Master Thesis

The relation between enforcement actions on non-financial misconduct and forced CEO turnover.

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ABSTRACT

In this research, I examine forced CEO turnover following enforcement actions on non-financial misconduct. I find evidence that firms replace their CEO in response to enforcement actions on non-financial misconduct. In particular, this effect increases with the magnitude of regulatory fines. This suggests that the costs of a firms' response increase with the costs of the misconduct. Using various proxies of firm visibility, I find some evidence that more visible firms have a higher likelihood of replacing the CEO when enforcement agencies impose fines for non-financial misconduct. Overall, I provide insights into how and when firms respond to enforcement actions on non-financial misconduct.

Keywords: enforcement actions, Violation Tracker, non-financial misconduct, forced CEO turnover.

I thank Phillip Mattera from the 'Corporate Research Project of Good Jobs First's Violation Tracker' for providing me with the Violation Tracker data. I thank professor Aneesh Raghunandan (London School of Economics) for sending me the dataset containing the parent-subsidiary link at the time of each violation. I thank professor Florian Peters (University of Amsterdam) for providing me with the forced CEO turnover data. Finally, I thank professor Nico Lehmann (Erasmus School of Economics) for his input and guidance during the writing of this research.

1. Introduction

In 2015, the United States Environmental Protection Agency (hereafter EPA) announced that all diesel cars produced by Volkswagen between 2009 and 2015 should be recalled due to false claims about emission rates. Volkswagen eventually admitted to have intentionally manipulated the emission output during official tests. The enforcement actions of the EPA have resulted in regulatory fines worth billions of dollars and led to the replacement of the Chief Executive Officer (hereafter CEO) of Volkswagen. Furthermore, the enforcement actions of the EPA led to numerous lawsuits by other parties such as investors and vehicle owners. The reputational damage for Volkswagen following this scandal was severe. This anecdotal evidence illustrates that firms can be motivated to replace the CEO when they are penalized by regulatory agencies for non-financial misconduct. In this research, I introduce enforcement actions on non-financial misconduct as a 'new' determinant of forced CEO turnover. This determinant will be of interest to academic research and enforcement agencies, because it will provide insights into how and when firms respond to enforcement actions on non-financial misconduct.

> RQ: What is the effect of enforcement actions (on non-financial misconduct) on forced CEO turnover?

Firms incur both direct and indirect costs when receiving fines from regulatory agencies. The direct costs of enforcement actions on non-financial misconduct comprise the monetary costs of paying the regulatory fine. These costs are relatively low compared to the indirect costs (Li and Raghunandan, 2019). Indirect costs are associated with an increase in litigation risk, political/scrutiny costs and reputational costs. Firms can take actions to minimize the indirect costs of enforcement actions on non-financial misconduct. Based on a cost-benefit analysis, firms will decide on how to respond to the misconduct. Less costly responses comprise increasing transparency, improving the code of conduct, initiating ethics training programs or establishing an internal control officer/department. A more costly response is replacing the CEO. Replacing the CEO is a strong sign to stakeholders that legitimate actions are taken to restore the legitimacy of the organization (Arthaud-Day et al. 2006). In addition, stakeholders respond optimistically when executives are replaced following misconduct (Gangloff, 2016). This suggests that replacing the CEO in response to enforcement actions on non-financial misconduct can be a viable option (H1).

For a high magnitude of fines, the indirect costs of misconduct can be severe. Given the cost-benefit consideration, more costly responses will be selected when the indirect costs of

misconduct increase. This implies that the probability of forced CEO turnover will increase with the magnitude of the regulatory fines (H2).

The expectation is that firm visibility influences the indirect costs of misconduct. Since stakeholders rely on CSR-related measures to form a judgement on a firm (Shepard et al. 1997), visible firms will be punished more by stakeholders when enforcement actions on non-financial misconduct are taken. Consequently, the expectation is that the increase of indirect costs will trigger more costly responses such as replacing the CEO (H3).

To empirically test the predictions, I obtain enforcement data from Good Jobs First. I acquire data on forced CEO turnovers from Florian Peters[1]. Based on the papers of, Karpoff et al. (2008a) and Aharony et al. (2015), I examine forced CEO turnovers in the period t-1+2 relative to the regulatory fine in period t0. I obtain data for the control variables from Compustat North America, Execucomp, BoardEx and Good Jobs First.

Following Aharony et al. (2015), I test the hypotheses using probit regressions. The association between enforcement actions on non-financial misconduct and forced CEO turnover is positive and significant. The marginal effect indicates that having any enforcement action on non-financial misconduct increases the probability of forced CEO turnover in period t-1,+2 with 9.5%. For a high magnitude of fines, this marginal effect increases to 10.5% whereas for a low magnitude of fines the marginal effect decreases to -1.9%. This suggests that CEO turnover is considered a viable option in response to enforcement action on non-financial misconduct, and in particular for high magnitudes of regulatory fines. The moderating effect of firm visibility (measured by the total assets) is statistically insignificant.

Additional analysis shows that extending the pre-enforcement period results in significant positive coefficients. This implies that firms take actions to respond to the non-financial misconduct, several years prior to the start of enforcement actions. The moderately significant coefficients for the extended post-enforcement period indicate that CEOs are replaced up to several years after regulatory agencies have fined the firm for non-financial misconduct. Changing the median split to a tertile split for hypothesis 2 increases the marginal effect of high regulatory fines from 10.5% to 13.0%. This implies that more costly misconduct results in an increase in the likelihood that the CEO is replaced in period t-1,+2. Alternative measures for visibility, such as market capitalization and S&P 500 index membership, also result in statistically insignificant coefficients for the interaction term. However, the marginal effect of

[1] After conducting this research, this data set has become available on Execucomp.

the interaction term for S&P 500 index membership (market capitalization) is +5.0% (+3.2%). This implies that there is some evidence that visibility moderates the association between enforcement actions on non-financial misconduct and forced CEO turnover. More research is required to draw reliable conclusions on this matter. Finally, applying linear probability models would not significantly change the findings presented in the main results section.

This research has several contributions and implications for enforcement agencies and academic research. One main finding is that CEO turnover is considered a viable option in response to enforcement actions on non-financial misconduct, and in particular for high magnitudes of regulatory fines. This finding is relevant to enforcement agencies, because it indicates that firms select CEO turnover as a response to prevent future non-financial misconduct. For academic research, the findings imply that the (new) determinant of enforcement actions on non-financial misconduct will help to better understand CEO turnovers. This complements the papers examining the association between enforcement actions by the SEC and CEO turnover (Call et al. 2018; Karpoff et al. 2008a&b; Feroz et al. 1991; Hazarika et al. 2016). This determinant will especially contribute to the current stream of literature that examines CEO turnovers, because it goes above and beyond the general turnover (financial) performance sensitivity (Brickley, 2003). In addition, findings on the timing of forced CEO turnover suggest that CEO turnover does not occur in a fixed time period. This finding can serve as an input for academic research to dive deeper in the timeline of CEO turnover. Overall, this research provides insights into the literature regarding non-financial misconduct, CEO evaluations, enforcement actions and CEO turnover.

The remainder of this research is organized as follows: Section 2 provides a literature review. Section 3 describes the hypotheses in the context of prior literature. Section 4 discusses the research design. Section 5 presents the main results and additional analysis. Section 6 contains a conclusion and their implications.

2. Key literature

Li (2018) illustrates that the effect of financial performance on CEO turnover has received substantial attention in empirical research. Therefore, Li (2018) incorporates family ownership as a moderating variable on the CEO turnover-performance relation. In a survey paper, Brickley (2003) concludes that a limit has been reached for explaining the effect of financial performance on CEO turnover. In his paper, he presents determinants of CEO turnover that can be linked to the categories: financial firm-specific factors (1), CEO specific factors (2) and non-financial

firm-specific factors (3). He also argues that future research should incorporate other aspects than firm (financial) performance to better understand CEO turnovers.

Recent papers analysed different determinants of CEO turnover that can be linked to the three categories. Some researchers have come up with moderating variables on the CEO turnover (financial) performance sensitivity (Gao et al. 2017; Li, 2018; Suk et al. 2020). Kaplan et al. (2012) study the role of CEO-specific factors and find that certain CEO characteristics, such as execution skills, have a positive effect on firm performance. Therefore, CEOs with a lack of execution skills face a higher likelihood of being replaced. Fiordelisi and Ricci (2014) show that non-financial firm factors, such as corporate culture, influence forced CEO turnover.

Analysing factors that go above and beyond the turnover-performance link is important (Brickley, 2003), because in some cases CEOs are fired to prevent future financial consequences. In such a case, the dismissal of the CEO cannot be linked to past performance. Prior literature that considered enforcement actions by the Securities and Exchange Commission (hereafter SEC), incorporated this perspective (Call et al. 2018; Karpoff et al. 2008a&b; Feroz et al. 1991; Hazarika et al. 2016).

2.1 Enforcement actions on (financial) misconduct

Enforcement actions on financial misconduct can be linked to financial firm-specific factors as a determinant of CEO turnover. Karpoff and Lou (2008) illustrate that enforcement actions are the result of a trigger event. Examples of trigger events are restatements, departures of executives or auditors and whistle-blowing events. Call et al. (2018) show that enforcement actions on financial misrepresentation can lead to firm monetary penalties, employee monetary penalties and prison sentences. Feroz et al. (1991) examine the association between enforcement actions on financial misconduct and CEO turnover. They find that more than 72% of the firms that are under the scrutiny of the SEC's accounting enforcement program (due to accounting and auditing misconduct) fire top-level managers.

Karpoff et al. (2008a) investigate what consequences executives face after being held responsible by the SEC and the Department of Justice for financial misrepresentation. They find that 93% of the individuals in their sample lose their job following these allegations. Karpoff et al. (2008a) also find that executives are replaced both before and after the start of enforcement actions. Karpoff et al. (2008b) show that the penalties that are imposed by the market are significantly larger than the monetary costs of the regulatory fine. They illustrate that when financial misconduct becomes known to the public, the reputational damage can be

severe. Hazarika et al. (2016) state that CEOs are likely not replaced because of their contribution to earnings manipulation, but rather because of the negative attention that is instigated by enforcement actions of the SEC.

2.2 Lawsuits

If firms do not respond suitably to enforcement actions, other stakeholders might litigate the firm (Manchiraju et al. 2021). Multiple studies have hypothesized and found that CEO replacements increase after the initiation of security class action lawsuits. Niehaus and Roth (1999) use hand-collected data of completed securities class actions and find that CEO turnover is higher in firms subject to meritorious lawsuits. Humphery-Jenner (2012) examines internal and external discipline after companies are accused of misleading the market. He finds that the CEO and CFO are more likely to be replaced following security class action lawsuits. Baum et al. (2016) examine the corporate governance changes for firms that settled security fraud class action lawsuits following restatements, violations of GAAP and other allegations. They find that CEO turnover increases following lawsuit settlements.

A limited number of empirical studies considered the effect of non-securities lawsuits on CEO turnover. Unsal and Rayfield (2019) show that labor-related lawsuits that are initiated by employees have a positive effect on CEO turnover. Cohn and Wardlaw (2016) find that workplace safety increases workers' welfare and subsequently increases firm value. Aharony, Liu and Yawson, (2015) examine executive turnover subsequent to environmental, intellectual property, antitrust and contractual lawsuits. They find that of all lawsuits, contractual lawsuits are mostly associated with CEO turnover.

2.3 Corporate social responsibility

According to McWilliams et al. (2006), corporate social responsibility (hereafter CSR) involves actions aiming to have a positive impact on society. In their paper they mention examples such as promoting HR management practices and taking actions to improve environmental performance. McWilliams et al. (2006) note that the reputation of a firm is influenced by how both shareholders and non-financial stakeholders perceive corporate actions. Barnea and Rubin (2010) illustrate that firms may overinvest in CSR projects to enhance their reputation. According to Chiu and Sharfman (2018), the visibility of a firm influences the extent to which irresponsible behaviour leads to a legitimacy penalty by stakeholders. Choi and Wang illustrate that inadequate stakeholder relations damage the competitive advantage and financial

performance of a firm. In addition, Chiu and Sharfman (2018) demonstrate that high corporate social irresponsibility ratings can be linked to an increase in CEO turnover.

2.4 Contribution

Prior literature collectively suggests that enforcement actions on financial misconduct are associated with an increase in executive turnover (Call et al. 2018; Feroz et al. 1991; Karpoff et al. 2018 a&b; Hazarika et al. 2016). Prior research also provides empirical evidence on the positive effect of security lawsuits (Nihaus and Roth, 1999; Humphery-Jenner, 2012; Baum et al. 2016) and non-security lawsuits (Unsal and Rayfield, 2019; Cohn and Wardlaw, 2016; Aharony et al. 2015) on CEO turnover. Examples of these non-security lawsuits relate to environmental and labor lawsuits. Therefore, the lawsuit literature already provides some evidence on how firms respond to allegations of non-financial misconduct. Collectively, this suggests that there is a literature gap for the role of enforcement actions on non-financial misconduct in CEO replacements.

I contribute to academic research by being the first to examine how enforcement actions on non-financial misconduct influence forced CEO turnover. Therefore, I will introduce the enforcer as a new 'player' on the relation between non-financial misconduct and forced CEO turnover.[2]

Examining this research gap is important, because for enforcement agencies it is of interest what actions firms take to prevent future non-financial misconduct. This research is insightful to academic research, because it will help to better understand what factors (beyond the turnover-performance sensitivity) drive CEO turnover. Altogether, I will contribute to the literature regarding enforcement actions, non-financial misconduct, CEO evaluations and CEO turnover.

3. Theory and hypothesis development

Firms incur different types of costs when encountering enforcement actions on non-financial misconduct. The types that can be distinguished are direct costs (e.g., paying regulatory fines) and indirect costs (e.g., litigation risk, political/scrutiny costs, and reputational costs). After having received a regulatory fine, firms can take actions to minimize the indirect costs of the

[2] The forced CEO turnover data that I employ in this research has been used in the papers of Peters and Wagner (2014) and Jenter and Kanaan (2015).

non-financial misconduct. Firms will choose their response based on the net benefits of that action. One viable option could be to replace the CEO.

Initially, the costs of enforcement actions on non-financial misconduct relate to the monetary costs of the regulatory fine (Li and Raghunandan, 2019). Examples of agencies that are predominantly concerned with enforcement actions on non-financial misconduct are the Environmental Protection Agency (environmental violations) and the Occupational Safety & Health Administration (labor violations). On average, the direct costs are relatively low compared to the indirect costs of misconduct (Li and Raghunandan, 2019).

If no appropriate actions are taken by the firm, other stakeholders might litigate the firm for that misconduct. Manchiraju et al. (2021) state that shareholders litigate specific managers or the corporation itself to compensate for the misconduct. Furthermore, other stakeholders such as employees start lawsuits when firms are fined for labor misconduct (Unsal and Rayfield, 2019). However, it is important to note that stakeholders only start lawsuits when there is a high probability of victory (Cheng et al. 2010). This can be explained by the fact that if the case is lost, the plaintiff cannot reclaim the prosecution costs. Watts and Zimmerman (1978) describe the political cost argument, which implies that when bad news is brought to light, public scrutiny will increase. This suggests that negative news related to enforcement actions on non-financial misconduct will cause stakeholders to more actively inspect corporate actions. Persons (2006) illustrates that executive turnover is significantly higher when misconduct is revealed in the Wall Street Journal. Pham and Tran (2020) refer to the CSR literature to explain the reputational cost argument. They state that firms that do not behave by social standards will be perceived as illegitimate. Actions of dishonesty will therefore harm the reputation of the firm. Reputational damage can increase the cost of equity capital and decrease the investor base (Cao et al. 2015).

Firms could decide to take several courses of action to minimize the indirect costs of enforcement actions on non-financial misconduct. First, firms could demand more transparency from executives. This will lead to better executive oversight and a reduction of the probability that executives will tolerate corporate misconduct (Ahmed et al. 2010). However, the credibility and effectiveness of increasing transparency depend on the quality of corporate governance (Gomulya and Mishina, 2017). When the quality of the corporate governance is high, the costs (benefits) of this response will be low (high). Second, methods to mitigate misconduct in day-to-day operations are initiating ethics training programs (Weaver et al. 1999) or improving the

code of conduct (Gillespie and Diets, 2009). It is expected that the costs of this response will be low. The benefits of this response will be modest, because it is a sign to stakeholders that only minimal effort is exerted to prevent future misconduct. Furthermore, the effectiveness of this response depends on the extent to which management conveys ethical behaviour (Bouckenooghe et al. 2015). Third, firms could decide to establish an internal control officer that solely focuses on detecting and preventing misconduct (Gramling et al. 2004). A similar (but more costly) response could be to establish an internal control department in the organization.

An even more costly response to enforcement actions on non-financial misconduct will be to replace the CEO. Taylor (2010) illustrates that the costs of this response relate to firm and personal costs of replacing the CEO. Given the ethical and social responsibility of the CEO (Ang 1993), enforcement actions on non-financial misconduct will quickly update the board about the ability and quality of the incumbent CEO. The intuitive benefit of replacing the CEO will be that the indirect costs of enforcement actions on non-financial misconduct will be minimized. Firing the CEO is a strong sign to stakeholders of acknowledging that mistakes have been made and that the firm takes actions to restore the legitimacy of the organization (Arthaud-Day et al. 2006). According to Pfarrer et al. (2008) stakeholders will only regain trust in a firm following misconduct when firms acknowledge their wrongdoing and take legitimate actions to restore the trust of stakeholders. Accordingly, Gangloff (2016) shows positive responses from shareholders following the dismissal of executives due to corporate misconduct. Hence, replacing the CEO can be a viable option as a response to enforcement actions on non-financial misconduct.

> Hypothesis 1: There is a positive association between enforcement actions on non-financial misconduct and forced CEO turnover.

The expectation is that the magnitude of regulatory fines will moderate the effect of hypothesis 1. The magnitude of the regulatory fine can proxy for the indirect costs of misconduct. It will be plausible that small violations (low direct and indirect costs) will first be controlled through less costly responses such as establishing a code of conduct, increasing transparency or establishing an internal control officer. For large regulatory fines, the litigation risk, political/scrutiny costs, and reputational costs can be substantial. Given the cost-benefit analysis of potential responses to misconduct, more costly responses will be selected when the indirect

costs of misconduct increase. Thus, the expectation is that CEO turnover will be even a more viable option when the costs of misconduct are high.

> Hypothesis 2: The positive association between enforcement actions on non-financial misconduct and forced CEO turnover will increase with the magnitude of the regulatory fines.

An important factor of the indirect costs of misconduct is the extent to which the public gets informed about the misconduct. Udayasankar (2008) illustrates that large firms invest more in CSR projects than small firms, because their actions are more visible to the public. According to Shepard et al. (1997) stakeholders rely on CSR-related measures to form a judgement on a firm. Brammer and Pavelin (2006) find a positive relation between social performance and reputation. Consequently, firms with a good reputation are better able to optimize profit outcomes on the long term (Roberts and Dowling, 2002). When linking visibility to forced CEO turnover, it will be plausible that more visible firms face higher indirect costs when they encounter enforcement actions on non-financial misconduct. These high indirect costs will then likely lead to a costly response, such as replacing the CEO.

> Hypothesis 3: The positive association between enforcement actions on non-financial misconduct and forced CEO turnover will increase with the visibility of the firm.

4. Research design

4.1 Regression design

Karpoff et al. (2008a) illustrate that executives are replaced both before and after the start of enforcement actions. Aharony et al. (2015) also take time lag into account when examining the effect of lawsuits on CEO turnover. Based on the papers of Karpoff et al. (2008a) and Aharony et al. (2015), I examine forced CEO turnovers in the period t-1,+2 relative to the regulatory fine in period t0.

Following Aharony et al. (2015), I use probit regressions to test the hypotheses.[3] For hypothesis 1, I test the baseline effect of enforcement actions (on non-financial misconduct) on forced CEO turnover. The coefficient of interest is β1 and is expected to be positive. I estimate the following:

[3] Following the paper of Aharony et al. (2015), I do not employ robust standard errors. (Severe) heteroskedasticity problems are unlikely due to the binary dependent variable. Testing the hypotheses using robust standard errors shows only minor differences in regression output.

(1) $CEO\_TURN_{(it-1,+2)} = \beta 0 + \underline{\beta 1\ NONFIN\_MISCON_{(it)}} + \beta 2\ FIN\_MISCON_{(it)} + \beta 3\ LEVERAGE_{(it)} + \beta 4\ LOG\_TA_{(it)} + \beta 5\ ROA_{(it)} + \beta 6\ CEO\_CHAIR_{(it)} + \beta 7\ BOARD\_SIZE_{(it)} + \beta 8\ BOARD\_INDEP_{(it)} + Industry\ FE + Year\ FE$

Hypothesis 2 notes that the positive association between enforcement actions on non-financial misconduct and forced CEO turnover will increase with the magnitude of the regulatory fines. I expect both coefficients of interest to be positive but β1 (β2) less (more) positive than the coefficients of NONFIN_MISCON in regression (1). I estimate the following:

(2) $CEO\_TURN_{(it-1,+2)} = \beta 0 + \underline{\beta 1\ MISCON\ LOW_{(it)} + \beta 2\ MISCON\ HIGH_{(it)}} + \beta 3\ FIN\_MISCON_{(it)} + \beta 4\ LEVERAGE_{(it)} + \beta 5\ LOG\_TA_{(it)} + \beta 6\ ROA_{(it)} + \beta 7\ CEO\_CHAIR_{(it)} + \beta 8\ BOARD\_SIZE_{(it)} + \beta 9\ BOARD\_INDEP_{(it)} + Industry\ FE + Year\ FE$

Hypothesis 3 states that the positive association between enforcement actions on non-financial misconduct and forced CEO turnover will increase with the visibility of the firm. I include the natural logarithm of the total assets as a dummy in the interaction effect and as a continuous variable as control. [4] I estimate the following:

(3) $CEO\_TURN_{(it-1,+2)} = \beta 0 + \beta 1\ NONFIN\_MISCON_{(it)} + \underline{\beta 2\ LOGTA\_DUMMY_{(it)}\ x\ NONFIN\_MISCON_{(it)}} + \beta 3\ LOG\_TA_{(it)} + \beta 4\ LOGTA\_DUMMY_{(it)} + \beta 5\ FIN\_MISCON_{(it)} + \beta 6\ LEVERAGE_{(it)} + \beta 7\ ROA_{(it)} + \beta 8\ CEO\_CHAIR_{(it)} + \beta 9\ BOARD\_SIZE_{(it)} + \beta 10\ BOARD\_INDEP_{(it)} + Industry\ FE + Year\ FE$

4.2 Variable definitions

4.2.1 Main independent variable

The independent variable in this research comprises enforcement actions on non-financial misconduct. I use the Violation Tracker database from Good Jobs First in which nearly 500,000 violations related to corporate misconduct from 2000 onwards are recorded.[5] In this database, enforcement actions on misconduct are categorised into eight offense groups. [6] Following the paper of Raghunandan and Rajgopal (2021), I obtain labor and environmental violations to proxy for enforcement actions on non-financial misconduct. This implies that I link employment-related offenses and environmental-related offenses to non-financial misconduct.

[4] I include both, because The Spearman and Pearson correlations do not exceed 0.8.
[5] Only the regulatory fines of at least 5,000 dollars are recorded by Good Jobs First.
[6] Good Jobs First covers the following eight offense groups: competition-related offenses, consumer-protection-related offenses, employment-related offenses, environmental-related offenses, financial offenses, governmental-contracting-related offenses, healthcare-related offenses, miscellaneous offenses and safety-related offenses.

It is important to note that the severity of enforcement actions on non-financial misconduct does not perfectly align with the penalty amount that is imposed by a regulatory agency. Li and Raghunandan (2019) describe that some fines are computed using caps. Consequently, different levels of misconduct could result in the same regulatory fine. For example, the punitive damage for underpaying an employee is the same, regardless of underpaying the employee by only ten cents or one dollar per hour. The fine amount is then computed as a fixed amount per underpaid employee. Despite this caveat, the penalty amount is a suitable proxy, because overall the fine amount correlates with the severity of the misconduct (Li and Raghunandan, 2019).

Good Jobs First provides a parent-subsidiary link (based on the Central Index Key) to measure the regulatory fines that are imposed on all entities related to a parent company. The sum of all regulatory fines that are imposed to firms with the same CIK will proxy for enforcement actions on non-financial misconduct for a specific firm-year. Since Good Jobs First already implemented a minimum penalty amount of 5,000$, I only winsorize the upper tail at the top 1%. I include dummy variables to capture the presence and magnitude of enforcement actions on non-financial misconduct. The presence of enforcement actions is indicated by a dummy variable that equals 1 for firms that experienced enforcement actions on non-financial misconduct and 0 otherwise (NONFIN_MISCON).

I follow the methodological approach of Coles et al. (2008) to sort the sample based on a median split. This entails that I measure the severity of enforcement actions on non-financial misconduct as a dummy variable that equals 1 for above-median volume fines and 0 otherwise. (MISCON_HIGH). I compare this to a dummy variable that equals 1 for below-median volume fines and 0 otherwise (MISCON_LOW).[7]

4.2.2 Dependent variable

The dependent variable in this research includes a dummy variable that equals 1 for a forced CEO turnover in period t-1,+2 and 0 if no forced turnover occurred (CEO_TURN). I make use of a database that has been provided by Jenter and Kanaan (2015) and Peters and Wagner (2014).[8] This database contains forced CEO turnovers in firms between 1993 and 2019. Turnovers are classified as forced when the press article explicitly stated that the CEO was fired or that the CEO left the company due to unspecified policy differences. Turnovers are also classified as forced when the CEO was under 60 and the article did not state that the departure

[7] To avoid the dummy trap, the observations without any violations will equal to 0.
[8] Since 2018 onwards, Peters and Wagner have updated this database based on the criteria for categorising a turnover as forced.

was due to death, poor health, acceptance of another position or retirement. Finally, other relevant business articles are analysed to corroborate each turnover. Parrino (1997) provides a complete framework on when a turnover is considered forced. The turnover database provides both the announcement date and the actual departure date of the CEO. In this research, I use the announcement date as an indication for a forced turnover, because this will be the earliest sign that a turnover will shortly occur.

4.2.3 Controls

Following prior literature, I include control variables related to firm characteristics, CEO characteristics, board characteristics and financial misconduct. I include Industry fixed effects to control for systematic differences between industries, and year-fixed effects to account for time trends. Appendix A reports the variable definitions. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level (Raghunandan, 2021b).[9] Furthermore, I winsorize the variable FIN_MISCON only at the upper tail at the 1% level.[10]

I include the empirical proxy return on assets (ROA) to control for the effect of firm performance (Aharony et al. 2015). I measure this proxy as the net income divided by the total assets. As documented by prior literature (Gao et al. 2017; Li, 2018; Suk et al. 2020), I expect a negative association between ROA and forced CEO turnover. To control for firm size, I include the natural logarithm of the total assets (LOG_TA). Following Suk et al. (2020), I expect a negative association between firm size and CEO turnover. To account for financial distress, I include leverage. I measure this as the sum of the long-term debt and debt in current liabilities divided by the total assets (LEVERAGE). I expect a positive association between leverage and forced CEO turnover, because financially distressed firms replace their CEOs more often (Gilson, 1989). Baker et al. (1999) illustrate that market capitalization is a suitable measure of firm visibility. To avoid multicollinearity, I include the natural logarithm of the total assets to measure firm visibility. In section 5.3 I replace LOG_TA by the natural logarithm of market capitalization (LOG_MARCAP).

[9] It is important to note that there is a general debate about the motivation of applying winsorization to outliers. Leone et al. (2019) point out that approaches such as winsorization and truncation are flawed. They propose that future research should consider using the robust regression method to deal with outliers.
[10] The variable FIN_MISCON obtained from the Violation Tracker database includes fines larger than 5,000$. Consequently, only the upper tail needs to be winsorized.

Following Lee et al. (2012), I incorporate CEO duality to control for CEO power. I capture CEO duality as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise (CEO_CHAIR). CEO duality can lead to an increase in the power of the CEO. This dual role can cause the CEO to entrench at the top of the organization and decreases the power of the board of directors to penalize the CEO (Finkelstein and D'aveni, 1994). Hence, I expect a negative association between CEO duality and forced CEO turnover.

Board controls are needed to account for coordination and objectivity issues. Following Peters and Wagner (2014), I include empirical proxies for board size and board independence. I measure board size as the total number of directors and executives that are classified as members of the board of directors in BoardEx (BOARD_SIZE). Jensen (1993) indicates that large boards face coordination and monitoring issues. Therefore, I expect a negative association between board size and forced CEO turnover. I measure board independence as the number of independent directors as a percentage of the total board size (BOARD_INDEP). Coles et al. (2008) explain that independent directors are considered more objective than dependent directors. Dependent directors are considered less objective, because they generally have stronger ties with executives of the firm. Hence, I expect a positive association between board independence and forced CEO turnover.

Besides labor and environmental violations, firms could also experience enforcement actions on other types of misconduct. I incorporate these other violations to control for the effect of additional types of enforcement actions. The other violations will be labelled as financial-related offenses (FIN_MISCON). [11] This dummy variable equals 1 for firms that experienced enforcement actions on financial misconduct and 0 for firms that did not. Based on prior literature (Karpoff and Lou, 2008; Karpoff et al. 2008ab; Feroz et al. 1991), I expect a positive association between enforcement actions on financial misconduct and forced CEO turnover.

4.3 Sample selection

Based on the Global Company Key (GVKEY), I match the turnover data with the CIK of the Violation Tracker data from Good Jobs First. Important to note is that the Violation Tracker

[11] The other violations comprise all violations in the following offense groups: competition-related offenses, consumer-protection-related offenses, financial offenses, governmental-contracting-related offenses, healthcare-related offenses, miscellaneous offenses and safety-related offenses. In terms of volume of the other violations, financial offenses comprise around 70% of the total volume. Therefore, I label these other violations as financial misconduct.

data reflects the current parent of a subsidiary. This is a problem when linking regulatory fines to the corresponding firm, because for some firms the current parent differs from the parent at the time of the violation. For instance, it could be the case that subsidiary X received a regulatory fine in 2010. At that time parent Y had control over subsidiary X. However, if parent Z would acquire subsidiary X in 2015, the Violation Tracker data only shows the current parent-subsidiary link. Hence, the misconduct would be linked to the wrong parent (linked to parent Z instead of Y). To mitigate this deficiency, I obtain CIK codes at the time of each violation. In cases when the current parent deviates from the parent at the time of the violation, I use the latter.[12]

The Violation Tracker data covers all the regulatory fines between 2000 and 2020. The CEO turnover data contains all forced turnovers that occurred between 1993 and 2019. Given the time lag of t-1,+2 between regulatory fines and turnover, I include all forced CEO turnovers between 1999 and 2019. Accordingly, I incorporate the violation tracker data of the years between 2000 and 2017. Since the Violation Tracker data comprises only firms from the U.S., I will focus solely on firms located in this country.

The data collection starts with obtaining all firms in which a forced CEO turnover occurred. Based on the dataset containing all manual classified CEO turnovers (Jenter and Kanaan, 2015; Peters and Wagner, 2014), I start with 1,149 turnovers in 876 firms from the period 1999-2019. To link the parent-level CEO turnover data to the Violation Tracker data, I use Compustat North America to obtain the CIK code. Consequently, I group all the subsidiaries that are linked to a parent between 2000 and 2017 at the firm-year level. After inputting the 876 firms in Compustat North America, 223 firms are excluded that were not available. After obtaining data from BoardEx, 63 more firms are excluded because they were not covered by the database. Finally, 3,715 firm-years are removed due to missing data points that are the result of database restrictions. Panel A of Table 1 shows that the total sample comprises 6,905 firm-year observations over 571 unique firms.

Panel B of Table 1 reports the sample distribution among the four subsamples. Most of the firm-year observations relate to the subsample that comprises observations in which no enforcement actions and forced CEO turnovers occurred (4,385 firm-years). 266 firm-years are included in

[12] Aneesh Raghunandan and his research assistant of the London School of Economics have checked the parent-subsidiary link at the time of each violation. Professor Raghunandan has provided me with a dataset containing the parent-subsidiary link at the time of each violation. This data is used in the papers: Raghunandan, 2021a&b.

the sample in which enforcement actions on non-financial misconduct can be linked to a replacement of the CEO (given the time lag of t-1,+2). Panel C shows the distribution of the misconduct variable that I use to test hypothesis 2. Group 1 contains the firm-year observations having fines for non-financial misconduct higher than the median volume of 85,000$ (1) and all other observations (0). Group 2 comprises regulatory fines that were below the median volume of 85,000$ (1) and all other observations (0). The 3 observations equal to 85.000$ are excluded from both samples.

Table 1: Sample structure

Table 1 presents the final sample that I use for empirical testing. Panel A presents the total sample and Panel B the subsamples. Panel C comprises the distribution of the misconduct variable that I use to test hypothesis 2. Note that the number of firms included in the final sample is not equal to the sum of the firms reported in all four subsamples*. This can be explained by the fact that one firm could have multiple observations that belong to different subsamples.

Panel A: Total sample

	Firms	Firm-years
Start: All firms-years between 2000-2017 that experienced a forced CEO turnover between 1999 and 2019	876	15,768
Less: Missing firms from Compustat North America	(223)	(4,014)
Less: Missing firms from BoardEx	(63)	(1,134)
Less: Missing data points due to database restrictions	(19)	(3,715)
Final Sample	571	6,905

Panel B: Subsamples

	Firms	Firm-years
Subsample 1: Enforcement actions + CEO turnover	147	266
Subsample 2: No enforcement actions + CEO turnover	487	1,592
Subsample 3: Enforcement actions + No CEO turnover	209	662
Subsample 4: No enforcement actions + No CEO turnover	544	4,385
Final Sample	571*	6,905

Panel C: Composition misconduct variable hypothesis 2

	Firm-years without fine	Firm-years with fine
Group 1: MISCON_HIGH	5,977	463
Group 1: MISCON_LOW	5,977	462

5. Results

5.1 Descriptive statistics and distribution across years and industries

Table 2 presents the descriptive statistics for the variables that I incorporate for empirical analyses. For the variable CEO_TURN, it seems that most firm-year observations do not involve a CEO replacement. This is in line with the data presented in panel B of Table 1. The (extreme) minimum values of LEVERAGE and ROA can respectively be explained by negative stockholders' equity and negative net income. The descriptive statistics for the additional control variables seem plausible.

Table 2: Descriptive statistics

Table 2 presents the descriptive statistics on all variables that are included in the final sample.

Variable	Mean	Median	SD	Min	P25	P75	Max	N
CEO_TURN (t-1,+2)	0.27	0.00	0.44	0.00	0.00	1.00	1.00	6,905
NONFIN_MISCON (t0)	0.13	0.00	0.34	0.00	0.00	0.00	1.00	6,905
FIN_MISCON (t0)	0.17	0.00	0.37	0.00	0.00	0.00	1.00	6,905
LEVERAGE (t0)	0.61	0.39	2.04	-10.73	0.02	0.87	11.96	6,905
LOG_TA (t0)	7.45	7.34	1.73	2.03	6.25	8.53	13.59	6,905
LOG_MARCAP (t0)	7.46	7.33	1.74	3.33	6.33	8.51	12.18	6,905
INDEX (t0)	0.22	0.00	0.42	0.00	0.00	0.00	1.00	6,905
ROA (t0)	2%	4%	13%	-62%	1%	9%	29%	6,905
CEO_CHAIR (t0)	0.04	0.00	0.19	0.00	0.00	0.00	1.00	6,905
BOARD_SIZE (t0)	9.50	9.00	2.91	4.00	8.00	11.00	32.00	6,905
BOARD_INDEP (t0)	67%	70%	13%	27%	60%	75%	89%	6,905

Table 3 presents distributions of the sample and (key) variables across years and industries. Panel A of Table 3 reports the regulatory fines and turnovers, as a percentage of the total, grouped by industry. Most enforcement actions on non-financial misconduct occurred in the Mining industry. Conversely, most financial violations occurred in the Manufacturing industry. Few forced CEO turnovers occurred in the Mining industry and almost 50% of the turnovers occurred in the Manufacturing industry. Hence, preliminary analysis shows that the Manufacturing industry is associated with both a high number of turnovers and a high volume of regulatory fines. Panel B of Table 3 shows the fines and turnovers for different categories of misconduct grouped by year. The number of forced CEO turnovers has remained relatively stable over time. The volume of non-financial and financial misconduct has fluctuated over time.

Table 3: Sample and variable distribution across years and industries

Table 3 presents the sample and variable distribution across years and industries. Panel A presents the distribution of the turnover and misconduct variables, as a percentage of the total, grouped by industry (based on the North American Industry Classification System). Panel B presents the distribution of the turnover and misconduct variables, as a percentage of the total, grouped by year. Note that the distribution of the variables that I use in this research deviates from the original Violation Tracker data and forced CEO turnover data.

Panel A: Violations and turnovers by industry

Industry	**CEO_TURN**	**NONFIN_MISCON**	**FIN_MISCON**
Information	10%	7%	3%
Manufacturing	46%	22%	57%
Transportation and Warehousing	2%	4%	8%
Wholesale Trade	4%	3%	3%
Professional, Scientific, and Technical Services	7%	1%	1%
Administrative, Support and Waste Management	3%	0%	0%
Retail Trade	10%	14%	4%
Mining	3%	26%	0%
Real Estate Rental and Leasing	1%	1%	0%
Finance and Insurance	1%	1%	8%
Accommodation and Food Services	3%	2%	0%
Health Care and Social Assistance	2%	3%	13%
Agriculture, Forestry, Fishing and Hunting	0%	0%	0%
Utilities	3%	13%	1%
Construction	1%	1%	1%
Educational Services	1%	0%	0%
Arts, Entertainment, and Recreation	1%	0%	0%
Other Services (except Public Administration)	1%	0%	0%
Non classifiable	0%	1%	1%
Total	100%	100%	100%

Panel B: Violations and turnovers by year

Year	CEO_ TURN	NONFIN_MISCON	FIN_MISCON
1999	4%	0%	0%
2000	5%	4%	0%
2001	3%	4%	0%
2002	3%	2%	1%
2003	5%	2%	7%
2004	4%	2%	5%
2005	5%	3%	6%
2006	5%	4%	10%
2007	7%	7%	3%
2008	5%	4%	6%
2009	5%	6%	15%
2010	5%	3%	4%
2011	5%	4%	6%
2012	6%	7%	5%
2013	5%	25%	5%
2014	5%	8%	8%
2015	6%	6%	7%
2016	5%	4%	8%
2017	5%	3%	3%
2018	5%	0%	0%
2019	2%	0%	0%
Total	100%	100%	100%

Table 4 presents the correlation coefficients among the variables that I use for empirical testing. Due to the skewed distribution of the variables, I obtain both the Pearson and Spearman correlations. A rule of thumb for severe multicollinearity problems is when the correlations exceed the threshold of 0.8 (Lee and Hsieh, 1985). The Pearson (Spearman) correlations show that this problem arises due to the correlation of 0.87 (0.86) between LOG_TA and LOG_MARCAP. Therefore, these two variables will not be used in the same regression.

Table 4: Correlation matrix

The table below presents the correlation coefficients among the variables that I use for empirical testing. The correlations below (above) the diagonal present the Pearson (Spearman) correlations.

	CEO_TURN	NONFIN_MISCON	FIN_MISCON	LEVERAGE	LOG_TA	LOG_MARCAP	INDEX	ROA	CEO_CHAIR	BOARD_SIZE	BOARD_INDEP
CEO_TURN	**1**	0.02	0.01	0.005	-0.02	-0.08	-0.04	-0.15	-0.02	-0.04	0.04
NONFIN_MISCON	0.02	**1**	0.34	0.15	0.30	0.25	0.21	0.03	-0.03	0.24	0.11
FIN_MISCON	0.01	0.34	**1**	0.21	0.38	0.32	0.30	0.04	-0.03	0.29	0.13
LEVERAGE	0.002	0.07	0.10	**1**	0.44	0.25	0.18	-0.16	-0.01	0.32	0.13
LOG_TA	-0.03	0.33	0.40	0.17	**1**	0.86	0.55	0.10	-0.03	0.65	0.22
LOG_MARCAP	-0.08	0.27	0.33	0.09	0.87	**1**	0.61	0.36	-0.02	0.57	0.16
INDEX	-0.04	0.21	0.30	0.07	0.58	0.64	**1**	0.17	-0.04	0.42	0.08
ROA	-0.15	0.06	0.07	0.01	0.22	0.37	0.14	**1**	0.02	0.11	-0.001
CEO_CHAIR	-0.02	-0.03	-0.03	-0.02	-0.02	-0.01	-0.04	0.01	**1**	-0.04	-0.01
BOARD_SIZE	-0.04	0.25	0.29	0.11	0.60	0.54	0.41	0.15	-0.03	**1**	0.19
BOARD_INDEP	0.05	0.10	0.12	0.04	0.20	0.16	0.08	0.06	-0.01	0.10	**1**

5.2 Multiple regression analysis

Table 5 presents the probit regression results of hypothesis 1. The prediction is that enforcement actions on non-financial misconduct will increase the likelihood of a forced CEO turnover. Column 3 reports a significant positive coefficient of 0.276 for the variable NONFIN_MISCON (t-stat=2.577***). The marginal effect of 0.095 indicates that incurring any enforcement action on non-financial misconduct increases the probability of forced CEO turnover in period t-1,t+2 with 9.5%. For other control variables such as CEO_CHAIR and BOARD_INDEP, the marginal effects are respectively -4.8% and 14.4%. Compared to these marginal effects, the economic significance of the variable NONFIN_MISCON can be considered rather high. Concerning the variable FIN_MISCON, the sign is not in line with the predictions. The coefficient is even marginally significant, meaning that having any enforcement action on financial misconduct would decrease the probability of forced CEO turnover in period t-1,+2. This implication is not in line with prior research.

In line with expectations, the signs and coefficients of the variables ROA ($p<0.01$), CEO_CHAIR ($p<0.1$) and BOARD_INDEP ($p<0.01$) are significant. I do not find significant coefficients for the variables LEVERAGE, LOG_TA and BOARD_SIZE. The sign of BOARD_SIZE is in line with the expectations. The McFadden Pseudo R2 indicates that the independent variables explain roughly 4.1% of the variation in the dependent variable. Prior literature examining determinants of CEO turnover finds a Pseudo R2 ranging from 3%- 20%[13]. This suggests that the explanatory power of the model that I use in this research is quite low compared to prior literature.

[13] Most papers examining determinants of CEO turnover obtain a Pseudo R2 of around 8%. See the following papers: Suk et al. (2020); Aharony et al. (2015); Li, (2018); Gao et al. (2017); Unsal and Rayfield (2019); Fiordelisi and Ricci (2014).

Table 5: Probit regression results for the relation between enforcement actions on non-financial misconduct and forced CEO turnover

	Dependent variable:		
	CEO_TURN		
	Predict. sign	(1)	Marginal effect
NONFIN_MISCON	+	**0.276*** **	**0.095*** **
		(2.577)	
FIN_MISCON	+	-0.185*	0.057*
		(-1.871)	
LEVERAGE	+	0.005	0.002
		(0.671)	
LOG_TA	-	0.016	0.005
		(1.153)	
ROA	-	-1.611***	-0.523***
		(-12.813)	
CEO_CHAIR	-	-0.156*	-0.048*
		(-1.737)	
BOARD_SIZE	-	-0.011	-0.003
		(-1.445)	
BOARD_INDEP	+	0.443***	0.144***
		(2.923)	
Constant		-1.235***	
		(-3.020)	
Observations		6,905	
Year-fixed effects		Yes	
Industry-fixed effects		Yes	
McFadden Pseudo R2		0.041	

Table 5 presents the probit regression results for hypothesis 1. For this regression, the effect of NONFIN_MISCON on CEO_TURN is of main interest. NONFIN_MISCON is a dummy variable that equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 if they did not. CEO_TURN is a dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

Table 6 presents the probit regression results of hypothesis 2. I expect that a higher magnitude of fines will increase the indirect costs of the misconduct. Consequently, a more costly response will be selected by the firm. Column 2 presents a significant positive coefficient of 0.307 for the variable MISCON_HIGH (t-stat.= 2.637***). The marginal effect of 0.105 suggests that there is an increased probability of 10.5% that the CEO is replaced in period t-1,+2 when above-median volume enforcement actions on non-financial misconduct take place in period t0. The coefficient of the variable MISCON_LOW is negative and insignificant (t-stat.= -0.671). This sign is not in line with prior expectations. The signs and significance of the control variables are similar to Table 5.

Table 6: Probit regression results for the relation between different levels of violations and forced CEO turnover

	Dependent variable:	
	CEO_TURN	
	(1)	Marginal effect
MISCON_LOW	**-0.060**	**-0.019**
	(-0.671)	
MISCON_HIGH	**0.307*** **	**0.105*** **
	(2.637)	
FIN_MISCON	-0.185*	-0.058*
	(-1.874)	
LEVERAGE	0.005	0.002
	(0.670)	
LOG_TA	0.015	0.005
	(1.145)	
ROA	-1.610***	-0.522***
	(-12.803)	
CEO_CHAIR	-0.156*	-0.048*
	(-1.738)	
BOARD_SIZE	-0.011	-0.004
	(-1.468)	
BOARD_INDEP	0.444***	0.144***
	(2.930)	
Constant	-1.224***	
	(-2.995)	
Observations	6,905	
Year-fixed effects	Yes	
Industry-fixed effects	Yes	
McFadden Pseudo R2	0.041	

Table 6 presents the probit regression results for hypothesis 2. For this regression, the effect of different levels of violations on forced CEO turnover is of main interest. MISCON_HIGH(LOW) is a dummy variable that equals 1 for firm-years having regulatory fines for non-financial misconduct that are above (below) the median (in terms of volume) and 0 otherwise. CEO_TURN is a dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

Table 7 presents the probit regression result for hypothesis 3. When linking visibility to forced CEO turnover, it is sensible that more visible firms face higher indirect costs when they are penalized for enforcement actions on non-financial misconduct. For this hypothesis, the interaction between NONFIN_MISCON and LOG_TA is of main interest. For interpretation purposes, LOG_TA is included in the interaction term as a dummy. The coefficient of -0.066 for the interaction term indicates an insignificant association with forced CEO turnover (t-stat=-0.556). The marginal effect of -0.021 even suggests that if visible firms encounter enforcement actions on non-financial misconduct, the CEO faces a decrease of 2.1% in the likelihood of being replaced in a visible firm in period t-1,+2.

Table 7: Probit regression results for the moderating effect of firm visibility on forced CEO turnover

	Dependent variable:	
	CEO_TURN	
	(1)	Marginal effect
NONFIN_MISCON	0.145	0.049
	(1.400)	
FIN_MISCON	0.025	0.008
	(0.487)	
LEVERAGE	0.005	0.002
	(0.656)	
LOG_TA	0.015	0.005
	(0.794)	
LOGTA_DUMMY	0.007	0.002
	(0.126)	
NONFIN_MISCON x LOGTA_DUMMMY	**-0.066**	**-0.021**
	(-0.556)	
ROA	-1.607***	-0.522***
	(-12.735)	
CEO_CHAIR	-0.155*	0.048*
	(-1.726)	
BOARD_SIZE	-0.011	0.004
	(-1.461)	
BOARD_INDEP	0.353**	0.115**
	(2.457)	
Constant	-1.184***	
	(-2.884)	
Observations	6,905	
Year-fixed effects	Yes	
Industry-fixed effects	Yes	
McFadden Pseudo R2	0.040	

Table 7 presents the probit regression results for hypothesis 3. For this regression, the interaction between NONFIN_MISCON and LOG_TA is of main interest. NONFIN_MISCON is a dummy variable that equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 if they did not. CEO_TURN is a dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. LOGTA_DUMMY is a dummy variable that equals 1 when the natural logarithm of the total assets was above the median and 0 otherwise. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman / President / CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

Overall, Table 5 presents a significant positive association between enforcement actions on non-financial misconduct and forced CEO turnover (marginal effect of 9.5%). Table 6 indicates that this effect increases for higher magnitudes of fines (marginal effect of 10.5%). Table 6 also suggests that lower levels of enforcement actions on non-financial misconduct are not significantly associated with forced CEO turnover (marginal effect of -1.9%). Collectively, this suggests that firms choose a costly action (CEO turnover) to respond to enforcement actions on non-financial misconduct, and especially when the indirect costs of the misconduct are high. Furthermore, Table 7 shows that more visible firms do not replace their CEO more often in response to enforcement actions on non-financial misconduct.

5.3 Additional analysis

To gauge the robustness of the findings of this research, I select different turnover intervals, variable definitions and regression specifications. To extend the analysis of the timing of forced CEO turnovers, I change the time lag of t-1,+2 to t-3,+2;t-2,+2;t-1;+3 and t-1,+4. To enhance the construct validity, I select a different split for hypothesis 2 to divide the regulatory fines into low and high. Instead of the median split, I divide the sample based on tertiles: group 1 containing the 33% highest levels of regulatory fines (in terms of volume) and group 2 the 66% lowest. Furthermore, I introduce different proxies for visibility. Following the paper of Baker et al. (1999) I replace LOG_TA in the interaction effect and as a control variable by the market capitalization.[14] Furthermore, following Gamerschlag et al. (2011), I include index membership as a proxy for visibility. Finally, I retest all hypotheses using linear probability regressions to analyse deviations from the probit regression.

5.3.1 Timing of forced CEO turnover

To further investigate the timing of CEO replacements, I take different intervals into account. Model 1 and 2 of Appendix B keep the post-period constant and extend the pre-enforcement period by 1 year. Models 4 and 5 keep the pre-period constant and extend the post enforcement period by 1 year. When extending the pre-period, the statistical significance increases relative to the time lag of t-1,+2. This suggests that firms already respond to corporate wrongdoing before enforcement agencies are involved in examining the non-financial misconduct.[15] Model 4 and 5

[14] Market capitalization replaces the variable LOG_TA as a control variable due to the correlation of > 0.80.

[15] Note that in some cases the complexity of the misconduct leads to an extensive investigation by enforcement agencies. In these situations, the moment a firm was fined can be several years after the start of the regulatory investigation. Consequently, CEO turnover can then be linked to the enforcement actions that started several years prior to the moment the firm was fined.

show that extending the post-period results in (less) significant coefficients. This suggests that firms take actions to minimize the (indirect) costs of the misconduct up to several years after the enforcement actions have ended.

5.3.2 Construct validity

Appendix C presents the effect of different levels of enforcement actions on forced CEO turnover. The dummy MISCON_HIGH now equals 1 when the volume of regulatory fines for non-financial misconduct is in the top tertile and 0 otherwise. [16] The statistical significance of this new split is higher than the median split I use in the main analysis section. The increase of the marginal effect from 10.5% to 13% implies that higher levels of misconduct result in an even higher likelihood that the CEO is replaced in period t-1,+2. The significant coefficient of the variable MISCON_LOW in column 1 is plausible, because the effect of larger regulatory fines is now incorporated in the MISCON_LOW variable.

Appendix D presents the moderating effect of firm visibility on forced CEO turnover for different proxies of visibility. Model 1 presents a negative and significant coefficient of -0.121 for the variable INDEX (t-stat =-2.362). This coefficient suggests that forced CEO turnover occurs more frequently in firms that are not listed in the S&P 500. The coefficient of LOG_MARCAP is also significant (t-stat.=-2.581). Collectively this suggests that forced CEO turnover more frequently occurs in less visible firms. The interaction term of both proxies of visibility is insignificant[17]. In contrast to the results in the main analysis section, the signs of the interaction terms for both proxies of visibility are positive. The marginal effect of the interaction between NONFIN and INDEX (LOGMARCAP_DUMMY) is 5.0% (3.3%). Despite the statistical insignificance of the coefficients, the economic magnitude can be considered moderate. Overall, there is some evidence that the positive association between enforcement actions on non-financial misconduct and forced CEO turnover increases with the visibility of the firm.

5.3.3 Regression designs

Appendix E presents the results of hypothesis 1 using a probit and linear probability model. Logit and probit regression models have minor dissimilarities. [18] Some disadvantages of using Linear

[16] Based on the tertile split, I link 306 firm-year observations with a penalty exceeding 334.411$ to the MISCON_HIGH variable. Consequently, I link 622 firm-year observations to the MISCON_LOW variable. I exclude 1 firm-year observation that equals 334.411$.
[17] Including more indexes such as the NASDAQ and FTSE 100 does not change this inference with respect to the variable INDEX.
[18] Logit uses the cumulative logistic probability function to transform the predictor variables, while probit uses the normal probability function. The output for both models is similar (Stone and Rasp, 1991).

probability models (compared to probit/logit) relate to the normality assumption about error terms and predicted probabilities of greater than one or less than zero (Stone and Rasp, 1991). One advantage of using linear probability models is that they allow for direct interpretation of the economic magnitude of the coefficients. Furthermore, linear probability models are less sensitive to fixed effects than probit/logit models (Gomila, 2020).

Appendix D shows that there are minor differences between the linear probability and probit regressions. Despite the differences in the coefficients, the results are not significantly affected when applying logit or linear probability models.[19]

6. Conclusion

I examine whether enforcement actions on non-financial misconduct affect forced CEO turnover. Based on 732 forced replacements between 1999 and 2019 in the U.S., I provide evidence that there is a significant positive association between enforcement actions on non-financial misconduct and forced CEO turnover (H1 accepted). Cross-sectional analysis shows that a high magnitude of fines results in even more significant results. Conversely, a low magnitude of fines does not significantly affect a forced CEO turnover in period t-1,+2. Additional analysis suggests that the statistical and economic significance increases when using a tertile split instead of a median split to categorise the volume of regulatory fines as high or low. Collectively, this suggests that firms choose a costly action (CEO turnover) to respond to enforcement actions on non-financial misconduct, and in particular for high magnitudes of regulatory fines (H2 accepted).

Using three different proxies for visibility, I find no statistically significant evidence for the moderating effect of firm visibility (H3 rejected). However, using market capitalization and index membership as alternative proxies for visibility results in moderate economically significant coefficients. This implies that I find some evidence that firm visibility moderates the association between enforcement actions on non-financial misconduct and forced CEO turnover. More research is required to draw reliable conclusions on this matter.

Extending the analysis of the timing of CEO replacements shows that enlarging the pre-period results in significant coefficients for the intervals t-3,+2 and t-2,+2. This suggests that firms respond to non-financial misconduct before enforcement agencies get involved. Additionally, the moderately significant coefficients for the intervals t-1,+3 and t-1,+4 imply that CEOs are

[19] All hypotheses have been retested using linear probability models, but only the results for hypothesis 1 have been included. Both the statistical and economic significance do not change significantly for hypothesis 2 and 3 when applying linear probability models.

replaced up to several years after regulatory agencies have imposed fines for non-financial misconduct. Applying linear probability models would not have significantly changed the above inferences.

To enforcement agencies, the findings of this research suggest that firms replace their CEO as a response to non-financial misconduct. Therefore, this research provides enforcement agencies insights into what actions firms take to mitigate and resolve future misconduct. In line with the call of Brickley (2003) to consider less explored determinants of CEO turnover, this research analyses a (new) determinant of CEO turnover that goes beyond and above the general turnover performance sensitivity. For academic research, the findings imply that enforcement actions on non-financial misconduct can help to better understand CEO turnovers. The findings on the timing of forced CEO turnover suggest that CEO turnover does not occur in a fixed time period. Future research might dive deeper into the timeline of CEO turnover.

The empirical results reported in this research should be considered in light of some limitations. The first limitation concerns the sample size. Due to the availability of Violation Tracker data of 20 years, a portion (9 out of 29 years) of the forced CEO turnover data could not be used in this research. Suggestions for future research are to supplement the Violation Tracker data with other sources that provide enforcement data for the period 1990-2000. An alternative solution could be to wait until Good Jobs First has expanded the violation tracker data to 1990. [20]

The second caveat relates to the geographical limitation of the sample. Due to the sole focus of the Violation Tracker data on U.S.-based firms, the inferences that are made in this research cannot be generalized to the entire population (i.e., the entire world). Hence, future research should investigate whether the same conclusions can be drawn for other geographical locations.

The third limitation of this research concerns the subjectivity of classifying a turnover as forced. Although there are clear criteria for classifying a turnover as forced, classification errors can be made when interpreting the classification criteria. For example, a turnover is classified as forced when the press article stated that the CEO left the company due to unspecified policy differences. The term ‘unspecified policy differences’ leaves room for subjectivity and therefore it is important to interpret the results with some caution.

For future research it would be interesting to focus on cross-sections regarding the type of non-financial misconduct. Maybe some types of non-financial misconduct lead to higher reputational

[20] Good Jobs first indicates that in the near future the Violation Tracker data will be extended to a longer period. Furthermore, lawsuit data will be incorporated.

costs and therefore are associated with a larger increase in the likelihood of a forced CEO turnover. Moreover, future research might analyse which types of enforcement actions have the largest probability of a lawsuit. Collectively, this will provide more insights into the indirect costs of enforcement actions on (non-financial) misconduct.

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APPENDIX A: Variable Definition

The appendix below presents the names, descriptions and data sources of the variables that I use in this research.

Variable	Description	Data source
NONFIN_MISCON	Dummy variable that equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 for firms that did not. Enforcement actions are measured as the dollar amount of the regulatory penalty.	Good Jobs First: Violation Tracker Data
FIN_MISCON	Dummy variable that equals 1 for firms that experienced enforcement actions on financial misconduct and 0 for firms that did not. [21]	Good Jobs First: Violation Tracker Data
CEO_TURN	Dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 if no forced turnover occurred in this period.	Execucomp
LEVERAGE	Leverage is an empirical proxy of financial distress. This is computed as the long-term debt and debt in current liabilities divided by the total assets.	Compustat North America
LOG_TA	The total assets of a firm are an empirical proxy of firm size and visibility. This is computed as the natural logarithm of the total assets.	Compustat North America
LOGTA_DUMMY	Dummy variable that equals 1 when the natural logarithm of the total assets is above the median and 0 otherwise.	Compustat North America
ROA	Return on assets is an empirical proxy of firm performance. This is computed as the net income divided by the total assets.	Compustat North America

[21] This dummy variables equals 1 for firm-years having one of the following offenses: competition-related offenses, consumer-protection-related offenses, financial offenses, governmental-contracting-related offenses, healthcare-related offenses, miscellaneous offenses and safety-related offenses.

APPENDIX A — Continued

Variable	Description	Data source
CEO_CHAIR	CEO_CHAIR is an empirical proxy of CEO power. I capture this variable as a Dummy that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise.	Execucomp
BOARD_SIZE	Board size is an empirical proxy of coordination problems. I compute this variable as the total number of directors and executives on the board of directors.	BoardEx
BOARD_INDEP	Board independence is an empirical proxy of board objectivity. I compute this as the number of independent directors divided by the total board size.	BoardEx
MISCON_HIGH	Dummy variable that equals 1 for firms-years having regulatory fines for non-financial misconduct that are above the median (in terms of volume) and 0 otherwise.	Good Jobs First: Violation Tracker Data
MISCON_LOW	Dummy variable that equals 1 for firm-years having regulatory fines for non-financial misconduct that are below the median (in terms of volume) and 0 otherwise.	Good Jobs First: Violation Tracker Data
INDEX	Index membership is an empirical proxy of firm size and is captured as a dummy variable that equals 1 for firm-years that are listed in the S&P 500 index and 0 otherwise.	CRSP
LOG_MARCAP	Market capitalization is an empirical proxy of firm size and visibility. I measure this as the natural logarithm of the market capitalization.	Compustat North America
LOGMARCAP_DUMMY	Dummy variable that equals 1 when the natural logarithm of the market capitalization was above the median and 0 otherwise.	Compustat North America

APPENDIX B: Timing of forced CEO turnover

	Dependent variable:				
	CEO_TURN				
	t-3,+2	t-2,+2	t-1,+2	t-1,+3	t-1,+4
	(1)	(2)	(3)	(4)	(5)
NONFIN_MISCON	**0.310*** **	**0.385*** **	**0.276*** **	**0.238** **	**0.173***
	(2.962)	**(3.691)**	**(2.577)**	**(2.312)**	**(1.722)**
FIN_MISCON	-0.146	-0.232**	-0.185*	-0.185*	-0.204**
	(-1.520)	(-2.417)	(-1.871)	(-1.959)	(-2.211)
LEVERAGE	-0.0003	0.002	0.005	0.007	0.010
	(-0.036)	(0.269)	(0.671)	(0.875)	(1.267)
LOG_TA	0.003	0.010	0.016	0.011	0.010
	(0.235)	(0.733)	(1.153)	(0.817)	(0.775)
ROA	-1.472***	-1.590***	-1.611***	-1.504***	-1.421***
	(-11.821)	(-12.757)	(-12.813)	(-12.162)	(-11.527)
CEO_CHAIR	-0.190**	-0.202**	-0.156*	-0.186**	-0.189**
	(-2.150)	(-2.305)	(-1.737)	(-2.172)	(-2.285)
BOARD_SIZE	-0.015**	-0.015**	-0.011	-0.006	-0.005
	(-2.035)	(-2.131)	(-1.445)	(-0.896)	(-0.670)
BOARD_INDEP	0.337**	0.453***	0.443***	0.266*	0.192
	(2.271)	(3.086)	(2.923)	(1.843)	(1.368)
Constant	-1.624***	-1.343***	-1.235***	-0.788**	-0.441
	(-3.770)	(-3.288)	(-3.020)	(-1.996)	(-1.133)
Observations	6,905	6,905	6,905	6,905	6,905
Year-fixed effects	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes
McFadden Pseudo R2	0.047	0.045	0.041	0.035	0.032

Appendix B presents the probit regression results of hypothesis 1 for different time intervals. For this regression the effect of NONFIN_MISCON on CEO_TURN is of main interest. NONFIN_MISCON is a dummy variable that equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 if they did not. CEO_TURN is a dummy variable that equals 1 for a forced turnover in the period that is indicated in the column name 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

APPENDIX C: Alternative split of regulatory fines

	Dependent variable:			
	CEO_TURN			
	33%-67%	Marginal effect	50%-50%	Marginal effect
MISCON_HIGH	**0.367*** **	**0.130*** **	**0.307*** **	**0.105*** **
	(2.946)		**(2.637)**	
MISCON_LOW	**0.233** **	**0.080** **	**-0.060**	**0.069**
	(2.091)		**(-0.671)**	
FIN_MISCON	-0.185*	-0.058*	-0.185*	-0.056*
	(-1.877)		(-1.874)	
LEVERAGE	0.006	0.002	0.005	0.002
	(0.689)		(0.670)	
LOG_TA	0.015	0.006	0.015	0.005
	(1.134)		(1.145)	
ROA	-1.609***	-0.522***	-1.610***	-0.522***
	(-12.794)		(-12.803)	
CEO_CHAIR	-0.156*	-0.048*	-0.156*	-0.048*
	(-1.731)		(-1.738)	
BOARD_SIZE	-0.011	-0.004	-0.011	-0.003
	(-1.512)		(-1.468)	
BOARD_INDEP	0.444***	0.1443***	0.444***	0.143***
	(2.929)		(2.930)	
Constant	-1.209***		-1.224***	
	(-2.957)		(-2.995)	
Observations	6,905		6,905	
Year-fixed effects	Yes		Yes	
Industry- fixed effects	Yes		Yes	
McFadden Pseudo R2	0.041		0.041	

Appendix C presents the probit regression results for hypothesis 2 using a 1/3 (high) and 2/3(low) split. For this regression the effect of different levels of violations on forced CEO turnover is of main interest. MISCON_HIGH(LOW) is a dummy variable that equals 1 for firm-years having regulatory fines for non-financial misconduct that are in (below) the third tertile (in terms of volume) and 0 otherwise. CEO_TURN is a dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

APPENDIX D: Alternative proxies of firm visibility

	Dependent variable:			
	CEO_TURN			
	(1)	Marginal effect	(2)	Marginal effect
NONFIN_MISCON	0.060	0.020	0.060	0.020
	(0.915)		(0.644)	
FIN_MISCON	0.048	0.016	0.061	0.020
	(0.964)		(1.222)	
LEVERAGE	0.006	0.002	0.006	0.002
	(0.762)		(0.800)	
INDEX	-0.121**	-0.039**		
	(-2.362)			
NONFIN_MISCON x INDEX	**0.145**	**0.050**		
	(1.430)			
LOG_MARCAP			-0.047***	-0.015***
			(-2.581)	
LOGMARCAP_DUMMY			0.009	0.003
			(0.171)	
NONFIN_MISCON x LOGMARCAP_DUMMY			**0.099**	**0.033**
			(0.908)	
ROA	-1.552***	-0.504***	-1.415***	-0.459***
	(-12.571)		(-10.703)	
CEO_CHAIR	-0.161*	-0.050*	-0.149*	-0.046*
	(-1.794)		(-1.658)	
BOARD_SIZE	-0.003	-0.001	0.004	0.001
	(-0.386)		(0.504)	
BOARD_INDEP	0.381***	0.124***	0.420***	0.136***
	(2.680)		(2.935)	
Constant	-1.147***		-0.915**	
	(-2.829)		(-2.201)	
Observations	6,905		6,905	
Year-fixed effects	Yes		Yes	
Industry-fixed effects	Yes		Yes	
McFadden Pseudo R2	0.041		0.042	

Appendix D presents the probit regression results for hypothesis 3 using different proxies for firm visibility. NONFIN_MISCON equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 if they did not. CEO_TURN equals 1 for a forced turnover in period t-1,+2 0 otherwise. FIN_MISCON equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. INDEX equals 1 for firm-years that were listed in the S&P 500 index and 0 otherwise. LOG_MARCAP is computed as the natural logarithm of the market capitalization. LOGMARCAP_DUMMY equals 1 when the natural logarithm of the market capitalization was above the median and 0 otherwise. ROA is computed as the net income divided by the total assets. CEO_CHAIR equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).

APPENDIX E: Regression designs

	Dependent variable:	
	CEO_TURN	
	Probit	*Linear probability*
	(1)	(2)
NONFIN_MISCON	**0.276*** **	**0.084** **
	(2.577)	**(2.521)**
FIN_MISCON	-0.185*	-0.056*
	(-1.871)	(-1.838)
LEVERAGE	0.005	0.002
	(0.671)	(0.673)
LOG_TA	0.016	0.003
	(1.153)	(0.802)
ROA	-1.611***	-0.551***
	(-12.813)	(-13.436)
CEO_CHAIR	-0.156*	-0.043
	(-1.737)	(-1.591)
BOARD_SIZE	-0.011	-0.003
	(-1.445)	(-1.357)
BOARD_INDEP	0.443***	0.132***
	(2.923)	(2.805)
Constant	-1.235***	0.115
	(-3.020)	(0.861)
Observations	6,905	6,905
Year-fixed effects	Yes	Yes
Industry-fixed effects	Yes	Yes
R^2		0.047
Adjusted R^2		0.041
McFadden Pseudo R2	0.041	
F Statistic		7.243^{***}

Appendix E presents the regression results for hypothesis 1 using a probit, logistic and linear probability model. NONFIN_MISCON is a dummy variable that equals 1 for firms that experienced enforcement actions on non-financial (labor and environmental offenses) misconduct and 0 if they did not. CEO_TURN is a dummy variable that equals 1 for a forced turnover in period t-1,+2 and 0 otherwise. I include the other seven variables as control variables. FIN_MISCON is a dummy variable that equals 1for firms that experienced enforcement actions on financial misconduct and 0 otherwise. LEVERAGE is computed as the long-term debt and debt in current liabilities divided by the total assets. LOG_TA is computed as the natural logarithm of the total assets. ROA is computed as the net income divided by the total assets. CEO_CHAIR is captured as a dummy variable that equals 1 for executives that had the role 'Chairman/CEO' or 'Chairman/President/CEO' in BoardEx and 0 otherwise. BOARD_SIZE is computed as the total number of directors and executives on the board of directors. BOARD_INDEP is computed as the number of independent directors divided by the total board size. Al control variables are measured in period t0. I winsorize all control variables, except for discontinuous and log-transformed variables, at both tails at the 1% level. The signs *, **, and *** respectively indicate statistical significance at the 10 %, 5%, and 1% levels. The reported values are coefficients (t-values).