423	0.416
-9	69	-0.15%	33:36	-0.315	-0.066
-8	69	1.07%	43:26>>	2.220*	2.343**
-7	69	0.22%	38:31	0.465	1.138
-6	69	-1.24%	26:43<	-2.580**	-1.753*

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Cont. Table 7

Fama-French-Momentum Time-Series Model, Value Weighted Index for Control Sample. Table shows Mean Cumulative Abnormal returns, which are defined as ARit= Rit – E (Rit,), calculated for the period surrounding day 0, (-30, 30) for the matched sample. Compared to the turnover sample, in the match sample there was no CEO turnover, even though firms were in a similar situation, measured as Altman Z-score. Firms are from North America, from several industries and different event days. The matching was made with the following criteria: year, Altman z-score (proxy for financial distress), industry and size for year of the CEO turnover in the turnover sample. Day 0 is defined as the day that the turnover was announced for the firms of the turnover sample or the following working day. The matched sample was 79 firms but only 69 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
-5	69	0.03%	38:31	0.059	1.138
-4	69	0.94%	36:33	1.950*	0.657
-3	69	0.41%	31:38	0.842	-0.548
-2	69	-0.76%	36:33	-1.574$	0.657
-1	69	-0.29%	30:39	-0.602	-0.789
0	69	-0.71%	27:42(	-1.478$	-1.512$
1	69	-0.55%	26:43<	-1.136	-1.753*
2	69	-0.79%	31:38	-1.634$	-0.548
3	69	0.03%	31:38	0.053	-0.548
4	69	-0.14%	31:38	-0.288	-0.548
5	69	0.38%	39:30)	0.791	1.379$
6	69	-0.79%	21:48<<	-1.646*	-2.957**
7	69	0.16%	29:40	0.336	-1.03
8	69	0.41%	35:34	0.86	0.416
9	69	-0.17%	33:36	-0.349	-0.066
10	69	0.06%	33:36	0.125	-0.066
11	69	-0.27%	33:36	-0.569	-0.066
12	69	0.37%	34:35	0.764	0.175
13	69	0.06%	33:36	0.124	-0.066
14	69	-0.33%	26:43<	-0.683	-1.753*
15	69	-0.08%	27:42(	-0.166	-1.512$
16	69	-0.55%	29:40	-1.151	-1.03
17	69	-0.37%	35:34	-0.774	0.416
18	69	-0.24%	28:41	-0.5	-1.271
19	69	-0.03%	34:35	-0.062	0.175

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Cont. Table 7

Cont. Fama-French-Momentum Time-Series Model, Value Weighted Index for Control Sample. Table shows Mean Cumulative Abnormal returns, which are defined as ARit= Rit – E (Rit,), calculated for the period surrounding day 0, (-30, 30) for the matched sample. Compared to the turnover sample, in the match sample there was no CEO turnover, even though firms were in a similar situation, measured as Altman Z-score. Firms are from North America, from several industries and different event days. The matching was made with the following criteria: year, Altman z-score (proxy for financial distress), industry and size for year of the CEO turnover in the turnover sample. Day 0 is defined as the day that the turnover was announced for the firms of the turnover sample or the following working day. The matched sample was 79 firms but only 69 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, and Generalized Sign Z, and the positive: negative test.

Day	N	Mean Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
20	69	0.49%	41:28>	1.022	1.861*
21	69	0.09%	37:32	0.188	0.898
22	69	-0.29%	30:39	-0.605	-0.789
23	69	-0.15%	28:41	-0.314	-1.271
24	69	-0.55%	25:44<	-1.15	-1.994*
25	69	-0.06%	31:38	-0.124	-0.548
26	69	-0.84%	30:39	-1.742*	-0.789
27	69	0.08%	35:34	0.17	0.416
28	69	0.30%	33:36	0.618	-0.066
29	69	-0.12%	42:27>	-0.239	2.102*
30	69	-0.73%	22:47<<	-1.519$	-2.716**

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Table. 8

Windows F**ama-French-Momentum Time-Series Model, Value Weighted Index for Control Sample**. Table shows Mean Cumulative Abnormal returns CAR (t_1, t_2) = $\sum_{t-t1}^{t2} AR_t$) for the windows for the matched. Compared to the turnover sample, in the match sample there was no CEO turnover, even though firms were in a similar situation, measured as Altman Z-score. Firms are from North America, from several industries and different event days. The matching was made with the following criteria: year, Altman z-score (proxy for financial distress), industry and size for year of the CEO turnover in the turnover sample. Day 0 is defined as the day that the turnover was announced for the firms of the turnover sample or the following Firms are firms in North America, from several industries and different event days. Day 0 is defined as the day that the turnover was announced or the following working day. The matched sample contained 79 firms, but only 69 had enough returns data. Model used was Value weighted Fama-French Model including the momentum factor. Tests for significance are available, Portfolio Time-Series (CDA) t , and Generalized Sign Z. Also positive: negative test is available.

Days	N	Mean Cumulative Abnormal Return	Positive: Negative	Portfolio Time-Series (CDA) t	Generalized Sign Z
(-5,-2)	69	0.62%	38:31	0.639	1.138
(-10,+10)	69	-2.08%	32:37	-0.943	-0.307
(-3,+3)	69	-2.66%	29:40	-2.089*	-1.03
(-2,+2)	69	-3.10%	26:43<	-2.873**	-1.753*
(-1,+1)	69	-1.55%	24:45<	-1.857*	-2.234*
(-1,+5)	69	-2.07%	29:40	-1.623$	-1.03
(+6,+9)	69	-0.38%	31:38	-0.399	-0.548
(-10,0)	69	-0.69%	35:34	-0.433	0.416
(0,+3)	69	-2.02%	27:42(	-2.098*	-1.512$
(+10,+30)	69	-3.18%	24:45<	-1.438$	-2.234*
(+15,+30)	69	-3.06%	28:41	-1.587$	-1.271

The symbols $,*,**, and *** denote statistical significance at the 0.10, 0.05, 0.01 and 0.001 levels, respectively, using a generic one-tail test. The symbols (,< or),> etc. correspond to $,* and show the direction and significance of the generalized sign test.

Table 9.

Estimates Difference in Differences for Averages of Before and After. Below the estimates for the coefficients of the regressions using the Difference in Differences methodology are presented. The dependent variable takes the value of the average of the variable of interest (Adjusted Tobin's Q, Adjusted ROA, MtB, Log AT, Leverage, Z-Score or Capex to Sales ratio) for either the before or the after period, that is average of years -2 and -1 versus average of years 1 and 2. Turnover sample is a dummy that takes the value of one when the observation pertains to the turnover sample, and 0 when it pertains to the control sample. After period is a dummy that takes value of one when the observation is from the after period (average of year 1 and 2 after the turnover date), and 0 when it is from the before period (Average of years -2 and -1 from before the turnover date). Panel A. presents the coefficients for the previously mentioned dummy variables and interaction term. Panel B presents the estimates for the differences from one period to another for each group, the first for the turnover sample and the second for the control sample; followed by the estimate for the difference of differences.

Panel A: Estimates for Fixed Effects	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Adj. Tobins-Q	Adj. ROA	Mtb	LogAT	Leverage	Z-Score	Capex/Sales
Turnover Sample	0.0683	-0.03012	0.2748	-0.03803	-0.03871	0.001933	0.1956
	(0.8542)	(0.1198)	(0.7139)	(0.9085)	(0.2674)	(0.9991)	(0.2554)
After Period	-0.3736	-0.01319	-0.3999	0.2217***	0.02291	-2.841*	-0.00994
	(0.1239)	(0.2888)	(0.4394)	(<.0001)	(0.1639)	(0.0295)	(0.9334)
Interaction Turnover*After period(Diff of Diff)	-0.1221	-0.00074	-0.5287	-0.3323***	0.03822	-0.3827	-0.2058
	(0.7223)	(0.9666)	(0.4734)	(<.0001)	(0.1039)	(0.8356)	(0.2258)
Panel B: Estimates for differences							
Sample, After - Before	-0.4957*	-0.01393	-0.9286	-0.1106*	0.0611***	-3.2236*	-0.2158
	(0.0435)	(0.2748)	(0.0785)	(0.0494)	(0.0003)	(0.015)	(0.0753)
Control, After - Before	-0.3736	-0.01319	-0.3999	0.2217***	0.02291	-2.841*	-0.00994
	(0.1239)	(0.2888)	(0.4394)	(<.0001)	(0.1639)	(0.0295)	(0.9334)

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels. P-values are reported in parenthesis.

Table 10

Regression Results, BHAR as dependent variable. Table displays estimates of the regressions having BHAR`s of three years after the turnover. Several models are presented with different combinations of explanatory variables, included Altman Z-score, leverage ratio, log of total assets, ROA, CEO Ownership, board size and number of institutional block holders. The dummy turnover is included, and takes value of 1 if observation belongs to the turnover sample, 0 otherwise. Dummy variables for industry and year are included in the regressions to correct for violations of independence. Data of BHARs, Altman z-score and ROA are winsorized at (2,98) to reduce the effect of spurious outliers.

	Year 1			Year 2			Year 3		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Intercept	0.8989	0.9730	0.5756	0.7906	0.1102	-0.1153	2.936874	3.3563	3.0229
t-Stat	*1.73*	*1*	*0.77*	1.41	0.24	-0.37	1.3	1.26	1.21
Altman Z-Score	-0.0119	-0.0236	-0.0076	-0.0396***	-0.0114	-0.0039	-0.1402*	-0.1663	-0.1557
t-Stat	*-0.43*	*-0.29*	*-0.1*	-5.15	-0.55	-0.14	-2.2	-1.52	-1.39
Leverage	0.1138	0.0010	0.1825	0.0492	0.9553**	1.037*	-0.9690	-0.3416	-0.2255
t-Stat	*0.23*	*0*	*0.17*	0.08	3.13	2.62	-0.85	-0.21	-0.14
Turnover Dummy	0.3790**	0.4067***	0.3107	0.3148*	0.3005**	0.2351*	0.3792*	0.1654	0.0679
t-Stat	*2.83*	*3.79*	*1.93*	2.16	2.9	2.06	2.15	0.61	0.19
Log MVE	-0.1292*	-0.1058	-0.1365	-0.094*	-0.0832	-0.0980	-0.1994	-0.2696	-0.2902
t-Stat	*-2.44*	*-1.23*	*-1.63*	-2.02	-1.16	-1.22	-1.27	-1.59	-1.54
ROA	0.4533	-0.0383	-0.0394	1.0755*	1.1488**	1.1542*	-1.26196	-0.3765	-0.3718
t-Stat	*1.22*	*-0.08*	*-0.06*	2.11	3.06	2.31	-1.17	-0.2	-0.2
CEO ownership	-	-1.6056	-1.5649	-	-1.4998	-1.4961	-	-3.1499	-3.15725
t-Stat	-	-1.29	-1.44	-	-1.54	-1.66	-	-1.58	-1.69
Board Size	-	-	0.0489	-	-	0.0285	-	-	0.9118
t-Stat	-	-	1.7	-	-	1.53	-	-	1.06
R-Square	0.1116	0.122	0.1465	0.095	0.1471	0.1564	0.1575	0.1791	0.1824
F-Statistic	2.13	1.29	1.42	1.93	2.9	3.32	1.3	1.87	1.89
No. of observations	120	82	80	120	82	80	120	82	80

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

Table 11

Regression Results, Market to Book as dependent variable. Below are presented the coefficient and t-statistics of several regressions having as dependent variable Market-to-Book ratio and different combinations of explanatory variables. The model has dummy variables for each key year, -3, -2, -1, 1, 2 and serving as omitted variable, year 3. Then Altman Z-score, leverage ratio, squared leverage ratio, log of total assets and ROA are also used as explanatory variables. The turnover dummy takes a value of 1 if the observation pertains to the turnover sample, 0 if it pertains to the control sample. Clusters by firm and year have been used to adjust the standard errors, fixing the violation of the independence assumption. The explanatory variables have 1 lag. Model (1) and (2) includes information of all years, models (3) and (4) cover observations for years -1 and 1.

	All years		-1 to 1	
	(1)	(2)	(3)	(4)
Intercept	-1.2287	0.3820	-1.0636	-0.9603
t-Stat	-0.86	0.31	-0.91	-0.85
Dummy Before1	0.0451	0.0367	0.3424	-
t-Stat	0.3826	0.18	1.01	-
Dummy Before 2	0.3911	0.3908	-	-
t-Stat	1.44	1.29	-	-
Dummy Before 3	0.2204	0.2555	-	-
t-Stat	0.88	0.97	-	-
Dummy After 1	0.0901	0.0954	-	-
t-Stat	0.17	0.18	-	-
Dummy After 2	-0.3861	-0.4921	-	-
t-Stat	-0.88	-0.98	-	-
Altman Z-Score	0.0388	0.0261	0.0417	-
t-Stat	1.17	0.79	0.88	-
Leverage	4.4826**	-2.3504	3.6059	3.5267*
t-Stat	2.82	-0.37	2.13	2.16
Leverage Sq.	-	5.9734	-	-
t-Stat	-	0.99	-	-
Log MVE	0.0262	0.0379	0.0506	0.0622
t-Stat	0.20	0.26	0.42	0.55
ROA	3.3357	3.9153	3.1504	3.2483
t-Stat	1.60	1.59	1.44	1.49
Dummy R&D	2.3697***	2.3892***	2.5229***	2.5158***
t-Stat	4.25	4.29	5.10	5.03
Turnover Dummy	-0.1572	-0.2020	0.2699	0.2671
t-Stat	-0.38	-0.50	0.51	0.51
R-Square	0.1360	0.1419	0.1302	0.1284
F-Statistic	4.10	4.30	3.16	3.40
Number of observations	647	647	282	282

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

Table 12

Regression Results, Adjusted Tobin´s-Q as dependent variable. Below are presented the coefficient and t-statistics of several regressions having as dependent variable Adjusted Tobin´s-Q and different combinations of explanatory variables. The model has dummy variables for each key year, -3, -2, -1, 1, 2 and serving as omitted variable, year 3. Then Altman Z-score, leverage ratio, log of total assets and ROA are also used as explanatory variables. The turnover dummy takes a value of 1 if the observation pertains to the turnover sample, 0 if it pertains to the control sample. Additional variables of interest are considered, including CEO ownership, board size, and number of institutional block holders, the entrenchment index. Clusters by firm and year have been used to adjust the standard errors, fixing the violation of the independence assumption. The explanatory variables have 1 lag. The models include all years except for year of the turnover.

	(1)	(2)	(3)	(4)
Intercept	-0.7844	-0.7811	-0.8271	-1.7118
t-Stat	-1.72	-1.82	-1.42	-1.29
Dummy Before1	-0.2022	-0.2305	-0.2289	0.0342
t-Stat	-0.91	-0.95	-1.01	0.05
Dummy Before 2	-0.1359	-0.1566	-0.2149	-0.3545
t-Stat	-0.69	-0.68	-0.99	-0.63
Dummy Before 3	-0.0574	-0.1058	-0.1269	-0.0175
t-Stat	-0.20	-0.34	-0.37	-0.03
Dummy After 1	-0.0119	-0.1025	-0.0871	-0.0805
t-Stat	-0.06	-0.59	-0.49	-0.21
Dummy After 2	-0.0306	-0.05741	-0.0636	-0.2922
t-Stat	-0.07	-0.13	-0.13	-0.50
Altman_Z	0.0871	0.0846	0.1083	0.1914**
t-Stat	1.90	1.89	1.92	2.65
Leverage	0.6810*	0.4799	0.6664	1.3506
t-Stat	2.00	1.39	1.61	1.72
Log MVE	0.0687	0.1008*	0.0993*	0.1442
t-Stat	1.32	2.18	2.13	1.77
ROA	-0.4787	-0.5839	-0.8745	-2.0856
t-Stat	-0.54	-0.69	-0.81	-1.80
Dum R&D	0.3029	0.2703*	0.3402*	0.2580
t-Stat	1.96	2.08	2.35	1.09
Turnover Dummy	-0.2562	-0.2370	-0.2194	-0.4236*
t-Stat	-1.54	-1.52	-1.46	-2.28
CEO Ownership	-1.4685	-1.5194	-1.7472*	-2.3579
t-Stat	-1.85	-1.89	-2.07	-1.14
Board Size	-	-0.0062	-0.0155	-0.0328
t-Stat	-	-0.30	-0.90	-0.62
No. Inst. Block.	-	-	-0.0162	0.0318
t-Stat	-	-	-0.40	0.59
E-Index	-	-	-	0.5755
t-Stat	-	-	-	0.57
R-Square	0.1399	0.1784	0.2179	0.3191
F-Statistic	2.99	3.50	3.76	2.48
Number of observations	351	341	311	123

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

Table 13

**Regression Results, Tobin`s-Q as dependent variable for years -1 and 1.** Below are presented the coefficient and t-statistics of several regressions having as dependent variable Tobin`s-Q and different combinations of explanatory variables. Then Altman Z-score, leverage ratio, log of total assets, ROA, CEO ownership, board size, number of institutional block holders, the entrenchment index are used as explanatory variables. The turnover dummy takes a value of 1 if the observation pertains to the turnover sample, 0 if it pertains to the control sample. Clusters by firm and year have been used to adjust the standard errors, fixing the violation of the independence assumption. The explanatory variables have 1 lag. Models cover observations for years -1 and 1.

	(1)	(2)	(3)	(4)
Intercept	-1.1264*	-0.9491	-1.4225	0.1510
t-Stat	-2.54	-1.40	-1.97	0.075
Altman Z-Score	0.1587***	0.1521**	0.1443**	0.06952
t-Stat	3.61	3.19	2.82	1.37
Leverage	0.7406	0.6425	0.8532	0.5642
t-Stat	1.89	1.50	1.60	0.63
Log MVE	0.0847	0.1018*	0.1256**	0.1199
t-Stat	1.53	2.10	2.63	0.78
ROA	-1.3523	-1.3411	-1.1352	-0.5893
t-Stat	-1.62	-1.66	-1.54	-0.12
Dummy R&D	0.2785	0.2792	0.3842	0.1486
t-Stat	1.43	1.58	1.90	0.33
Turnover Dummy	-0.3722 *	-0.3617	-0.3239	-0.1997
t-Stat	-2.04	-1.76	-1.83	-0.46
CEO Ownership	-2.1044	-2.4541*	-2.2067	-5.3754
t-Stat	-1.92	-2.23	-1.94	-0.631
Board Size	-	-0.0189	-0.0299	-0.0441
t-Stat	-	-0.50	-0.72	-0.53
No. Inst. Block.	-	-	0.1035	0.0173
t-Stat	-	-	1.48	0.26
E-Index	-	-	-	-0.2576
t-Stat	-	-	-	-0.64
R-Square	0.3583	0.3627	0.3791	0.2916
F-Statistic	6.51	5.97	5.42	20.18
Number of observations	114	111	103	36

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

Table 14

Regressions for Adjusted ROA. Below are presented the coefficient and t-statistics of several regressions having as dependent variable Adjusted ROA and different combinations of explanatory variables. The model has dummy variables for each key year, -3, -2, -1, and 1, 2 and serving as omitted variable, year 3. Then Altman Z-score, leverage ratio, log of MVE, CEO ownership, board size, number of institutional Block holders. The turnover dummy takes a value of 1 if the observation pertains to the turnover sample, 0 if it pertains to the control sample. Clusters by firm and year have been used to adjust the standard errors, fixing the violation of the independence assumption. The explanatory variables have 1 lag.

	(1)	(2)	(3)	(4)
Intercept	-0.1250*	-0.2349***	-0.2108***	-0.2227***
t-Stat	-2.51	-4.49	-3.9	-3.47
Dummy Before2	0.0270	0.0416	0.0287	0.0278
t-Stat	0.87	1.84	1.44	1.71
Dummy Before1	0.0206	0.0221	0.0223	0.0171
t-Stat	0.75	1.13	1.06	0.89
Dummy after1	0.0126	0.0118	0.0122	0.0141
t-Stat	0.55	1.08	1.14	1.26
Dummy After 2	0.0213	0.0275	0.0256	0.0324
t-Stat	0.88	1.28	1.2	1.29
Dummy After3	0.0243	0.0495*	0.0480	0.0515
t-Stat	0.96	2.05	1.9	1.89
Altman Z-Score	0.0019	0.0063	0.0056	0.0061
t-Stat	1.72	1.78	1.58	1.13
Leverage	0.0901*	0.1513**	0.1338**	0.1240*
t-Stat	2.48	2.84	2.78	2.35
Log MVE	0.0111*	0.0155**	0.0190**	0.0205**
t-Stat	2.2	2.59	3.16	2.99
Turnover Dummy	-0.0250	-0.0041	0.0005	-0.0053
t-Stat	-1.48	-0.25	0.03	-0.3
CEO ownership	-	0.1074	0.1077	0.1216
t-Stat	-	0.63	0.61	0.67
Board size	-	-	-0.0039	-0.0034
t-Stat	-	-	-1.25	-1.25
N. Inst bolckowners	-	-	-	-0.0002***
t-Stat	-	-	-	-0.03
R-Square	0.0782	0.1443	0.1571	0.1758
F-Statistic	4.75	4.42	4.05	3.55
Number of observations	649	351	341	311

The symbols *,**, and *** denote statistical significance at the 0.05, 0.01 and 0.001 levels respectively.

APPENDICES

Appendix 1.

In this section we will explain the differences between the three classifications of forced CEO turnover. When the departure of the CEO is related to scandals, frauds, manipulation of information or disagreements of the board there is a much different nature to that present in CEO departures that are related to disappointing performance. In the other cases the firms would not necessarily have to go through extreme measures such as sacrificing R&D expenses, lying off or selling of assets. The following are examples of the three different scenarios of forced CEO turnover:

Fraud related CEO departures: The following is an example of this type of news:

Harney Tapped To Lead Near North Beyond CEO Scandal.[32]

John Harney returned to Near North Insurance Brokerage Inc. last August to be senior vice president in its industry practices area. This month, he took over the helm as chief operating officer after the resignation under fire of Michael Segal as chief executive officer, who left after being arrested on charges of financial fraud.

Disagreement with the board departures:

Perpetual CEO Resigns after Board Disagreement[33]

"Australian fund manager Perpetual said Monday that chief executive Chris Ryan agreed to step down following a disagreement with the board."

> "While Mr Ryan had executed some important business improvements after joining Perpetual in February last year, it had become clear that there were differences between Mr Ryan and the board around emphasis and execution of strategy for the immediate and longer term," said Perpetual chairman Peter Scott.

[32] Ruquet, Mark E. National Underwriter Property & Casualty-Risk & Benefits Management Edition. (Accessed February 15, 2015). Available at (https://0-global.factiva.com.mercury.concordia.ca/ga/default.aspx)

[33] Thurlow, Rebecca. The Wall Street Journals (Accessed on February 15, 2015). Available at: http://blogs.wsj.com/dealjournalaustralia/2012/02/06/perpetual-ceo-resigns-after-board-disagreement/

"Over the weekend we agreed to disagree with Chris Ryan on these important issues and that he would leave Perpetual as a result," Scott said in a statement."

Performance related CEO departures:

McDonald's CEO Resigns after Years of Labor Unrest and Shoddy Financial Performance[34]

"Some analysts directly faulted Thompson's leadership for the company's poor financial performance. "Don got fatally behind the last couple of years," a restaurant specialist from a management consulting firm told the Journal. "The company was not going to be fixed until Don Thompson (left)," another industry analyst told Crain's".

Appendix 2.

BHARs are calculated making use of formula as expressed by Barber and Lyon (1997, page 334) using as benchmark CRSP value weighted return portfolio:

$$BHAR = \prod_{t=1}^{T}[1 + R_{it}] - \prod_{t=1}^{T}[1 + E(R_{it})] \qquad (10)$$

[34] Pike, Alan. Thinkprogess (Accessed on February 15,2015) Available at: http://thinkprogress.org/economy/2015/01/29/3616844/mcdonalds-ceo-resigns/