Bank Misconduct, Board Diversity and CEO Turnover

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ABSTRACT

This paper investigates corporate reactions to bank misconduct episodes. We test whether more diverse boards have a stronger disciplining effect and trigger 'changes at the top'. We consider misconduct fines issued by US regulators to EU listed banks during the period 2009-2018. We find that CEO dismissals are more likely following regulatory fines, but not during the investigation process. Board gender diversity does not seem to impact on boards' decision to fire the CEO, nor reinforce boards' disciplining effect in the presence of misconduct. The presence of foreign directors and age diversity increase the likelihood of CEO dismissal following regulatory sanctions.

Keywords: Misconduct, Gender diversity, CEO turnover, Board of directors, Bank

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1 Introduction

The growing trend in fines and enforcement actions by US bank regulators, particularly in the aftermath of the global financial crisis, suggests that banks are serious and repeated committers of corporate misconduct. The world's largest banks were hit with fines and related costs amounting to over USD 350 billion or 15% of total bank equity (Busetto et al., 2019). These misconduct episodes pose a threat not only to the soundness of individual financial institutions, but they also represent a cost for society, to the extent that they harm financial stability and trust in the financial sector. Financial misconduct may weaken banks, as they might experience significant losses both in terms of asset value and shareholders value (Palmrose et al., 2004; Altunbas et al., 2018). The associated reputational losses can harm customers and investors (Armour et al., 2017). In terms of the impact on financial stability, Busetto et al. (2019) estimate that, without misconduct costs, Euro area banks' net income could have been one-third higher over the period 2008-2018, potentially helping strengthen capital buffers. Moreover, confidence in the integrity of financial institutions is crucial for effective financial intermediation and to avoid possible adverse consequences for the real economy.

There is a large literature that investigates the causes and consequences of corporate misconduct, although less is known about bank misconduct. Focusing on the consequences of corporate misconduct, evidence suggests that sanctions tend to be imposed not only on the fraudulent firm itself but also on its senior management and directors (Srinivasan, 2005; Arthaud-Day et al., 2006; Fich and Shivdasani, 2007; Karpoff et al., 2008).

Despite the large scandals that have rocked the banking industry in recent years (from mis-selling of financial products to the violation of general rules and regulations related to the inappropriate supply of financial services, to banks' involvement in market rates manipulation), there is surprisingly scant evidence on the governance consequences of such

episodes. As the increase in bank misconduct events has developed in parallel with an increase in regulatory agencies' efforts and activities, one could conclude that there has been little "external" disciplinary impact of fines and argue that fundamental flaws in bank corporate governance must have impaired the ability of the board to impose internal discipline.

Are CEOs held accountable for bank misconduct? In this paper, we investigate corporate reactions to bank misconduct episodes. We posit that bank boards might manage investors' negative reactions to wrongdoing and recover lost reputational capital by signalling change, and therefore focus on CEO turnover. Much of the literature on CEO dismissal is grounded in agency theory, which posits that when firms do not perform well, an effective internal governance mechanism is to dismiss the CEO (Crossland and Chen, 2013). However, this literature has only uncovered a modest effect of firm performance on CEO dismissal; these results have been attributed to entrenchment and weak corporate governance (Weisbach 1988; Hermalin and Weisbach, 1998; Dikolli et al., 2014).

The decision of whether the board chooses to dismiss or retain its CEO is often explained by arguments about board independence or loyalty to the CEO. While these board characteristics might be important, the reaction to misconduct is likely to be influenced by directors' views and beliefs (Park et al., 2020). We expect misconduct events that lead to sanctions to have a stronger impact on the leadership of the bank than that of merely poor performance, as corporate misconduct serves as a signal of the underlying quality of the individuals employed by the firm. There is literature supporting the view that the negative repercussions of misconduct extend beyond the firm value to its executives, CEO and CFO, (Arthaud-Day et al., 2006; Agrawal and Cooper, 2017) and directors (Srinivasan, 2005) providing evidence of effective functioning of internal governance mechanisms and of the existence of an efficient director labour market. Adding to this stream of research, it has been

found that firms tend to dismiss or avoid appointing outside directors of fraudulent firms as they have been shown to be poor monitors (Srinivasan, 2005; Fich and Shivdasani, 2007). Such negative penalties are even more prominent in cases of directors considered to be in charge of monitoring and preventing financial misconduct (e.g., audit committee members) who tend to lose more existing appointments in non-fraudulent firms or achieve fewer new appointments (Srinivasan, 2005).

In contrast, there are studies that find little evidence that firms charged with fraud have higher managerial or directors' turnover (Agrawal et al., 1999). Anecdotal evidence also indicates that, in many cases, especially in the banking sector, boards have taken little or no action towards the CEO, even when they become aware of misconduct (Beneish et al., 2017), thus leading to the criticism that boards are ineffective in their monitoring role. It could be argued that CEO dismissals are costly, they attract considerable investor attention and media scrutiny, which could impact shareholders negatively and therefore boards only act when the CEO dismissal is in the interest of the firm. There is evidence that, even among employees who observe misconduct, only a few act upon it (Miceli and Near, 2005). Nonetheless, the likelihood of becoming a whistle-blower increases with the perceived severity of the wrongdoing (Arce, 2010), and by the greater social awareness of employees. Bereskin et al. (2020) find that more pro-social employees and members of the board of directors are associated with an increase in whistleblowing and increased forced CEO turnover.

The disciplining effect of boards, whereby a misconduct investigation leading to a regulatory sanction is associated with a higher CEO turnover, is not obvious. Misconduct episodes happen frequently, for some banks repeatedly, and unless there is a big scandal, the CEO is likely to stay in office. There is little in the current literature to foster the understanding of what prompts boards to take strong action against a CEO on discovery of misconduct. To this end, we focus on a sample of EU listed banks and consider the fines they

received in the post-crisis period (2009-2018) related to misconduct events such as tax evasion, money laundering, market manipulation, and fraud. For identification purposes, we focus on the fines issued by US regulatory bodies to European banks. We base this decision on two considerations. Firstly, during this period, the activism of US regulators on European banks was exceptional both in reach and severity of fines.[2] Second, we exploit the fact that US regulators can impose fines not only on banks operating in the US, but on all transactions that pass through its financial system to US and non-US persons, entities, and institutions (Arnaboldi et al., 2021). This setup allows us to mitigate possible regulatory bias, as we expect that board members in our sample of European listed banks have no or weak influence on the outcome of US regulatory investigations, and focus on the misconduct rather than on the potential relationships between board members and regulators.

Next, we retrieve information on the four-year period surrounding the fines. Starting from the date of the sanction, that is, when the penalty imposed on the bank becomes final and public, we build two time-windows for our analysis. First, we consider the two-year period prior to the sanction. During this period, it is likely that the board has become aware of the misconduct as the investigations are ongoing. This could result in the CEO being punished for the misconduct. In this context, we investigate whether the board acts to discipline the CEO based on private information as the investigation may not yet be public. Gao et al. (2017) have shown an abnormal turnover level for outside directors prior to the public disclosure of the fraud which favours the contention that directors are aware of the fraud during the time when it is committed, but not yet revealed to the public, and hence depart to forfeit the reputational cost. Female directors, directors that own more of the company's

[2] US regulators have hit foreign financial institutions particularly hard over the last 10 years: European banks have been fined four times more than their US counterparts, representing 77 per cent of the total of all fines levied by US regulators since 2008 (Fenergo, 2018).

shares and those that have multiple board seats are more likely to depart the fraud committing firms during the fraud committing period.

We then consider the year of the sanction and the following year to examine if the board is more likely to dismiss the CEO after the misconduct becomes publicly sanctioned, in response to the market's reaction. The results of our probit estimations show that boards are more likely to discipline a CEO after the bank receives a fine but not during the investigation period. CEO characteristics, such as age and tenure, appear to be more important predictors of the probability of dismissal than board characteristics.

The next step in our analysis is to understand whether board diversity features influence how boards respond to misconduct. Following the recent wave of misconduct scandals, regulators have focused on reforming banks' governance structures, with particular attention being paid to enhancing board diversity. The underlying assumption is that more diverse boards are more likely to have broader expertise, larger networks, and a variety of perspective may emerge (Campbell and Mínguez-Vera, 2008). More diverse boards are also considered more ethical, as the views of different individuals are equally valued (Mathisen et al., 2013). These aspects imply that more diverse boards might be more prone to replacing a CEO in cases of wrongdoing. Building on this literature, we could expect more diverse boards to have a stronger disciplining effect and be more likely to trigger 'changes at the top'. Nevertheless, there is also evidence that more diverse boards have coordination problems, higher frictions and disagreements among directors, and longer decision-making processes. Masoulis et al. (2012) find that boards with more foreign directors have greater likelihood of financial misreporting and a lower sensitivity of CEO turnover to performance. It is also possible that in more diverse boards, directors' views and perceptions regarding the threat posed by the misconduct might differ, thus leading to a decreased likelihood of firing the CEO. These frictions could result in more diverse boards being less active in replacing CEOs.

To understand how board characteristics may influence directors' response to misconduct, we look at board diversity in terms of gender, nationality, and age. We find little evidence of a relationship between boards' diversity features and CEO dismissal around misconduct events. Our results suggest that diverse boards are not more prone to disciplining the CEO during an ongoing misconduct investigation and prior to the bank being sanctioned by regulatory authorities. However, following a fine, more diverse boards (in terms of age and nationality) are more likely to dismiss the CEO in charge during corporate wrongdoings. We do not find any significant effect of board gender diversity.

Our paper makes several contributions to the literature. Existing studies have examined the antecedents of misconduct and, to a lesser degree, its immediate consequences for senior managers and board members. We contribute to this stream of the literature by focusing on the consequences of misconduct for CEOs. Replacement of the CEO is one of the most important decisions a board can make, as directors need to manage short-term reputational and performance gains with long-term value creation. We also contribute to the literature on the impact of board diversity on corporate outcomes. While more diverse boards positively contribute to preventing misconduct ex-ante (Cumming et al., 2015; Arnaboldi et al., 2021), the link between misconduct, board diversity characteristics and consequences for individual senior managers is still relatively unexplored.

The rest of the paper is organised as follows. Section 2 discusses our empirical approach and data. Section 3 presents the results of the empirical analysis. Section 4 concludes.

2 Empirical Design and Data

The main aim of our analysis is to investigate whether boards discipline CEOs because of misconduct, which gives rise to the tenet that misconduct investigations leading to fines are possibly associated with a higher CEO turnover. We are interested in understanding when

and under what conditions a bank accused of wrongdoing proceeds to dismiss its CEO, and provide evidence on what prompts boards to take a strong action against a CEO upon discovery of misconduct.

To this end, we collect information on fines imposed by US regulatory agencies on EU publicly listed banks from Violation Tracker. The database is a publicly available search engine that covers enforcement actions by more than 40 federal regulatory agencies and by all divisions of the Department of Justice since 2000. Hence, it facilitates adequate identification of all severe misconduct committed by banks. It excludes only minor irregularities or errors that are considered non-fraudulent and thus not expected to have an impact on how the quality of governance relates to 'changes at the top'. The data comprise the type of fine, the date of the fine, the nature of the offense, an indication of whether the sanction is civil or criminal, and the sanctioning regulatory body. The fines relate to: banking violations, money laundering practices, economic sanction violations, market manipulations, investor and consumer protection violations, tax violations, accounting and data submission deficiencies, and employment discrimination, among others. We validate the Violation Tracker data against the information available on the websites of the corresponding regulatory agencies and their press releases. This yields 146 cases of bank fines over the period 2009-2018. As we have cases where a bank receives more than one fine in a given year, this amounts to a total of 61 fine-bank-years in the sample. The full list of the sanctions and the relevant sanctioning regulatory agencies is reported in Appendix A.

Our sample of sanctioned banks is enriched with a control sample of listed EU banks that did not receive a fine over the period. We remove bank-years with missing board size or total assets data and exclude banks with less than three observations over the sample period. This results in a final sample of 83 publicly listed banks headquartered in 21 EU countries.

We then proceed by collecting corporate governance information including CEO and board data for the sample banks from BoardEx. Where the BoardEx data are insufficient, we consult banks' annual reports and search press releases to manually collect the information. Finally, we collect balance sheet and income statement data from Orbis Bank Focus and stock market data from Thomson Eikon.

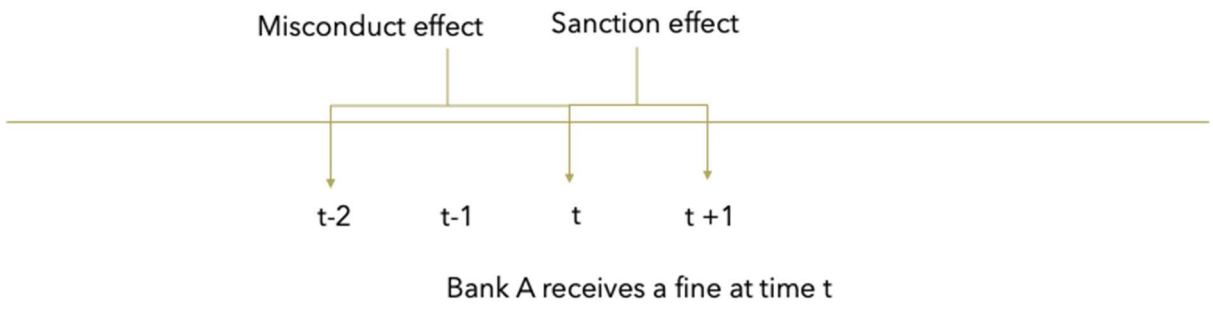
2.1 Identifying CEO Turnover around Misconduct Events

We begin our empirical investigation by identifying all CEO turnovers (*CEO turnover*) in our sample during 2010-2018 as the year when the CEO in office leaves the position as reported by BoardEx. We then follow the procedure used in the literature (Hazarika et al., 2012; Khanna et al., 2015) and distinguish between forced and voluntary CEO departures. Information about the reason of CEO departure is gathered manually from press articles and bank annual reports. We classify CEO turnovers as dismissals (*CEO dismissal*) if it is reported that the CEO was fired, forced out from the position, or departed due to unspecified policy differences. The cases of CEO turnovers where (*i*) the reason for the departure is reported as death, poor health, or acceptance of another position, (*ii*) the CEO's retirement is announced at least six months before the succession, or (*iii*) the retiring CEO takes a comparable position elsewhere or departs for undisclosed personal reasons are classified as voluntary turnovers (*CEO voluntary turnover*). We exclude turnovers that are related to interim CEO appointments and cases that are announced as retirements, but the CEO leaves the job within six months of the announcement, in order not to wrongly classify a turnover as forced. This results in an initial sample of 105 CEO turnovers (14 per cent of the sample), of which 40 per cent are categorised as dismissals using the abovementioned criteria. Table 1 presents the breakdown of the CEO turnovers by year and the proportion that corresponds to cases of CEO dismissals. We also report the number of fines received by the sample banks and the number of fined banks by year.

[Insert Table 1 around here]

A key challenge in this type of analysis is to identify the period during which misconduct happens. Most studies use the date a firm is officially fined to proxy for realised misconduct (Nguyen et al., 2016), even though misconduct-associated changes in leadership might have already taken place (Gao et al., 2017). A related issue in the literature is the partial observability problem, that is, we can only observe detected wrongdoing. This issue is less relevant in our context, as we are interested in boards' reaction to observable misconduct that has been detected and penalised by regulators. To capture corporate wrongdoing and the CEO's involvement, we use a four-year period around the fine as it allows time for misconduct to be detected and for the board to decide on the CEO's involvement and penalty (Khanna et al., 2015). The assumed timeline of a misconduct event is presented in Figure 1.

Figure 1 Misconduct and sanction windows



The figure presents the timeline of a misconduct event showing the assumed window over which the misconduct is being investigated [t-2, t) relative to the fine year t and the post-fine window [t, t+1].

We assume that the board is likely to become aware of a misconduct episode in the two-year period before the bank is fined; this assumption is based on possible ongoing investigations and negotiations with regulators.[3] During this period, the board can decide to act on this information and dismiss the CEO before the regulatory fine is enforced

[3] Although some investigations might be complex and take several years, the average period between a misconduct event and the related fine for our sample is between 2 and 3 years.

(*misconduct effect* or *board monitoring effect*). Alternatively, the board can decide to dismiss the CEO after the fine has been imposed, in an attempt to restore legitimacy in response to exogenous pressures and public opinion (*sanction effect* or *market disciplining effect*).

This setup allows us to derive the following testable hypotheses:

H1 (a): CEOs will experience higher turnover upon the boards' discovery of misconduct, that is, boards will react upon information related to the misconduct arising from the ongoing regulatory investigation (*misconduct effect* or *board monitoring effect*);

H1 (b): CEOs will experience higher turnover upon the regulators' enforcement of sanction for misconduct, that is, boards will react upon the financial, regulatory, and reputational costs arising from the fine imposed for the misconduct (*sanction effect* or *market disciplining effect*).

To distinguish between the two effects, we define two time-windows surrounding the year of the fine: the first time-window defines our misconduct indicator (*Misconduct*) as the two-year period prior to the fine (years $t-2$ and t-1); the second time-window defines our sanction indicator (*Sanction*) as the year of the fine and the following year (years t and $t+1$).

To test the impact of board diversity on reinforcing either the misconduct and/or the sanction effect, we derive our final hypothesis as:

H2: The greater the board diversity, the higher the probability of CEO dismissal following misconduct.

Table 2 reports the distribution of CEO turnovers over the four-year window [$t-2$, $t+1$] surrounding the fine. We show that for sanctioned banks, 23.2% of CEOs leave the company in the year of the fine, and 14.3% in the first year after the fine. Looking at the two years preceding the fine, 8.9% and 16.1% of CEOs were dismissed in years $t-1$ and $t-2$, respectively. This provides prima-facie evidence in favour of the sanction effect, although one cannot rule out the possibility of CEOs being punished even before the fine is publicly

revealed (*misconduct effect*). In contrast, for the control banks, the CEO turnover is lower, between 10.5% and 12.7%, and relatively constant over the years which suggests an association between misconduct and CEO turnover.

[Insert Table 2 around here]

2.2 Model Specification and Variables

To test our first hypothesis, we employ the following probit model in a panel setup for bank-year *it* in country *j*:

$$CEO\ turnover_{it,j} = \beta_0 + \beta_1 Misconduct\ proxy_{it,j} + \beta_2 Bank\ controls_{it-1,j} + \beta_3 CEO\ controls_{it-1,j} + \beta_4 Board\ controls_{it-1,j} + \theta_t + \tau_j + \varepsilon_{it,j} \quad \textbf{(1)}$$

The dependent variable captures either all CEO turnovers (*CEO turnover*) or the sub-group of forced CEO turnovers (*CEO dismissal*) based on the aforementioned criteria. The key independent variable is the misconduct proxy defined as follows for the different tests.

To test the *misconduct* (or *board monitoring*) *effect* hypothesis (*H1(a)),* the key independent variable is the *misconduct* indicator, which takes the value of 1 over the window of two years prior to the fine, and 0 in all other years.

To test the *sanction* (or *market disciplining*) *effect* hypothesis (*H1(b))*, our key independent variable is the *sanction* indicator that takes the value of one in the year of fine and the following year, and zero otherwise.

Year fixed effects (θ_t) are included to control for changes in the macroeconomic environment over time. Country fixed effects (τ_j) are also included to account for unobserved (time-invariant) country-specific characteristics that may be correlated with misconduct. The model is estimated using maximum likelihood with heteroscedasticity-robust standard errors clustered at the bank level.

To test our second hypothesis (*H2)*, which suggests that the disciplining effect experienced by CEOs would be amplified by greater board diversity, we use an interaction term between the misconduct indicator or the sanction indicator and three different aspects of board diversity including the representation of women, the presence of foreign directors, and directors' age.

In our tests, we control for a set of bank, board and CEO characteristics that can have an impact on the likelihood of CEO turnover. At the bank level, we include bank size (*Ln(Bank size)*) measured as the natural logarithm of total assets, to account for greater expectations of CEOs at larger firms (Hazarika et al., 2012; Gupta, et al. 2020); bank profitability (*ROE*) measured as return on equity (Hazarika et al. 2012; Nguyen et al., 2016); and stock return volatility (*Stock return volatility)* measured as annualised standard deviation of daily stock returns (Adams and Ferreira, 2009; Hazarika et al., 2012).

At the board level, we control for board size (*Ln(Board size)*) measured as the natural logarithm of the total number of board directors (Adams and Ferreira, 2009) and board independence (*Independent directors*) measured as the proportion of independent directors on the board (Adams and Ferreira, 2009; Hazarika et al., 2012; Nguyen et al., 2016). We further control for board diversity using the fraction of female directors (*Female directors*), fraction of foreign directors (*Foreign directors*), and the coefficient of variation of board age (*Director age diversity*) measured as the standard deviation over the mean.

To control for CEO attributes that could influence the likelihood of turnover, we include the length of the CEO tenure (*Ln(CEO tenure)*) measured as the natural logarithm of one plus the CEO's years in office (Adams and Ferreira, 2009; Khanna et al., 2015; Nguyen et al., 2016), CEO duality (*CEO duality*) captured by an indicator variable that equals one if the CEO is the chair of the board (Adams and Ferreira, 2009; Hazarika et al., 2012; Khanna et al., 2015; Nguyen et al., 2016; Gupta et al., 2020), and CEO age (*Ln(CEO age)*) measured as

the natural logarithm of the CEO's age (Adams and Ferreira, 2009; Khanna et al., 2015). All controls are lagged one year.

2.3 Descriptive Statistics and Univariate Comparisons

In this section, we present summary statistics for the dependent, independent and control variables included in the analysis.

[Insert Table 3 around here]

Table 3, Panel A, reports the mean, median and range values of all the variables over the full sample. Changes of CEO occur in 14% of the sample observations and fines are incurred in 8.4%. The most frequent type of fine refers to market violations followed by banking fraud. The average CEO tenure is 5.5 years and average CEO age is 55.5 years, with about 40% of the sample comprising CEOs with dual status where the CEO also holds role of the chair of the board of directors. In terms of the board structure, the average number of directors is 16, 46.8% of which are independent, 17.7% are female, and 20.3% are foreign. The average bank size for the sample is about 310 billion Euro.

CEO Dismissal vs. Voluntary Turnover: Univariate Comparisons

Table 3, Panel B, reports the mean values of the variables over the three samples of bank-years, that is, CEO dismissal, voluntary turnover, and no turnover. For the dismissal and voluntary turnover samples, all the CEO, board and bank variables are measured in the year before the turnover. The mean frequency of fines in the year before the dismissal is 26.3% compared to 6.1% for voluntary turnover and 7.6% for the no-turnover sample. Parametric *t* -test statistics indicate that the mean frequency of fines for CEO dismissals is significantly higher than for voluntary turnovers and no turnovers at the 1% level. The mean frequency of fines for the voluntary and no turnover samples, by contrast, do not significantly differ from each other. This implies that the banks that dismiss their CEOs have significantly higher

likelihood to commit misconduct and receive a fine relative to banks that do not change CEOs or whose CEO departs voluntarily. This result seems to be driven by fines related to market violations.

In the multivariate regressions, we control for several variables that could influence the probability of CEO turnover. We also conduct a univariate comparison of these control variables for the samples of CEO dismissal, voluntary turnover, and no turnover in Panel B of Table 3. The mean proportion of independent directors for banks with CEO dismissals is 0.534 compared to 0.430 for banks with voluntary CEO turnovers. The *t*-test indicates that the difference is significant at the 5% level. This is in line with the literature/expectations that more independent boards impose better oversight of the CEO (Duchin et al., 2010). Neville et al. (2019) find consistent evidence that directors' independence is linked to reduced misconduct; in turn, independent directors could be more prone to disciplining the CEO in charge during the wrongdoing. The mean proportion of independent directors for the no turnover sample is 0.468, which is also significantly lower than that for the dismissal sample, albeit marginally. The mean size of the board in the year before a CEO dismissal is 17 directors compared to 14 directors for the bank-years of voluntary departures. The difference is statistically significant. Finally, the univariate analysis shows that banks that engage in CEO dismissals tend to be significantly larger (higher total assets at the 1% level) and have poorer performance (lower ROE at the 5% level) in the year before the turnover as compared to banks with voluntary turnovers or no turnovers.

3 Main Results and Additional Analyses

3.1 CEO Turnover, Dismissal and Bank Misconduct

To test our hypotheses H1(a) and H1(b), we run the probit model with the dependent variable capturing, first, all CEO turnovers and, second, only CEO dismissals (that is, forced

turnovers). Table 4 presents the results of our probit model for the relationship between CEO turnover and bank misconduct, employing a set of CEO, board and bank-level control variables, year and country fixed effects.

Our first proxy of bank misconduct, *Misconduct*, is a dummy variable that captures the two-year period before the bank is sanctioned by a regulatory authority during which the bank's board of directors is likely to become aware of the misconduct episode. Models (1) and (2) show that the coefficient for *Misconduct* is negative but insignificant. This indicates that there is no disciplining effect during ongoing investigations, as these are not associated with a higher probability of the CEO leaving office. Our second proxy of bank misconduct, *Sanction*, is a dummy variable that captures the year the bank is sanctioned (receives a financial penalty) by a regulatory authority after an investigation for misconduct and the following year, to allow time for the board of directors to act on the realised misconduct. Models (3) and (4) show a positive and significant coefficient for *Sanction.* This indicates that sanctioned banks are more likely to remove their CEO as a result of the penalty. Overall, this seems to support the view that misconduct events can have a disciplining effect, but this is only effective when the investigation is closed, the bank is found to be in breach of regulation, and there is a financial penalty to pay. Also, *Sanction* captures the time when the regulatory cost is made public, and the media and other stakeholders are informed of the details regarding the wrongdoing and could therefore be regarded as a proxy for the additional market discipline. When including both *Misconduct* and *Sanction* in Model (5), we find that only the coefficient for the latter is positive and significant at the 5% level.

As for the controls, all the models report that relevant board and CEO variables have a significant impact on CEO turnover. First, we find a positive and significant coefficient for CEO tenure suggesting that the likelihood of CEOs leaving office increases with their time in the role. Second, unsurprisingly, we find a positive and significant coefficient for CEO age,

suggesting that older CEOs are more likely to leave office. Finally, we find a negative and significant coefficient for board size, suggesting that smaller boards are associated with a higher likelihood of a CEO leaving, in line with the theory suggesting that smaller boards can be better at coordinating and taking decisions (Jensen, 1993; Yermack, 1996).

[Insert Table 4 around here]

In Table 5, we maintain the main model specification but refine our dependent variable to include only the turnovers where the CEO is fired or forced to leave the bank, that is, *CEO dismissal* (see Section 2 for details). Similar to the results for all CEO turnovers (Table 4), we do not find any significant evidence of a higher probability of CEO dismissal because of misconduct investigation (as suggested by the statistically insignificant coefficient for *Misconduct*). However, we find that CEOs are more likely to be fired when the bank is sanctioned (the coefficient for *Sanction* is positive and significant, and slightly larger than in Table 4). The effect of board size on dismissals becomes positive but is now insignificant. Bank size emerges positive and significant in all models when the dependent variable focuses on dismissals, which suggests that larger banks are more likely to dismiss the CEO in charge during misconduct or after the sanction is imposed by regulators. Larger banks are more likely to be involved in severe financial scandals and incur larger fines. This suggests that the results could be driven by large banks and raises the concern that the relationship could be endogenous. We test for endogeneity in the ensuing additional analysis.

[Insert Table 5 around here]

Corporate wrongdoing can trigger a varying reaction both internally (the board) and externally (stakeholders), depending on the financial and reputational cost to the sanctioned bank. To assess whether the disciplining effect of misconduct on CEOs varies depending on its type, we investigate the relationship between CEO dismissal and different types of misconduct episodes. To this end, we create four groups of fines: (i) banking business

violations (including money laundering), *_Banking*; (ii) economic sanction violations, *_Economic*; (iii) market violations (including market rates manipulations), *_Market*; and (iv) administrative violations (including tax violations and accounting deficiencies), *_Administrative*. We then decompose our proxies of misconduct into four categories each according to the underlying offence.

The results of the test are reported in Table 6. In Model (1) we find no evidence of a differential impact of misconduct on the probability of CEO dismissal by type of misconduct investigation. The results in Model (2) provide evidence that the post-sanction CEO dismissals are mainly driven by market violations. This is consistent with the fact that market violation fines comprise the most frequent fine type out of the four considered and are typically being associated with larger financial penalties and thus trigger stronger market reactions. As reported in the summary statistics in Table 3, market violations occur in 7.4% of the bank-year observations and are twice as frequent as the economic sanction or administrative violations.

[Insert Table 6 around here]

3.2 CEO Dismissal and Board Diversity around Misconduct

In this section, we extend our analysis to investigate H2 by testing whether board diversity influences CEO turnover around bank misconduct. First, we test the relationship between CEO dismissal and different measures of board diversity. To proxy gender diversity, we use *Female directors*, the proportion of female directors on the board in a given year (Cumming et al., 2015; Liu, 2018). We include *Foreign directors,* measured as the proportion of foreign directors on the board, to capture board internationalisation. Finally, we use *Director age diversity* that measures the dispersion of age within the board as the coefficient of variation for board directors' age.

Table 7 reports the results of the test where we extend the main model specification by adding the three measures of board diversity independently as controls. Overall, we find no evidence of a significant impact of board diversity on the decision to dismiss the CEO. The sanction effect on CEO dismissal remains significant after controlling for board diversity.

[Insert Table 7 around here]

In Table 8 we present the results of the test of H2 by examining the impact of board diversity on CEO turnover during misconduct episodes. This involves augmenting the models presented in Table 7 with interaction terms between our measures of board diversity and the misconduct proxies. In Models (1)-(3) we find no evidence of a significant impact of board diversity on the likelihood of CEO dismissal during ongoing misconduct investigation, as suggested by the statistically insignificant coefficients on the interaction terms. However, in Models (4)-(6) we find that once the investigation has been completed and a sanction has been imposed, a greater proportion of foreign directors and directors' age diversity increase the likelihood of CEO dismissal, as suggested by the positive and statistically significant coefficients on their interaction with the sanction indicator. In other words, boards that are more diverse in terms of internationalisation and age are more likely to show a stronger discipline and dismiss the CEO in response to the sanction. Foreign directors can be considered a special type of director, and their diverse backgrounds and experiences can expand their firms' strategic alternatives (Miletkov et al., 2017). One could argue that their extended network could lower the cost of CEO replacement. Another possible explanation relates to the differences in governance standards in foreign directors' country of origin and that of the firm on whose board they serve. These differences can drive different board decisions in relation to corporate misconduct.

[Insert Table 8 around here]

There is a vast stream of literature that focuses on the correlation between age and behaviour. While age is often used as a proxy of experience, several studies also link age with personal attributes such as values and attitude towards risk (Croci et al., 2017). Younger directors are considered to be more receptive to new ideas and have more incentives to work for the company's growth, as they are keen to 'make their mark'. Liu et al. (2018) state that younger directors may have lower psychological commitment to the status quo and be more inclined to take risks when making strategic decisions. This might translate in a higher likelihood that they will support firing a CEO who was in charge during misconduct episodes. It is also well established in the literature that conservativism increases with age, and with it a preference for the status quo. Interestingly, recent research shows that older workers make more ethical decisions than younger ones. For example, Sun et al. (2017) show that age is positively related to the quality of financial reporting and with lower use of earning management practices. Taken together, this points to a positive effect of age diversity on corporate decision-making. Overall, these findings provide support in favour of H2 suggesting that CEOs experience higher probability of being dismissed following a regulatory sanction if the fraudulent bank has a higher level of board diversity.

3.3 Additional Analysis

A concern in this type of analysis is that the estimated relationship may be subject to endogeneity biases as CEO turnover and misconduct could both reflect some unobserved bank aspect, such as operating environment, complexity, performance uncertainty, ethical culture, or even public scrutiny. This possible source of endogeneity could be behind our finding that the likelihood of CEO turnover is positively associated with bank size.

To address this issue, we perform an endogeneity test suggested by Hazarika et al. (2012). If misconduct episodes are endogenous, their occurrence should persist after the CEO changes. The results of the test are reported in Table 9. Panel A shows that the probability of

a detected misconduct in the year before the CEO turnover is 12.2%. For the sample of CEO dismissals, the probability is 9.8%, while it is 1.2% for voluntary departures. In the year following the turnover, the probability of misconduct decreases to 6.8% in the CEO turnover sample. It drops to 4.9% in the CEO dismissal sample. As reported in Panel B, these changes are significant at the 1% level. In years one through two following a CEO dismissal the estimated probability of a misconduct fine is 6.7%, which is significantly lower than that in the year before the dismissal. In contrast, we find no significance difference in misconduct occurrence around voluntary turnovers. This explains the weaker or no significance in the sample of CEO turnovers, which includes voluntary turnovers. Overall, the results of this test suggest that endogeneity does not drive our estimated relationship between misconduct and CEO turnover.

[Insert Table 9 around here]

4 Conclusions

In this paper we propose a novel framework to explain CEO retention or dismissal following misconduct. Boards have discretion in terms of CEO employment, and directors have to weigh the costs of retention or replacement of a CEO who was in charge during corporate wrongdoings, and consider how their decision will affect shareholders. The literature shows that when misconduct episodes are not severe enough to warrant an automatic dismissal, boards may decide against firing the CEO. Equally, when replacement costs are very high, directors might decide against firing the CEO. An additional factor which might drive boards' decisions is that in the banking industry misconduct episodes are frequent. We are interested in understanding what prompts boards to take strong action against a CEO on discovery of misconduct. A key challenge in this type of analysis is to identify when misconduct happens. Unlike the prior literature that has predominantly focused

on the consequences of misconduct on firm management after its realisation and the official fine enforcement, we also address the relatively unexplored issue of the misconduct effects before the penalty is publicly disclosed.

Our setup allows us to investigate the board's actions around the time of misconduct. We consider the actions of the board both in the two-year period preceding the fine, during which directors are likely to become aware of the misconduct (that is, during the regulatory investigation) and the following two-year period. While our empirical design allows us to capture the board's decisions around misconduct episodes it is worth noting that we are focusing only on detected misconduct.

We find that boards are more likely to dismiss a CEO once the bank is fined. The effect is stronger following fines for market violations, the largest and most frequent fines in our sample. We explain this result by considering the effect of additional market discipline once the extent of the wrongdoing, proxied by the size of the fine, becomes public.

The next step in our analysis is to understand whether board diversity features influence how boards respond to misconduct. Recent corporate governance reforms have focused on enhancing board diversity. The underlying assumption is that more diverse boards are more likely to have broader expertise and larger networks. As a variety of perspectives may emerge, board diversity can lead to better decision-making. More diverse boards are also considered more ethical, as the views of different individuals are equally valued. These characteristics imply that more diverse boards may be more prone to replacing a CEO in cases of wrongdoing. Nevertheless, there is also evidence that more diverse boards have coordination problems, higher frictions and disagreements among directors, and longer decision-making processes, thus leading to a decreased likelihood of dismissing the CEO.

We consider several dimensions of diversity, including gender, nationality, and age diversity. We find that gender diversity does not impact on the probability of CEO dismissals

in the presence of corporate misconduct. This result does not support the view of increased ethicality of more gender diverse boards. While the extant literature has shown that a greater female representation on boards has an impact on reducing misconduct ex-ante, one could argue that once misconduct happens, considerations regarding the costs of replacement versus retention of the CEO are more likely to drive boards' decisions.

Nevertheless, we find that more international boards and boards with a greater age diversity are more likely to dismiss a CEO following a fine. We interpret these results to be in line with the evidence that foreign directors have diverse backgrounds and experiences and can expand their banks' strategic alternatives when it comes to CEO replacement. Differences in governance standards between the foreign directors' country of origin and that of the bank on whose board they serve might also explain their impact on board decisions.

Greater age diversity can benefit the monitoring role of the board to the extent that younger and older directors' characteristics could be complementary. On the one hand, younger directors might have lower commitment to the status quo and higher risk propensity, which could lead to a higher likelihood of replacing the CEO. On the other hand, older board members are potentially more cautious about preserving their own reputation as well as that of the institution on whose board they serve and are also considered more prone to making an ethical decision. We find that age diversity positively impacts the probability of CEO dismissals. Taken together, these results indicate a positive role of board diversity in shaping corporate outcomes in relation to misconduct.

Going forward, there are several avenues to continue this research agenda. It would be interesting to explore the market reaction to the fine, to investigate whether the external monitoring (that is, downward pressure on share prices) influences the decision to fire the CEO. Importantly, our study does not capture the exact time between the actual misconduct and the fine enforcement which might impact the likelihood of changes in bank governance.

In complex cases, when the bank is negotiating with regulatory authorities, investigations can take years and the fine can be the result of a compromise between regulators and the bank, taking into account the bank's willingness to cooperate with the investigation as well as evidence that the unsound practices were detected and dismissed internally before they came to the attention of regulators. Finally, the issue of CEO power and connectedness could be explored in more detail.

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Table 1 CEO turnover and fine breakdown

Year	CEO turnovers	CEO dismissals (% of CEO turnovers)	Fines	Fined banks
2009	9	44.44%	6	5
2010	10	60.00%	5	5
2011	7	28.57%	2	2
2012	15	46.67%	12	4
2013	11	45.45%	12	5
2014	5	20.00%	17	9
2015	14	21.43%	36	10
2016	15	33.33%	16	6
2017	11	27.27%	18	7
2018	8	75.00%	22	8
Total	105	39.58%	146	61

The table reports the total number of CEO turnovers, the fraction of CEO dismissals, the number of fines issued, and the corresponding number of fined banks for each year in the sample.

Table 2 CEO turnover over misconduct and sanction windows

	Misconduct effect		Sanction effect	
	Pre-fine window		Post-fine window	
CEO turnover by year	**t = -2**	**t = -1**	**t = 0**	**t = +1**
Misconduct banks	16.1%	8.9%	23.2%	14.3%
No misconduct banks	10.5%	12.7%	12.5%	10.9%

The table reports the proportion of turnovers for the misconduct banks in and around the year of the fine enforcement. For the control group (no misconduct banks), the reported numbers refer to the proportion of turnovers in year *t* without a fine in years *t* = 0, +1, -1, -2.

Table 3 Summary statistics for full and turnover samples

	Panel A: Full sample						Panel B: Turnover samples					
							No turnover	CEO dismissal	CEO voluntary turnover	CEO dismissal vs. No turnover	CEO dismissal vs. CEO voluntary turnover	No turnover vs. CEO voluntary turnover
	N	Mean	Median	Std. dev.	Min	Max	Mean	Mean	Mean	p-value	p-value	p-value
Misconduct variables												
Fine	664	0.084	0	0.278	0	1	0.076	0.263	0.061	0.015	0.015	0.692
Number of fines	664	0.211	0	0.867	0	8	0.187	0.658	0.184	0.044	0.072	0.983
Fine_Banking	664	0.06	0	0.338	0	3	0.055	0.158	0.061	0.16	0.305	0.916
Fine_Economic	664	0.035	0	0.24	0	3	0.032	0.079	0.041	0.428	0.594	0.829
Fine_Market	664	0.074	0	0.387	0	4	0.062	0.368	0	0.053	0.021	0
Fine_Administrative	664	0.042	0	0.242	0	2	0.039	0.053	0.082	0.717	0.638	0.396
CEO variables												
CEO duality	635	0.392	0	0.489	0	1	0.394	0.361	0.362	0.696	0.996	0.662
CEO tenure	635	5.457	4	5.561	0	28	5.383	5.361	6.213	0.981	0.444	0.248
CEO age	635	55.52	55	7.207	35	81	55.153	56.444	58.043	0.223	0.3	0.02
Board variables												
Board size	635	15.929	15	5.961	4	41	16.024	17.194	13.66	0.23	0.005	0.006
Independent directors	635	0.468	0.467	0.235	0	1	0.468	0.534	0.430	0.064	0.033	0.296
Female directors	635	0.177	0.172	0.123	0	0.6	0.177	0.189	0.168	0.544	0.414	0.617
Foreign directors	635	0.203	0.19	0.207	0	1	0.198	0.249	0.227	0.143	0.652	0.435
Board age diversity	635	0.144	0.141	0.049	0.013	0.905	0.145	0.136	0.144	0.066	0.368	0.891
Bank variables												
Bank size (bn)	635	309.99	72.889	477.1	3.263	1641.3	299.1	543	226.3	0.03	0.012	0.26
ROE	635	0.055	0.068	0.102	-0.21	0.248	0.057	0.014	0.071	0.027	0.02	0.383
Stock return volatility	633	0.374	0.331	0.177	0.14	0.811	0.371	0.439	0.353	0.039	0.033	0.487

Panel A reports descriptive statistics of the (lagged) variables used in the analysis for the full sample of banks over the period 2010-2018. Panel B presents the results of the descriptive statistics for the samples of no turnover, dismissals, and voluntary turnovers, and univariate comparisons of the means between the three samples. The *t*-test for the equality of means is reported in the last three columns, where ***, **, * indicate significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 4 CEO turnover, misconduct, and sanction

	CEO turnover				
	(1)	(2)	(3)	(4)	(5)
Misconduct	-.1338	-.1616			-.3313
	(.2879)	(.287)			(.3053)
Sanction			.382*	.3815*	.4999**
			(.2305)	(.2282)	(.2425)
Ln(Bank size)	.1014	.1803**	.0514	.1359	.1507*
	(.0697)	(.0886)	(.0699)	(.0883)	(.0911)
ROE	.2145	.0869	.0198	-.0926	-.0201
	(.7443)	(.7178)	(.7396)	(.7208)	(.7144)
Stock return volatility	.3295	.2836	.3386	.3277	.3475
	(.435)	(.4677)	(.4406)	(.4808)	(.4769)
Ln(CEO tenure)	.2682***	.2874***	.2736***	.2919***	.2889***
	(.0909)	(.092)	(.0922)	(.093)	(.0927)
CEO duality	-.072	.0262	-.081	.0038	.0254
	(.1934)	(.2092)	(.1877)	(.2045)	(.2086)
Ln(CEO age)	1.7429**	1.731**	1.8391***	1.8183**	1.7656**
	(.7183)	(.7244)	(.7108)	(.7204)	(.7185)
Ln(Board size)		-.6608**		-.6347**	-.6482**
		(.3115)		(.3139)	(.3137)
Independent directors		-.1899		-.3639	-.3293
		(.4865)		(.5075)	(.4965)
Year FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Constant	-11.489***	-11.724***	-10.836***	-11.142***	-11.279***
	(3.4136)	(3.4317)	(3.3934)	(3.4285)	(3.4331)
Observations	624	624	624	624	624
Pseudo R^2	.1091	.1179	.1122	.1206	.1229

The table reports the results from a probit model for the CEO turnover in year *t*. Misconduct is a dummy variable that captures the two-year period prior to the fine (years t-2 and t-1) and Sanction is a dummy variable that captures the year of the fine and the following year (years t and t+1). All other independent variables are lagged by one year. Standard errors clustered at the bank level are reported in parentheses. ***, **, * denote significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 5 CEO dismissal, misconduct, and sanction

	CEO dismissal				
	(1)	(2)	(3)	(4)	(5)
Misconduct	-.2393	-.2218			-.4084
	(.2849)	(.2811)			(.2956)
Sanction			.4889*	.5085**	.6379**
			(.2543)	(.2514)	(.2601)
Ln(Bank size)	.2214***	.2267***	.152**	.1592*	.1768**
	(.0652)	(.0846)	(.0696)	(.0878)	(.087)
ROE	-.4213	-.4072	-.7669	-.7515	-.6593
	(1.0201)	(1.0518)	(1.0457)	(1.0818)	(1.0617)
Stock return volatility	.58	.6149	.6408	.686	.7017
	(.6768)	(.699)	(.6686)	(.6913)	(.7008)
Ln(CEO tenure)	.116	.1083	.1345	.1247	.1146
	(.1301)	(.1304)	(.131)	(.1312)	(.1332)
CEO duality	-.0729	-.1223	-.1123	-.1668	-.1322
	(.198)	(.222)	(.1997)	(.2266)	(.2237)
Ln(CEO age)	.616	.6684	.5412	.6089	.5871
	(.8789)	(.8844)	(.877)	(.8827)	(.8798)
Ln(Board size)		.1897		.2143	.1831
		(.4013)		(.3931)	(.3884)
Independent directors		-.4008		-.4912	-.4674
		(.6726)		(.6726)	(.6691)
Year FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Constant	-9.674**	-10.218**	-7.961**	-8.621**	-8.880**
	(3.9248)	(4.192)	(3.841)	(4.147)	(4.1511)
Observations	453	453	453	453	453
Pseudo R^2	.13	.1316	.135	.1373	.1416

The table reports the results from a probit model for the CEO dismissal in year *t*. Misconduct is a dummy variable that captures the two-year period prior to the fine (years t-2 and t-1) and Sanction is a dummy variable that captures the year of the fine and the following year (years t and t+1). All other independent variables are lagged by one year. Standard errors clustered at the bank level are reported in parentheses. ***, **, * denote significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 6 CEO dismissal, misconduct, and sanction - Type of fine

	CEO dismissal	
	(1)	(2)
Misconduct_Economic	.2171	
	(.5258)	
Misconduct_Market	.1596	
	(.2537)	
Misconduct_Banking	-.0416	
	(.4358)	
Misconduct_Administrative	.004	
	(.3922)	
Sanction_Economic		-.0719
		(.4687)
Sanction_Market		.6046*
		(.3134)
Sanction_Banking		.4368
		(.3969)
Sanction_Administrative		.126
		(.4405)
Ln(Bank size)	.1959**	.1629*
	(.0838)	(.0873)
ROE	-.5213	-.2168
	(1.0725)	(1.0366)
Stock return volatility	.597	1.1582
	(.7115)	(.7464)
Ln(CEO tenure)	.1249	.1479
	(.1324)	(.1417)
CEO duality	-.1522	-.1571
	(.2279)	(.2314)
Ln(CEO age)	.5716	.3962
	(.9447)	(.9695)
Ln(Board size)	.23	.2303
	(.4125)	(.3948)
Independent directors	-.4332	-.5652
	(.6785)	(.6849)
Year FE	Yes	Yes
Country FE	Yes	Yes
Constant	-9.235**	-8.191*
	(4.3918)	(4.3825)
Observations	453	453
Pseudo R^2	.1321	.147

The table reports the results from a probit model for the CEO dismissal in year *t*. Misconduct is a dummy variable that captures the two-year period prior to the fine (years t-2 and t-1) and Sanction is a dummy variable that captures the year of the fine and the following year (years t and t+1). Economic, Market, Banking and Administrative reflect banking business violations, economic sanction violations, market violations, and administrative violations, respectively. All other independent variables are lagged by one year. Standard errors clustered at the bank level are reported in parentheses. ***, **, * denote significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 7 CEO dismissal, misconduct, and board diversity

	CEO dismissal					
	(1)	(2)	(3)	(4)	(5)	(6)
Misconduct	-.2274	-.221	-.2337			
	(.2699)	(.2822)	(.2852)			
Sanction				.5193**	.5144**	.4924**
				(.2576)	(.2542)	(.2463)
Female directors	.0923			-.276		
	(.9288)			(1.0283)		
Foreign directors		.0119			.1046	
		(.4569)			(.4599)	
Director age diversity			-2.6774			-2.2319
			(2.877)			(2.7843)
Ln(Bank size)	.2261***	.226***	.2149**	.1614*	.1535*	.1515
	(.0846)	(.0876)	(.0891)	(.0869)	(.0893)	(.0924)
ROE	-.3962	-.408	-.5362	-.7843	-.7585	-.8484
	(1.0238)	(1.0494)	(1.0243)	(1.0703)	(1.0752)	(1.0626)
Stock return volatility	.6109	.6152	.5588	.6986	.6899	.639
	(.6966)	(.6974)	(.693)	(.6946)	(.69)	(.681)
Ln(CEO tenure)	.1079	.1086	.0992	.1256	.1267	.1168
	(.1301)	(.1317)	(.1305)	(.1312)	(.1322)	(.1317)
CEO duality	-.1241	-.123	-.1111	-.1599	-.172	-.1578
	(.22)	(.2232)	(.2205)	(.2229)	(.2277)	(.2262)
Ln(CEO age)	.6684	.6689	.6229	.6064	.6143	.5581
	(.8827)	(.8833)	(.87)	(.8877)	(.8808)	(.8677)
Ln(Board size)	.1926	.1899	.2148	.2043	.2143	.2332
	(.4015)	(.4017)	(.4003)	(.3931)	(.3924)	(.3945)
Independent directors	-.4079	-.4006	-.4192	-.4709	-.4887	-.5057
	(.6796)	(.6718)	(.6707)	(.6755)	(.6688)	(.6724)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-10.226**	-10.207**	-9.406**	-8.591**	-8.537**	-7.938*
	(4.1957)	(4.2245)	(4.1733)	(4.1724)	(4.1478)	(4.1666)
Observations	453	453	453	453	453	453
Pseudo R^2	.1316	.1316	.1338	.1375	.1374	.1388

The table reports the results from a probit model for the CEO dismissal in year *t* that controls for board diversity. Misconduct is a dummy variable that captures the two-year period prior to the fine (years t-2 and t-1) and Sanction is a dummy variable that captures the year of the fine and the following year (years t and t+1). All other independent variables are lagged by one year. Board diversity variables include: (i) Female directors that measures the proportion of female directors on the board; (ii) Foreign directors calculated as the proportion of foreign directors on the board; and (iii) Director age diversity that captures age diversity through the coefficient of variation of board directors' age. Standard errors clustered at the bank level are reported in parentheses. ***, **, * denote significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 8 CEO dismissal, misconduct, and board diversity - Interactions

	CEO dismissal					
	(1)	(2)	(3)	(4)	(5)	(6)
Female directors	.0537			-.4372		
	(.9828)			(1.0578)		
Misconduct *x* Female directors	-.4019					
	(1.313)					
Foreign directors		.0842			-.1648	
		(.4622)			(.4817)	
Misconduct *x* Foreign directors		-.4781				
		(.6716)				
Director age diversity			-2.5191			-2.7498
			(2.8759)			(2.8311)
Misconduct *x* Director age diversity			-2.1113			
			(2.2953)			
Sanction *x* Female directors				1.128		
				(1.0543)		
Sanction *x* Foreign directors					1.4701*	
					(.8143)	
Sanction *x* Director age diversity						3.9366**
						(1.7786)
Ln(Bank size)	.2169**	.2156**	.2185**	.1856**	.186**	.1454
	(.0866)	(.0846)	(.089)	(.0875)	(.0869)	(.093)
ROE	-.4739	-.4529	-.5058	-.5764	-.6055	-.9241
	(1.0233)	(1.0415)	(1.0253)	(1.0459)	(1.0674)	(1.0785)
Stock return volatility	.5842	.5928	.5676	.7874	.7152	.6324
	(.697)	(.7015)	(.6909)	(.7103)	(.6941)	(.6848)
Ln(Board size)	.1951	.203	.2215	.2125	.1325	.2165
	(.3973)	(.4058)	(.4024)	(.3935)	(.3932)	(.396)
Independent directors	-.4168	-.4071	-.4356	-.4293	-.4286	-.4687
	(.6791)	(.6724)	(.6733)	(.6785)	(.6711)	(.6785)
Ln(CEO tenure)	.1132	.1091	.0956	.1186	.1256	.122
	(.1286)	(.1311)	(.1309)	(.1299)	(.1328)	(.1329)
CEO duality	-.1313	-.1356	-.111	-.1585	-.1365	-.1533
	(.2213)	(.219)	(.2215)	(.2248)	(.2286)	(.2239)
Ln(CEO age)	.677	.7098	.6181	.6397	.4793	.5787
	(.8858)	(.9041)	(.8733)	(.8873)	(.9075)	(.8626)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-10.05**	-10.15**	-9.5048**	-9.2322**	-8.6779**	-7.748*
	(4.2333)	(4.2959)	(4.2063)	(4.1985)	(4.28)	(4.1233)
Observations	453	453	453	453	453	453
Pseudo R^2	.1305	.1312	.1344	.1327	.1383	.1399

The table reports the results from a probit model for the CEO dismissal in year *t* that controls for the impact of board diversity during misconduct episodes using interaction terms. Misconduct is a dummy variable that captures the two-year period prior to the fine (years t-2 and t-1) and Sanction is a dummy variable that captures the year of the fine and the following year (years t and t+1). All other independent variables are lagged by one year. Board diversity variables include: (i) Female directors that measures the proportion of female directors on the board; (ii) Foreign directors calculated as the proportion of foreign directors on the board; and (iii) Director age diversity that captures age diversity using the coefficient of variation of board directors' age. Standard errors clustered at the bank level are reported in parentheses. ***, **, * denote significance at the 1%, 5%, 10% level, respectively. Definitions of the variables are provided in Appendix B.

Table 9 Changes in misconduct frequency post CEO turnover

Panel A: Pre- and post-turnover fine occurrence

		CEO turnover	CEO dismissal	CEO voluntary turnover
	N	Mean	Mean	Mean
Pre-turnover year (-1)	664	0.122	0.098	0.012
Post-turnover year (+1)	664	0.068	0.049	0.012
Post-turnover years (+1, +2)	664	0.095	0.067	0.012

Panel B: Tests of equality between pre- and post-turnover fine occurrence

	CEO turnover		CEO dismissal		CEO voluntary turnover	
	t-test	*z*-test	*t*-test	*z*-test	*t*-test	*z*-test
Post-turnover years (+1,+2) vs. Pre-turnover year (-1)	0.014	0.219	0.002	0.0126	1.000	1.000
Post-turnover year (+1) vs. Pre-turnover year (-1)	0.000	0.0001	0.000	0.0001	1.000	1.000

The table reports the mean fine occurrence for four periods: the two years before the CEO turnover, the year before the CEO turnover, the year after the CEO turnover, and the two years after the CEO turnover. Panel A presents the means for all CEO turnovers, CEO dismissals and voluntary CEO turnovers. Panel B presents *p*-values from parametric *t*-tests and Wilcoxon *z*-tests of the change in the mean fine occurrence for different pre- and post-turnover years.

Appendix

Appendix A List of sampled sanctions and sanctioning regulatory agencies

Sanction type	Sanction	Sanctioning regulatory agency
Banking business violations	Banking violation	Office of the Comptroller of the Currency (OCC)
		Federal Reserve
		New York State Department of Financial Services (NYSDFS)
		New York County District Attorney (NYCDA)
	Anti-money laundering deficiency	Federal Reserve
		Justice Department Criminal Division
		New York State Department of Financial Services (NYSDFS)
	Fraud	Justice Department Criminal Division
	Mortgage abuse	US Attorney
		Justice Department multiagency referral
	Financial institution supervision failure	Commodity Futures Trading Commission
	Investor protection violation	Securities and Exchange Commission (SEC)
		Commodity Futures Trading Commission
Economic sanction violations	Economic sanction violation	Justice Department Criminal Division
		Office of Foreign Assets Control
		US Attorney
		New York State Department of Financial Services (NYSDFS)
		Federal Reserve
		Office of Foreign Assets Control
	US sanction violation	Office of Foreign Assets Control
Market violations	Toxic securities abuse	Federal Housing Finance Agency
		National Credit Union Administration
		US Attorney
		Justice Department Civil Division
		Securities and Exchange Commission (SEC)
	Securities issuance or trading violation	Securities and Exchange Commission (SEC)
		Commodity Futures Trading Commission
	Interest rate benchmark manipulation	Justice Department Criminal Division
		Commodity Futures Trading Commission
		Federal Reserve
	Foreign exchange market manipulation	Justice Department Criminal Division
		Federal Reserve
		Justice Department Antitrust Division
	Energy market manipulation	Federal Energy Regulatory Commission
Administrative violations	Tax violation	Justice Department Tax Division
		US Attorney
	Accounting fraud or deficiency	Commodity Futures Trading Commission
	Falsification of records of NY financial institutions	New York County District Attorney (NYCDA)
	Data submission deficiency	Commodity Futures Trading Commission

False Claims Act	Justice Department Civil Division
	US Attorney
Consumer protection violation	Consumer Financial Protection Bureau
Employment discrimination	Equal Employment Opportunity Commission
Benefit plan administrator violation	Employee Benefits Security Administration
Wage and hour violation	Labour Department Wage and Hour Division
Workplace safety or health violation	Occupational Safety & Health Administration
Servicemembers Civil Relief Act	Justice Department Civil Rights Division
Environmental violation	Environmental Protection Agency

The table presents the list of sampled sanctions by type and relevant sanctioning regulatory agencies.

Appendix B Variable definitions

Variable	Definition	Source
CEO turnover variables		
CEO turnover	Dummy variable equal to 1 if the CEO leaves the position in year t, and 0 otherwise	Authors' calculation using BoardEx data
CEO voluntary turnover	Dummy variable equal to 1 if the CEO the leaves the position in year t due to death, health reasons, acceptance of another position, or retirement, and 0 otherwise	Authors' calculation using BoardEx data, annual reports and press articles
CEO dismissal	Dummy variable equal to 1 if CEO is fired in year t	Authors' calculation using BoardEx data, annual reports and press articles
Misconduct variables		
Misconduct	Dummy variable equal to 1 if a fine occurred in year t+1 and/or t+2, and 0 otherwise (pre-fine window)	Authors' calculation using Violation Tracker / Regulatory agency data
Sanction	Dummy variable equal to 1 if a fine occurred in year t and/or t-1, and 0 otherwise (post-fine window)	Authors' calculation using Violation Tracker / Regulatory agency data
Number of fines	Number of fines (total) in a bank year	Authors' calculation using Violation Tracker / Regulatory agency data
Fine amount	Fine amount (total) in a bank-year ($)	Violation Tracker / Regulatory agency websites
_Banking	Banking business violations	Authors' calculation using Violation Tracker / Regulatory agency data
_Economic	Economic sanction violations	Authors' calculation using Violation Tracker / Regulatory agency data
_Market	Market violations	Authors' calculation using Violation Tracker / Regulatory agency data
_Administrative	Administrative violations	Authors' calculation using Violation Tracker / Regulatory agency data
CEO characteristics variables		
CEO duality	Dummy variable equal 1 if the CEO is also the Chairperson, and 0 otherwise	Authors' calculation using BoardEx data
CEO tenure	Tenure of the CEO (years)	Authors' calculation using BoardEx data
Ln(CEO tenure)	Ln(1+ *CEO tenure)*	Authors' calculation using BoardEx data
CEO age	Age of the CEO (years)	Authors' calculation using BoardEx data
Ln(CEO age)	Ln(*CEO age)*	Authors' calculation using BoardEx data
Board characteristics variables		
Board size	Number of board directors	Authors' calculation using BoardEx data
Ln(Board size)	Ln(*Board size)*	Authors' calculation using BoardEx data
Female directors	Fraction of female directors on the board	Authors' calculation using BoardEx data
Foreign directors	Fraction of foreign directors on the board	Authors' calculation using BoardEx data
Director age diversity	Coefficient of variation of board directors' age = Standard deviation of board directors' age / Average age of	Authors' calculation using BoardEx data

	board directors	
Independent directors	Fraction of independent directors on the board	Authors' calculation using BoardEx data
Bank characteristics variables		
Bank size	Total assets (euro)	Orbis Bank Focus
Ln(Bank size)	Ln(*Bank size*)	Authors' calculation using Orbis Bank Focus data
ROE	Return on equity	Authors' calculation using Orbis Bank Focus data
Stock return volatility	Annualised standard deviation of daily stock returns (3-year moving average)	Authors' calculation using Thomson Eikon data

The table defines the variables used in the analysis and the source of the data. Bank-level control variables are winsorised at the 5 percent level.