

## Board Composition, Grey Directors and Corporate Failure in the UK

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### ABSTRACT

This study examines the effect of board composition on the likelihood of corporate failure in the UK. We consider both independent and non-independent (grey) non-executive directors (NEDs) to enhance our understanding of the impact of NEDs' personal or economic ties with the firm and its management on firm performance. We find that firms with a larger proportion of grey directors on their boards are less likely to fail. Furthermore, the probability of corporate failure is lower both when firms have a higher proportion of grey directors relative to executive directors and when they have a higher proportion of grey directors relative to independent directors. Conversely, there is a positive relationship between the likelihood of corporate failure and the proportion of independent directors on corporate boards. The findings discussed in this study support the collaborative board model and the view that corporate governance reform efforts may have overemphasised the monitoring function of independent directors and underestimated the benefits of NEDs' affiliations with the firm and its management.

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## 1. Introduction

A series of unexpected corporate failures has reignited and increased concerns regarding the effectiveness of board oversight. Since the Cadbury Report was published in 1992, governance reformers in the UK have continued to emphasise the importance of independent directors who enhance the monitoring function of boards (e.g., the UK Corporate Governance Code, 2012). The term “independent director” generally refers to non-executive directors (NEDs) who are free from personal or economic ties with the firm and its management.<sup>1</sup> NEDs who have such ties are classified as non-independent NEDs and are also known as “grey” directors. Corporate governance reformers typically argue that the existence of affiliations between NEDs and the firm diminishes the effectiveness of NED monitoring because such affiliations may result in conflicts of interest with shareholders. Despite the widespread belief among regulators that a higher proportion of independent directors on a board is good for governance, little is known regarding whether the increased focus on board independence is able to prevent corporate failure in the current corporate governance framework.

This study considers the effectiveness of independent and grey directors and investigates the association between board composition and the likelihood of corporate failure. Corporate governance theorists have diverse perspectives on the ties between NEDs and the firm. From the agency perspective, independent directors are central to the effective resolution of agency problems between managers and shareholders. Their independence from the firm places them in a good position to

engage in monitoring and enables them to exercise independent judgement in evaluating managerial performance (Fama & Jensen, 1983). In contrast, NEDs personally or economically tied to the firm and the firm's management have less incentive to challenge top management, as they may have common interests with management, which could lead to conflicts of interest with shareholders and adverse organisational outcomes. According to this view, independent directors can improve firm performance by monitoring management on behalf of shareholders.

Alternatively, the advocates of the collaborative board model argue that the agency perspective only provides a partial basis for understanding the impact of board composition on corporate strategy and performance (Adams & Ferreira, 2007; Westphal, 1999). They suggest that board composition should optimise collaborative working relationships among its members (Almazan & Suarez, 2003). Ties between NEDs and the firm's management can enable mutual trust and effective communication, which may facilitate information flow and advisory interactions in the boardroom (Westphal, 1999). Additionally, as NEDs typically serve on a part-time basis, the presence of such ties may align the interests of the NEDs and the company and increase the NEDs' incentives to offer advice and resources to maximise firm performance. According to this model, grey directors are more likely to be involved in strategic decision-making through their affiliations with the firm, which may lead to favourable organisational outcomes. However, grey directors have received little formal recognition in the literature.

Previous studies have acknowledged that the board's functions of advising, providing resources

and monitoring are essential to a firm's survival (Hambrick & D'Aveni, 1992), but they have not devoted sufficient attention to how ties between NEDs and the firm influence board effectiveness and the performance of firms. As noted, independent and grey directors act in inherently different ways to fulfil those different board tasks. It is possible that independent directors could perform best in a monitoring role, while grey directors could play important advising and resource dependence roles (Baysinger & Butler, 1985; Westphal, 1999). Underrepresentation of either independent or grey directors on the board may affect the firm's ability to survive. We therefore argue that current governance practice, which inherently favours stacking NED positions with independent directors rather than grey directors, is likely to compromise the advisory and/or resource dependence roles of a board and make firms more susceptible to failure.

This study employs a matched-pairs research design using a sample of 234 companies comprising 117 failed firms and 117 non-failed control firms. The findings indicate that firms with greater proportions of grey directors are less likely to fail, while there is a positive association between the proportion of independent directors and the likelihood of corporate failure. Furthermore, comparing the failed firms to the non-failed firms, the failed firms have lower percentages of grey directors relative both to executive and independent directors on their boards. Overall, the findings support the collaborative board model (Adams & Ferreira, 2007; Westphal, 1999) and echo recent concerns that overemphasis on the monitoring and control roles of independent directors undermines the contributions NEDs can make to the advising and resource dependence functions of the board (Adams

& Ferreira, 2007; Faleye, Hoitash, & Hoitash, 2011).

This study seeks to contribute to the existing literature in three ways. First, this study contributes to the debate over how close ties between NEDs and a firm affect the firm's value. We award equal consideration to the effectiveness of independent and grey directors. Although a large number of studies depart from the agency perspective to examine the effects of independent directors, existing studies remain largely silent regarding the roles and effectiveness of grey directors. This study extends the collaborative board model to address this gap.

Second, this study addresses the lack of discussion in the existing literature on the link between corporate failure and the composition of the board of directors (Daily, McDougall, Covin, & Dalton, 2002). Filatotchev, Toms and Wright (2006) conceptually argue that a firm requires different corporate governance functions at different stages of the corporate lifecycle. To continue to survive, a distressed firm requires a greater degree of the strategic and resource functions of corporate governance. However, the effects of corporate governance mechanisms on firm survival are under-researched. By focusing on the context of corporate failure, this study adds to our understanding of corporate governance at the final stage in the corporate lifecycle.

Third, the results of this study have important public policy implications. UK governance codes were developed in response to a series of unexpected failures, and many other countries have subsequently introduced new rules and practices. The context of corporate failure in the UK therefore provides a unique ground to examine regulators' concerns regarding the contributions of independent

and grey directors. While there has been a widespread increase in the independence of boards and NEDs in the UK over the previous two decades, little consensus has been reached as to how to prevent corporate failure under the current corporate governance framework. Evidence collected from this setting is particularly salient.

The remainder of this study is structured as follows. In the following section, we outline the extant literature concerning the roles and effectiveness of independent and grey directors and develop our hypotheses. The sample selection procedure and research design are described in the third section. The results are then presented and discussed. The final section draws conclusions.

## **2. Review of the literature and development of hypotheses**

The board of directors leads and directs a company's affairs (Cadbury, 1992). It is responsible for formulating strategy, providing advice to top management, ensuring critical resources are available to the firm and evaluating managerial performance (The Higgs Report, 2003). The board is a collection of individuals who act in different roles to fulfil these various functions (Fama & Jensen, 1983). Board composition therefore critically influences the success of a firm. Hambrick and D'Aveni (1992) argue that organisational failure may occur when the composition of a board is imbalanced or inadequate.

A mixture of executive, independent and grey directors are nominated to ensure that a board can effectively administer its multiple tasks (Baysinger & Butler, 1985). Unlike executive directors, independent and grey directors are NEDs who do not play any day-to-day executive roles in the firm.

They are expected to contribute to the board through their wide range of skills, knowledge base or ties to external resources (Goodstein & Boeker, 1991; Hambrick & D'Aveni, 1992; Pfeffer, 1972; Pfeffer & Salancik, 1978). However, independent and grey directors are quite different. The latter have significant personal or economic ties with the firm beyond being board members (Vicknair, Hickman, & Carnes, 1993). It is argued that the absence or presence of such ties affects NEDs' capacities and incentives to perform their monitoring, advising and resource dependence functions (Adams, 2009; Baysinger & Hoskisson, 1990). Operationally, independent directors are viewed as valuable monitors, while grey directors are viewed as important advisors or resource providers (Baysinger & Butler, 1985; Westphal, 1999).

### *2.1 Independent directors and corporate failure*

The theoretical support for the importance of board monitoring is rooted in agency theory (Jensen & Meckling, 1976). According to this perspective, the primary function of a board is to reduce agency costs resulting from the separation of ownership from control by overseeing managerial decisions and activities. Independent directors are free from economic interests or personal links with the firm and are therefore better suited to performing the monitoring task because they are more likely to objectively evaluate and discipline top management (Fama & Jensen, 1983). Additionally, Fama (1980) argues that independent directors have an incentive to be effective monitors to maintain the value of their reputational capital in the external labour market. High-performing NEDs would gain opportunities to serve on other boards (Shivdasani, 1993). Consequently, independent directors are

more likely to better exercise the board's control function (Zahra & Pearce II, 1989). Most important, they are better positioned to challenge management and encourage strategic change when a firm faces a continuing decline in performance (Daily & Dalton, 1994a), and such challenges are particularly valuable when a firm needs to change to maintain its survival (Weisbach, 1988).

Therefore, the most common response to recent corporate scandals and collapses appears to be a greater emphasis on board independence. Corporate governance reformers generally adopt an agency perspective and place substantial emphasis on the monitoring function of the board. The UK Corporate Governance Code (2012), for example, recommends that a board be primarily composed of independent directors to ensure their effectiveness in exercising independent judgment in managerial oversight.

The academic literature has recently become more interested in the board's role in setting strategy. It is argued that agency theory provides only a partial basis for developing propositions concerning the impact of board composition on corporate strategy and performance (Adams & Ferreira, 2007; Harris & Raviv, 2008; Raheja, 2005). Operationally, the amount and quality of information available to independent directors significantly affect their effectiveness. Some argue that independent directors serve on a part-time basis and typically serve as directors on multiple boards (Patton & Baker, 1987). Thus, they are less likely to allocate sufficient time to gaining a thorough understanding of each business, which may lead to independent directors relying on their general knowledge rather than firm-specific knowledge in reviewing managerial performance and rewarding managers (Baysinger &



Hoskisson, 1990). Such a lack of firm-specific knowledge on the part of independent directors may allow room for managers to formulate myopic strategies for maximising their personal wealth, which may ultimately affect firm performance.

Furthermore, independent directors generally have limited contact with day-to-day executive affairs, making them largely dependent on their interactions with top management to access firm-specific information for decision-making (Fama & Jensen, 1983). However, independent directors are strict monitors, and top management are typically unwilling to share privileged information with them out of fear of their intense scrutiny (Adams & Ferreira, 2007). Adam (2009) provides survey evidence that confirms this view that independent directors receive less strategic information from management. This informational disadvantage reduces their influence in corporate decision control.

Faleye et al. (2011) argue that increasing the allocation of monitoring duties to independent directors reduces the time and effort they spend on advising. The authors provide evidence that a firm with a monitoring-intensive board is less likely to invest in R&D. Adam (2009) also documents that directors who perceive their primary duty to be management oversight are less likely to become involved in strategic advising. Such evidence suggests that independent directors cannot contribute equally to both monitoring and advising functions. Because boards fulfil different functions, the increased use of one mechanism might not be positively related to firm performance. Excessive emphasis on the independent directors' monitoring function would limit the resources of the board

that are available for other wealth creating activities.

The existing empirical evidence provides mixed results regarding the effectiveness of independent directors. Some findings support the importance of independent directors in, for example, disciplining poorly performing CEOs (Finkelstein & D'Aveni, 1994), protecting shareholder wealth (Byrd & Hickman, 1992) and ensuring corporate reporting quality (Beasley, 1996; Chahine & Filatotchev, 2011; Setia-Atmaja, Haman, & Tanewski, 2011). However, most studies find only a small, statistically insignificant link between independent directors and firm performance (e.g., Agrawal & Knoeber, 1996; Bhagat & Black, 2002; Vafeas & Theodorou, 1998).

Although the findings regarding the effectiveness of independent directors on a board have been inconsistent, corporate governance reformers generally posit that weakness in board oversight appears to be an important determinant of corporate failure (e.g., Cadbury, 1992). Because independent directors are better equipped to monitor management, we predict that the positive aspects of independent directors are likely to outweigh the potential negative effects for problematic firms. We therefore predict the following:

*Hypothesis 1: The incidence of corporate failure is negatively related to the proportion of independent directors.*

## *2.2 Grey directors and corporate failure*

The theoretical support for the effectiveness of grey directors is rooted in the collaborative board model (Westphal, 1999). According to this perspective, a board should be constituted to optimise

collaborative working relationships among its members, thus enabling information flow in the boardroom and reinforcing the board's strategy formulation function (Adams & Ferreira, 2007; Almazan & Suarez, 2003). However, not all NEDs will be equally able to enhance board collaboration. As noted above, independent directors are typically strict monitors. Their presence is more likely to increase tension in the boardroom and reduce valuable advisory interactions among board members because managers typically dislike intense oversight (Adams & Ferreira, 2007). However, personal or economic ties between NEDs and the firm enable NEDs to establish greater mutual trust with management and create a better collaborative working relationship in the boardroom. The ties therefore allow grey directors greater potential to exert their influence on decision-making by providing advice and resources (Westphal, 1999). Adam (2009) provides evidence that directors with personal ties to management perceive their role on boards to be more advisory in nature and are more likely to be involved in decision-making.

Additionally, NEDs need to rely on firm-specific information to provide appropriate support to management, and management prefers to work with well-informed NEDs (Harris & Raviv, 2008). However, because NEDs are not involved in day-to-day executive duties, it has been argued that it is costly for them to acquire private information on the firm and thus transfer their knowledge to the firm (Linck, Netter, & Yang, 2008). Based on the mutual trust noted above, grey directors are more likely to obtain internal information provided by top management on a timely basis and use this information to advise top management on strategic issues. Schmidt (2008) provides evidence that the

presence of social ties between directors and management is positively associated with takeover returns when advisory needs are high, suggesting that information exchange within the boardroom is more efficient when directors have close relationships with top management. Close ties with the firm therefore place grey directors in an advantageous position to perform their strategic function.

Furthermore, a board's ability to maintain various resources and interorganisational strategies depends to a large degree on affiliations with grey directors. Baysinger and Butler (1985) suggest that grey directors are generally appointed for functional reasons. Grey directors, such as former executives of the company, are valuable in mentoring and supporting incumbent management. A company's financial and legal advisor could, by sitting on the board, provide specific expertise and experience to complement the executive team (Pfeffer & Salancik, 1978; Provan, 1980). In addition, the inclusion of grey directors on the board is a means of managing a company's environmental relationships and enable the company to integrate the resources necessary for its operation (Burt, 1983; Pfeffer & Salancik, 1978).

Lastly, grey directors generally have interests in the firm (Vicknair, et al., 1993). These interests provide grey directors with greater incentive than independent directors to devote their time, effort and resources to the company they serve (Baysinger & Hoskisson, 1990). Westphal (1999) argues that grey directors are therefore more willing to offer advice and actively engage in the strategy-making process (1999). While independent directors may be better monitors, a grey director's incentive to turn a distressed firm around may be more intense than that of independent directors because grey

directors face an increased risk to their personal or economic interests when a firm is in trouble. The presence of such interests may even motivate grey directors to monitor management, thereby safeguarding their interests in the company.

However, as previously noted, affiliations between NEDs and the firm are viewed as a violation of board oversight from the agency perspective (Vicknair, et al., 1993). Researchers have argued that such ties may reduce grey directors' incentives to act against management and thus place grey directors in a compromised position. According to this view, the monitoring function of a board may be constrained when there are more grey directors on the board, which may lead to unfavourable organisational outcomes.

Recently, governance reformers have also recognised the potential contributions of non-independent NEDs and have argued that the overemphasis on monitoring and control may risk the advisory role of NEDs and thus obscure business prosperity (Hampel Report, 1998; The Higgs Report, 2003). Therefore, based on the collaborative board model, we expect that a higher proportion of grey directors on the board will reduce the likelihood of corporate failure.

*Hypothesis 2: The incidence of corporate failure is negatively related to the proportion of grey directors.*

### **3. Research design**

#### *3.1 Sample and data*

The aim of this study is to discuss the relationship between board structure and firm failure by

examining board structure prior to a corporate failure event. The empirical tests are based on a sample of failed UK-incorporated, non-financial and non-mining companies.<sup>2</sup> Failed companies are identified by investigating the fates of all quoted companies delisted from the Official List on the London Stock Exchange (LSE) between 1997 and 2010.<sup>3</sup> Additionally, companies were included in the sample if they were transferred from the Official List to the AIM (Alternative Investment Market) List and subsequently delisted from the AIM List between 1997 and 2010 without filing any annual accounts during their AIM listing periods.<sup>4</sup> A company is considered to be a failed company in this study if the reason for the cancellation of its listing was its entry into receivership, administration or liquidation, consistent with the definition adopted by Peel and Peel (1988) and Neophytou and Molinero (2004).

Based on the stated criteria, a population of 119 companies that failed between the years of 1997 and 2010 was obtained. However, because complete data regarding corporate governance and financial information prior to failure were not available for all 119 failed companies, the final sample is composed of 117 failed companies.<sup>5</sup> **Table 1** presents the characteristics of the failed sample firms. Panel A presents the numbers of failures among the sample companies classified by the nature of the failure for each year from 1997 to 2010. Panel B presents the distribution of the industrial classifications of the 117 failed companies.

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[Insert Table 1 about here]

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Furthermore, each failed company in the sample used in this analysis was matched with a live (non-failed) company. The matched pairs approach, “provides a parsimonious means of controlling for certain potentially important confounding (non-accounting) firm specific characteristics” of the targeted firms (Peasnell, Pope, & Young, 2001:297). This approach provides a systematic method to determine the sample of non-failed companies and is used in the majority of studies in this area (e.g., Altman, 1968; Beaver, 1966; Charitou, Louca, & Vafeas, 2007; Daily & Dalton, 1994a, 1994b; Hambrick & D'Aveni, 1992; Keasey, McGuinness, & Short, 1990; Mangena & Chamisa, 2008).

The matching process employed in this study is based on three criteria.<sup>6</sup> First, failed and non-failed companies were matched in terms of the fiscal years of accounts used to extract corporate governance information and financial ratios. Second, the companies had to be matched in terms of the FTSE industrial sector such that the firms in each pair faced similar economic and industrial conditions (Chaganti, Mahajan, & Sharma, 1985).<sup>7</sup> Third, non-failed companies were matched in terms of the failed company size (as measured by sales) determined from the last complete filed account prior to failure.<sup>8</sup>

The corporate governance data used in this study were collected manually from the annual reports

of the failed and non-failed sample companies or the electronic resources ICC Plum, FAME or Lexis-Nexis. Financial information was obtained from the electronic resources Perfect Analysis or Datastream.

On average, the failed companies were delisted only one month after the failure date. Additionally, the average length of time between the failure and the date of the last annual report (account issue date) was 14 months<sup>9</sup> (10 months). Therefore, the failed companies' corporate governance and financial information in the most recent annual reports and accounts prior to failure is used in the analysis; moreover, the information from the same fiscal year is used for the non-failed companies. However, if a failed company had been in material distress prior to its last set of filed accounts – indicators would include the absence of trading activities or suspension of trading on the LSE – the year in which the significant distress occurred is considered to be the actual failure year. In these circumstances, the annual report from the previous fiscal year is substituted to better reflect the economic reality.

### *3.2 Regression model and specifications*

This study employs conditional logistic analysis to examine the hypotheses regarding the relationships between corporate governance characteristics and corporate failure. The general models are developed as follows:

$$\begin{aligned} \text{STATUS} = & \beta_0 + \beta_1 \text{INED}\%_i + \beta_2 \text{GNED}\%_i + \beta_3 \text{INED\_ED}\%_i + \beta_4 \text{GNED\_ED}\%_i + \beta_5 \text{GNED\_INED}\%_i \\ & + \beta_6 \text{ED}\%_i + \beta_7 \text{DUALITY}_i + \beta_8 \text{SINED}_i + \beta_9 \text{CEOTEN}_i + \beta_{10} \text{BLOCK}_i + \beta_{11} \text{ROA}_i + \beta_{12} \text{LEV}_i \end{aligned}$$



$$+ \beta_{13} \text{LnSIZE}_i + \beta_{14} \text{AGE}_i + e_i$$

Where,

Survival Status (STATUS)	= Dummy variable representing firm survival status, coded 1 in the case of a failed firm or 0 in the case of a non-failed firm;
Independent NED (INED%)	= Percentage of the board members who are independent directors;
Grey NED (GNED%)	= Percentage of board members who are grey directors;
Ratio of Independent to Executive Directors (INED_ED%)	= Ratio of independent directors to executive directors, expressed as a percentage;
Ratio of Grey to Executive Directors (GNED_ED%)	= Ratio of grey directors to executive directors, expressed as a percentage;
Ratio of Grey to Independent Directors (GNED_INED%)	= Ratio of grey directors to independent directors, expressed as a percentage;
Executive Director (ED%)	= Percentage of the board members who are executive directors;
CEO Duality (DUALITY)	= Dummy variable representing leadership structure, coded 1 if the positions of CEO and chairman are held by the same person or 0 otherwise;
Senior Independent Director (SINED)	= Dummy variable representing the presence of senior independent directors, coded 1 if there is a senior independent director on the board or 0 otherwise;
CEO Tenure (CEOTEN)	= Number of years that the incumbent CEO has been on the board;
Block Shareholdings (BLOCK)	= Total percentage of shareholdings held by external significant shareholders (i.e., shareholders holding more than 3% of total shares outstanding);
Profitability (ROA)	= Return on assets (proxy for firm performance: profitability);
Leverage (LEV)	= Ratio of total debts to total assets;
Firm Size (LnSIZE)	= Natural log of total assets (thousands);
Firm Age (AGE)	= The period between the incorporation date and failure date;
$\beta$	= parameters;
$e_i$	= error term; and

We employ the independent/non-independent NED distinction stipulated in the UK Corporate Governance Code (2012, Para. B.1.1) to classify independent and grey directors.<sup>10</sup> Relying on this approach, a NED is coded as a grey director if he or she (a) has been an employee of the company or group within the past five years; (b) has or had a material business relationship with the company within the past three years; (c) has received additional remuneration such as performance-related payments or a pension from the company apart from a director's fee; (d) has close family ties with the company's other directors, advisors or senior employees; (e) holds cross-directorships; (f) represents a significant shareholder; or (g) has served on the board for more than nine years.

The control variables are drawn from the previous literature. Six groups of control variables are applied in the analysis. First, the percentage of executive directors (ED%) is employed to control for management entrenchment and is expected to negatively affect firm survival (Daily & Dalton, 1994a). Second, the presence of CEO duality (DUALITY) is adopted to control for the independence of board leadership. It is suggested that the presence of CEO duality may lead to excessive power concentration in one person, diminishing the control (Fama and Jensen, 1983) and independence (Rechner, 1989) of the board. We therefore expect CEO duality to be positively related to the likelihood of corporate failure. Third, the presence of senior independent directors (SINED) is used as a control variable, as senior independent directors play an important role in monitoring the

effectiveness of the chairman, liaising with non-executive directors and communicating with major investors (The Higgs Report, 2003). The UK Corporate Governance Code (2012) therefore requires companies to nominate a senior independent director to their boards. It is expected that the presence of senior independent directors is negatively related to the likelihood of corporate failure.

Fourth, CEO tenure (CEOTEN) is used to measure CEOs' experience in the firm. As CEOs who have longer tenures in their firms are more likely to possess firm-specific knowledge, CEO tenure is expected to be negatively related to the likelihood of corporate failure (e.g., Hambrick & D'Aveni, 1992; Simsek, 2007). Fifth, the concentration of external shareholdings (BLOCK) is also included as a control variable. It is argued that block shareholders have greater incentives and ability to become involved in monitoring activities. It is expected that firms with higher external block shareholdings are less likely to fail (e.g., Fama & Jensen, 1983; Shleifer & Vishny, 1986). Sixth, this study controls for ex ante failure risk by employing a profitability ratio (ROA), leverage ratio (LEV), firm size (LnSIZE) and firm age (AGE), which have been commonly used in previous bankruptcy research. It is expected that a firm with greater profitability, lower leverage, larger size and higher age is less likely to fail (e.g., Altman, 1968; Blum, 1974; Howton, 2006).

## **4. Empirical results**

### *4.1 Descriptive statistics and univariate analysis*

**Table 2** presents the descriptive statistics categorised by survival status for each of the independent variables and provides the results of the t-test and the Wilcoxon rank sum test for the continuous

variables and the Chi-squared test for categorical variables. The mean values of the percentage of independent directors (INED%) for the failed and non-failed firms are 30.48% and 27.94%, respectively, but this difference is insignificant. The finding does not support Hypothesis 1, which states that there is a negative association between the proportion of independent directors and the likelihood of corporate failure. However, the mean percentages of grey directors (GNED%) for the failed and non-failed firms are 15.72% and 21.50%, respectively, and this difference is statistically significant at the 5% level, suggesting that more grey directors are employed by the non-failed firms than by their failed counterparts. The finding thus supports Hypothesis 2, i.e., the proportion of grey directors on the board is negatively related to the likelihood of corporate failure.

In addition, there is no significant difference in the ratios of independent directors to executive directors between the failed and non-failed firms (INED\_ED%), while the ratios of grey directors to executive directors (GREY\_ED%) are significantly higher in non-failed firms than that in failed firms. Compared to the failed firms, the non-failed firms have a significantly higher ratio of grey directors to independent directors (GREY\_INED%). These results appear to indicate that increasing the representation of grey directors relative to both executive and independent directors on a board may reduce the likelihood of corporate failure.

With regard to the control variables, the average proportions of executive directors (ED%) are 53.80% and 50.55% for the failed and non-failed firms, respectively, and this difference is statistically significant at the 10% level. It appears that the boards of both the failed and non-failed firms are

generally dominated by executive directors. In addition, there is no significant difference in both the presence of leadership duality (DUALITY) and the presence of senior independent director (SINED) between the failed and non-failed firms.

It is also found that the failed firms' CEOs had significantly shorter tenures than their non-failed counterparts, in line with the suggestion by Hambrick and D'Aveni (1992). There is no significant difference in the external block shareholdings (BLOCK) between the failed and non-failed firms, which is not consistent with expectations. Additionally, compared to the failed firms, the non-failed firms have significantly higher profitability (ROA), lower leverage level (LEV) and greater asset size (LnSIZE). However, there is no significant difference in the firm ages (AGE) of the failed and non-failed firms.

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[Insert Table 2]

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The grey directors are further classified into seven areas based on the UK Corporate Governance Code (2012, Para. B.1.1). **Table 3** shows the percentage of the grey directors in each grey area category on the board for both the failed and non-failed firms. It appears that in comparison to non-failed counterparts, the failed firms had a lower proportion of NEDs who had been employees of

the company (GNED1%), had a material business relationship with the company (GNED2%), received additional remuneration from the company apart from a director's fee (GNED3%), had family ties with the management (GNED4%), held cross-directorships (GNED5%), represented significant shareholders (GNED6%), or had served on the board for more than nine years (GNED7%).

The results suggest that, on average, the non-failed firms had consistently more grey directors across the seven categories than the failed firms.

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[Insert Table 3]

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#### *4.2 Results of the Conditional Logistic Regression Analysis*

Because multicollinearity is considered to be harmful in regression analysis, the Spearman rho correlations between the independent variables are provided in **Table 4**, and the variance inflation factors (VIFs) are computed and examined for each independent variable to examine whether multicollinearity is problematic. The correlations among all independent variables included in each regression analysis in this study are less than 0.40. Multicollinearity in regression analysis is only regarded as harmful when correlations exceed 0.7 (Tabachnick & Fidell, 2007). In addition, in all of the cases shown in **Table 5 and Table 6**, the VIFs are below 2.0, far lower than the critical value of 10

(Tabachnick & Fidell, 2007), which also suggests that multicollinearity is not a major problem in the regression analyses.

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[Insert Table 4 about here]

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**Table 5** presents the results of the conditional logistic regression models used to examine the relationship between the likelihood of corporate failure and board composition one year prior to the corporate failure event. Model (1) examines the effect of independent directors on the likelihood of corporate failure and demonstrates that the likelihood of corporate failure is positively related to the proportion of independent directors (INED%) on boards ( $p < 0.05$ ), which is not consistent with the agency perspective or Hypothesis 1. Model (2) examines the effect of grey directors on the likelihood of corporate failure and reveals a negative association between the likelihood of corporate failure and the proportion of grey directors (GNED%) on boards ( $p < 0.01$ ), consistent with the collaborative board model suggested by Westphal (1999) and Hypothesis 2. The results of Model (1) and Model (2) reflect that, compared to the non-failed firms, independent (grey) directors may be overrepresented (underrepresented) on the boards of the failed firms. Model (3) examines the relationship between the proportion of executive directors or the aggregate proportion of NEDs<sup>11</sup> and the likelihood of

corporate failure. The likelihood of corporate failure is not significantly associated with the proportion of executive directors on the board (ED%), which implies that the proportion of aggregate NEDs on the board is not significantly related to the likelihood of corporate failure.

Model (4) in **Table 5** further examines whether the weight of independent and grey directors relative to executive directors on a board is associated with the likelihood of corporate failure. No significant relationship is observed between the ratio of independent directors to executive directors (INED\_ED%) and the likelihood of corporate failure, while the ratio of grey directors to executive directors (GNED\_ED%) is negatively associated with the likelihood of corporate failure ( $p < 0.01$ ). These findings may suggest that increasing the percentage of independent directors relative to executive directors on a board may not necessarily improve a firm's viability, but increasing the weight of grey directors relative to executive directors on the boards of the failed firms might have enhanced their prospects of survival.

Moreover, Model (5) in **Table 5** examines the effect of the composition of NEDs on the likelihood of corporate failure. The result shows that the ratio of grey directors to independent directors on a board (GNED\_INED%) is negatively related to the likelihood of corporate failure ( $p < 0.05$ ), suggesting that increasing NEDs with grey directors may improve a firm's viability. This result may reflect the failed firms' over-reliance on independent directors, and these firms may have needed more grey directors than independent directors to continue to survive.

With respect to the control variables, neither the presence of leadership duality (DUALITY) nor



the presence of senior independent directors (SIND) are significantly related to the likelihood of corporate failure. As noted above, a distressed firm requires a greater degree of the strategic and resource functions from its board (Filatotchev *at al.*, 2006). Increased board monitoring by separating the roles of CEO and chairman and nominating a senior independent director may restrict management discretion to strategically respond to adverse situation in a troubled firm. Therefore, the results do not support to the importance of separating the roles of CEO and chairman and the presence of a senior independent director in maintaining a firm's survival.

In addition, CEO tenure (CEOTEN) and external shareholdings (BLOCK) are also not significantly related to corporate failure. Consistent with expectations, firms with higher profitability (ROA) and lower leverage (LEV) are less likely to fail. Little evidence shows that there is a negative relationship between firm size (LnSIZE) and corporate failure. However, the association between firm age (AGE) and the likelihood of corporate failure is not significant.

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[Insert Table 5 about here]

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**Figure 1** further illustrates the margins of responses of the average probability of corporate failure for specific values of the percentages of independent directors (INED%) and grey directors (GNED%),

which analyses how the probability of corporate failure responds to changes in the percentages of independent directors and grey directors. The figure shows that the likelihood of corporate failure varies depending on changes in the percentages of independent directors (INED%) and grey directors (GNED%). The likelihood of corporate failure increases when the percentage of independent directors (INED%) increases, while the likelihood of corporate failure decreases when the percentage of grey directors (GNED%) decreases. In addition, those relationships appear to be non-linear and suggest that the marginal effects of independent (grey) directors on the probability of corporate failure increase (diminish) as their weight on the board increases.

---

[Insert Figure 1 about here]

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Further tests are performed to examine the associations between the NEDs in each grey area and the incidence of corporate failure. **Table 6** shows that the likelihood of corporate failure is significantly and negatively related to the percentage of non-executive directors who have been employees of the company (GNED1%) (Model (1)), have or had a material business relationship with the company (GNED2%) (Model (2)), have received additional remuneration from the company apart from a director's fee (GNED3%) (Model (3)), have family ties with the management (GNED4%)

(Model (4)), represent significant shareholders (GNED6%) (Model (6)), and have served on the board for more than nine years (GNED7%) (Model (7)). The relationship between the percentage of NEDs who hold cross-directorships (GNED5%) and the incidence of corporate failure is also negative, but not significant (Model (5)). The results appear that different types of grey directors have a consistent effect on a firm's survival, implying that a company may benefit from the presence of grey directors in maintaining viability regardless of their categories.

Overall, the findings presented in **Table 5** and **Table 6** reveal the importance of grey directors on boards and support prior conceptual reasoning that grey directors can add value to a firm (Baysinger & Butler, 1985; Hampel Report, 1998; Westphal, 1999). Corporate governance reformers may understate (overstate) the potential benefits that grey directors (independent directors) provide to the firm. Because alternative NEDs perform different board functions in terms of strategy and control, the increased use of independent directors for board monitoring could lead to a reduced use of grey directors, reducing their positive impacts on firm performance. Consequently, an overemphasis on stacking NEDs with independent directors at the expense of grey directors is likely to be ineffective and make firms more susceptible to failure.

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[Insert Table 6 about here]

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### 4.3 Additional Analyses

We perform additional analyses to determine the robustness of our results. First, certain studies and governance reports suggest that the absolute number of different types of directors on a board affects the weight of their views in the board's decisions (e.g., Cadbury, 1992; Gales & Kesner, 1994; Hambrick & D'Aveni, 1992). We examine the associations between the likelihood of corporate failure and absolute numbers of independent directors and grey directors. We find that firms with a greater number of independent directors are more likely to fail and there is a negative relationship between the likelihood of corporate failure and the number of grey directors, consistent with our primary tests shown in models (1) and (2) in **Table 5**.

Second, we employ an alternative definition suggested by Faleye et al. (2011) to classify independent and grey directors. A NED is considered to be an independent director if he/she serves on at least two of three major oversight committees (audit, remuneration and nomination committees); otherwise, he/she is considered to be a non-independent (grey) director. Faleye et al. (2011) argue that the dedication of a NED to monitoring activities reflects his/her function on the board. NEDs who concurrently serve on multiple oversight committees are more monitoring-intensive. They would devote significant time and efforts to oversight duties. However, NEDs who serve on a maximum of one oversight committee are more likely to contribute to the board in an advisory role because less intense monitoring can enable them to develop closer relationships and mutual trust with management,

allowing for them the time to focus more effectively on advising (Faleye et al., 2011). We find that firms with a greater proportion of NEDs who serve on at least two oversight committees are more likely to fail and there is a negative relationship between the likelihood of corporate failure and the proportion of NEDs serving on a maximum of one oversight committee. The findings are consistent with the primary results shown in **Table 5**, which reinforces the importance of non-independent (grey) directors to firm survival.

Third, the UK Corporate Governance Code (2012) requires that at least half of the board should comprise independent directors, which implies that the UK governance reformers prefer that independent directors dominate corporate boards. We therefore investigate the effects of an overrepresentation of independent directors with respect to both grey directors and executive directors on the likelihood of corporate failure. The result shows that the overrepresentation of independent directors relative to grey directors is positively associated with the likelihood of corporate failure, but there is no significant relationship between the overrepresentation of independent directors relative to executive directors and the likelihood of corporate failure. These findings suggest that having a board dominated by independent directors may not necessarily improve the likelihood of firm survival, compared to having one with grey directors, in line with the findings presented in **Table 5**.

Fourth, it is suggested that problematic firms may tend to change their board composition in response to poor performance (Hermalin & Weisbach, 2003). We thus employ the interaction term between the percentage of independent directors and return on assets and the interaction term between

the percentage of grey directors and return on assets to examine whether the effects of the percentages of independent and grey directors on the likelihood of corporate failure are subject to firm performance. However, we find that the interactions between firm performance and the percentages of independent directors and grey directors are not significantly related to the likelihood of corporate failure.

Lastly, the previous literature has suggested interrelationships or trade-offs between various governance mechanisms. Charitou et al. (2007) argue that external block shareholders are effective monitors because they have significant interests in the firms. A firm may demand fewer independent directors when its external block shareholders have higher ownership shares in the firm, suggesting that the effect of independent directors on firm performance is subject to the degree of external block shareholdings (Charitou, et al., 2007; Mak & Li, 2001). This study therefore also analyses the relationship between the likelihood of corporate failure and the interactions between the percentages of independent directors and external block shareholdings. However, the result shows that the interactive effect of the percentage of independent directors and external block shareholdings is not significantly related to the likelihood of corporate failure.

## **5. Discussion and conclusions**

In this study, we examine whether a firm's board structure is related to the likelihood of corporate failure in the UK. Particularly, we address the effectiveness of different types of NEDs: independent directors and grey directors. In doing so, we compare the board compositions of 117 failed firms to

those of a set of year-, industry- and size-matched non-failed firms. The empirical results suggest that firms with greater proportions of grey directors on their boards are less likely to fail. This result is confirmed when we separately analyse the seven categories of grey directors defined by the UK Corporate Governance Code (2012, Para. B.1.1). However, there is a significant, positive relationship between independent directors and corporate failure. Furthermore, the findings also demonstrate that firms with a greater share of grey directors relative both to executive and independent directors on their boards are less likely to fail.

The findings of this study appear to have important implications for the corporate governance literature. The findings demonstrate the importance of grey directors, consistent with the collaborative board model suggested by Westphal (1999) and Adams and Ferreira (2007) and the conceptual arguments of Baysinger and Butler (1985) and Baysinger and Hoskisson (1990). This result suggests that personally and economically tied NEDs who serve on boards can add value to firms. The results also contribute to the critique that the effectiveness of independent directors may be overstated in governance reform efforts (e.g., Adams & Ferreira, 2007; Baysinger & Hoskisson, 1990; Coles, Daniel, & Naveen, 2008; Faleye, et al., 2011; Hwang & Kim, 2009; Mace, 1986; Patton & Baker, 1987). An overemphasis on monitoring and control by independent directors may come at the expense of the contributions that NEDs can make to wealth creation (Adams & Ferreira, 2007; Faleye, et al., 2011; The Higgs Report, 2003).

Although the results of this study are important, they must be interpreted in light of the following

limitations, which may be addressed in future research. First, this study focuses on the observable personal or economic ties defined by the UK Corporate Governance Code (2012). This may underestimate the effects of unobservable friendship ties between executive directors and NEDs. Second, all of the sample companies considered in this study were classified in terms of the UK bankruptcy code. In fact, corporate failure could be a consequence of various reasons such as liquidity problem, ethical problem of management and changes in the external environment. A greater understanding of the relationship between corporate governance and corporate failure could be gained by extending the investigation to include the effectiveness of different corporate governance mechanisms in mitigating those various causes of failure that are beyond the scope of this study. Extending the current study into different settings in terms of various reasons of corporate failure might be a useful direction for future research.



## Notes

<sup>1</sup> In this study we refer to ‘personal or economic ties (affiliations) between NEDs and the firm’ and intend it to include NEDs’ affiliations with both the firm and its management.

<sup>2</sup> Companies in financial and mining sectors were excluded on the grounds that they have a number of significant differences in terms of industrial characteristics and accounting systems, such as income-measuring accounting rules.

<sup>3</sup> The lists of companies revoked from the Official List on The London Stock Exchange are obtained from the electronic resources Citytext and Hemscoff Company Guru.

<sup>4</sup> There are 14 companies in our final sample that were transferred from the Official List to the AIM List between 1997 and 2010. Those AIM companies are considered officially listed companies in this study because they went into receivership, administration or liquidation immediately after moving onto the AIM list, and all of their filed information is obtained during their official listing periods.

<sup>5</sup> Similar to existing US-based governance-failure studies, there are relatively few large-scale companies subject to failure in the UK. There were only 21, 57, 57 and 50 failed companies in the studies by Chaganti et al. (1985), Hambrick and D’Aveni (1992), Daily and Dalton (1994a, 1994b), respectively.

<sup>6</sup> The time period, industry classification and company size matching criteria employed in this study have commonly been used in prior bankruptcy studies (e.g., Blum, 1974; Beaver, 1966; Daily, 1996).

<sup>7</sup> Each failed sample company was matched with a non-failed company at the 3-digit level of the sub-sector code of the FTSE industrial classification.

<sup>8</sup> Within the industry group of each failed sample firm, the non-failed firm that had total sales most similar to the total sales of the failed firms was selected as the matching non-failed sample firm.

<sup>9</sup> This result is similar to the findings of Citron and Taffler (1992) and Lennox (1999).

<sup>10</sup> We classify all non-executive directors who do not meet the independence criteria defined by the UK Corporate Governance Code (2012, Para. B.1.1) as non-independent (grey) directors in this study, although the Code allows for the board to state its reasons if it considers a director independent notwithstanding he or she failing to meet the criteria.

<sup>11</sup> NEDs include both independent directors and grey directors. The total percentage of NEDs on the board is equal to 100% minus the percentage of executive directors on the board (ED%).

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**Table 1****The Characteristics of Failed Sample Firms**

<b>Panel A: Number of failed sample companies and nature of the failure</b>					
<b>Delisting</b>	<b>Nature of Failure</b>			<b>Frequency</b>	<b>Percentage</b>
	<b>Liquidation</b>	<b>Receivership</b>	<b>Administration</b>		
1997	0	1	1	2	2%
1998	1	4	3	8	7%
1999	3	4	3	10	9%
2000	6	4	1	11	9%
2001	2	6	6	14	12%
2002	13	7	5	25	21%
2003	2	7	2	11	9%
2004	3	3	1	7	6%
2005	1	2	3	6	5%
2006	1	2	0	3	3%
2007	0	0	0	0	0%
2008	0	1	5	6	5%
2009	0	0	9	9	8%
2010	1	0	4	5	4%
Total	33	41	43	117	100%

<b>Panel B: Distribution of the FTSE industrial classifications of the failed sample companies</b>		
<b>Industrial Classifications</b>	<b>Frequency</b>	<b>%</b>
Basic Materials	4	3%
Industrials	32	27%
Consumer Goods	24	21%
Health Care	6	5%
Consumer Services	28	24%
Telecommunications	6	5%
Utilities	2	2%
Technology	15	13%
Total	117	100%

**Table 2****Descriptive Statistics of the Sample and Univariate Analysis**

Variables	Failed firms					Non-failed Firms					t Test / Chi-squared Test <sup>(3)</sup>	Wilcoxon Test
	Mean	Median	Min	Max	Std dev	Mean	Median	Min	Max	Std dev		
INED%	30.48	33.33	0.00	80.00	17.87	27.94	25.00	0.00	75.00	18.53	1.07	0.71
GNED%	15.72	12.50	0.00	66.67	18.71	21.50	20.00	0.00	75.00	17.39	2.45 **	2.47 **
INED_ED%	64.58	60.00	0.00	400.00	55.07	69.85	50.00	0.00	400.00	64.79	0.71	1.06
GNED_ED%	34.80	20.00	0.00	300.00	49.63	56.75	40.00	0.00	600.00	83.20	2.42 **	2.57 **
GNED_INED%	49.61	0.00	0.00	300.00	73.25	98.39	50.00	0.00	600.00	123.41	2.92 ***	2.69 ***
ED%	53.80	50.00	0.00	100.00	15.04	50.55	50.00	12.50	100.00	16.36	1.75 *	1.88 *
DUALITY	0.23	0.00	0.00	1.00	0.42	0.17	0.00	0.00	1.00	0.38	1.70	
SINED	0.55	1.00	0.00	1.00	0.50	0.60	1.00	0.00	1.00	0.49	0.63	
CEOTEN	5.85	5.00	0.00	29.00	4.81	8.52	7.00	0.00	36.00	5.64	3.54 ***	3.78 ***
BLOCK	37.81	38.22	0.00	87.62	19.27	38.33	33.81	3.14	76.91	18.45	0.23	2.54
ROA	-0.23	-0.10	-5.20	0.43	0.60	0.04	0.09	-0.88	0.52	0.21	4.87 ***	6.56 ***
LEV	0.34	0.31	0.00	2.79	0.26	0.17	0.14	0.00	1.14	0.18	4.91 ***	5.75 ***
LnSIZE	10.72	10.57	7.10	14.09	1.37	11.08	10.96	7.08	18.96	1.60	2.24 **	2.21 **
AGE	36.92	20.00	1.00	132.00	34.23	40.01	30.00	4.00	115.00	32.10	0.75	1.02

Notes: (1) \*\*\*, \*\* and \* indicate significance at the  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.1$  levels, respectively, based on two-tailed tests. (2) INED%: the percentage of total board members who are independent directors; GNED%: the percentage of total board members who are grey directors; INED\_ED%: the ratio of independent directors to executive directors; GNED\_ED%: the ratio of grey directors to executive directors; GNED\_INED%: the ratio of grey directors to independent directors; ED%: the percentage of board members who are executive directors; DUALITY: the presence of leadership duality; SINED: the presence of a senior independent director; CEOTEN: number of years that the incumbent CEO has spent on the board; BLOCK: total percentage of shareholdings held by significant external shareholders; ROA: return on assets; LEV: the percentage of total debts in terms of total assets; LnSIZE: natural log of total assets (£000); AGE: firm age. (3) T-tests and Wilcoxon rank sum tests for continuous variables and Chi-squared test for categorical variables (DUALITY and SINED).

**Table 3****Percentage of directors in each grey area category**

Grey directors Categories <sup>1</sup>		Failed Firms	Non-failed Firms
GNE1%	Former Employee of Company or Group	4.03% (25.64%)	5.97% (27.77%)
GNE2%	Material Business Relationship with Company	1.68% (10.69%)	5.63% (26.19%)
GNE3%	Receives additional remuneration from the company apart from a director's fee	3.68% (23.41%)	6.29% (29.26%)
GNE4%	Relatives of Management	0.21% (1.34%)	0.95% (4.42%)
GNE5%	Cross Directorships	3.33% (21.18%)	3.39% (15.77%)
GNE6%	Represents a significant shareholder	7.39% (47.01%)	9.60% (44.65%)
GNE7%	Serving on the board for more than nine years	5.10% (32.44%)	10.19% (47.40%)

Notes: (1) The table presents the percentage of grey directors in each grey area category relative to the total number of directors. The percentage of grey directors in each grey area category relative to the total number of grey directors is shown in parentheses. (2) The grey directors are classified in terms of the categories recommended by the UK Corporate Governance Code (2012, Para. B.1.1). (3) GNE1%: the percentage of grey directors who have been an employee of the company or group; GNE2%: the percentage of grey directors who have or had a material business relationship with the company; GNE3%: the percentage of grey directors who have received additional remuneration apart from a director's fee; GNE4%: the percentage of grey directors who have close family ties with the company's other directors, advisors or senior employees; GNE5%: the percentage of grey directors who hold cross-directorships; GNE6%: the percentage of grey directors who represent significant shareholders; GNE7%: the percentage of grey directors who have served on the board for more than nine years. (4) Percentages sum to more than 15.72% and 21.50% of total directors of the failed and non-failed firms, respectively, because certain grey directors fit multiple categories.

**Table 4****Spearman's rho Correlations among Independent Variables**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 INED%	1.00												
2 GNED%	-0.62 ***	1.00											
3 INED_ED%	0.88 ***	-0.24 ***	1.00										
4 GNED_ED%	-0.53 ***	0.99 ***	-0.13 *	1.00									
5 GNED_INED%	-0.73 ***	0.97 ***	-0.39 ***	0.93 ***	1.00								
6 ED%	-0.33 ***	-0.47 ***	-0.69 ***	-0.54 ***	-0.32 ***	1.00							
7 DUALITY	-0.02	-0.19 ***	-0.09	-0.21 ***	-0.16 **	0.24 ***	1.00						
8 SINED	0.19 ***	0.04	0.23 ***	0.07	-0.01	-0.23 ***	0.10	1.00					
9 CEOTEN	-0.09	-0.04	-0.15 **	-0.07	-0.01	0.14 **	0.22 **	0.05	1.00				
10 BLOCK	0.13 *	0.07	0.25 ***	0.08	0.02	-0.25 ***	-0.06	-0.05	0.02	1.00			
11 ROA	-0.11	0.03	-0.13 *	0.02	0.06	0.09	0.01	-0.06	0.25 ***	0.04	1.00		
12 LEV	0.05	-0.14 *	0.01	-0.13 *	-0.14 **	0.14 *	0.11	-0.14 *	-0.17 **	-0.05	-0.17 **	1.00	
13 LnSIZE	0.15 **	-0.01	0.19 ***	0.03	-0.05	-0.11	0.05	0.25 ***	0.12 *	-0.03	0.26 ***	0.13 *	1.00
14 AGE	0.05	0.04	0.06	0.05	0.01	-0.06	0.11	-0.07	0.13 *	0.11	0.01	0.04	0.06

Notes: (1) \*\*\*, \*\* and \* indicate significance at the  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.1$  levels, respectively, based on two-tailed tests. (2) INED%: the percentage of board members who are independent directors; GNED%: the percentage of board members who are grey directors; INED\_ED%: the ratio of independent directors to executive directors; GNED\_ED%: the ratio of grey directors to executive directors; GNED\_INED%: the ratio of grey directors to independent directors; ED%: the percentage of board members who are executive directors; DUALITY: the presence of leadership duality; SINED: the presence of a senior independent director; CEOTEN: number of years that the incumbent CEO has spent on the board; BLOCK: total percentage of shareholdings held by significant external shareholders; ROA: return on assets; LEV: percentage of total debts in terms of total assets; LnSIZE: natural log of total assets (thousands); AGE: firm age.

**Table 5**  
**Conditional Logistic Regression of the Association between Board Composition and the Incidence of Corporate Failure**

Dependent Variable: 1: Failed Firms, 0: Non-failed Firms					
Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
INED%	0.033** (0.013)				
GNE%D		-0.040*** (0.013)			
INED_ED%				0.003 (0.004)	
GNE%D_ED%				-0.009*** (0.003)	
GNE%D_INED%					-0.007** (0.003)
ED%			0.017 (0.014)		0.018 (0.018)
DUALITY	0.501 (0.620)	0.060 (0.656)	0.006 (0.610)	0.225 (0.671)	0.622 (0.803)
SINED	-0.258 (0.581)	-0.239 (0.541)	0.244 (0.490)	-0.379 (0.550)	-0.314 (0.809)
CEOTEN	-0.051 (0.048)	-0.058 (0.051)	-0.046 (0.053)	-0.041 (0.050)	-0.054 (0.060)
BLOCK	-0.012 (0.012)	-0.002 (0.013)	0.001 (0.014)	-0.004 (0.013)	-0.006 (0.015)
ROA	-3.894** (1.938)	-4.116** (1.736)	-3.910** (1.710)	-3.903** (1.838)	-3.659* (2.139)
LEV	4.427* (2.373)	4.537** (1.978)	3.995** (1.926)	4.490** (2.286)	4.294** (1.749)
LnSIZE	-0.439* (0.204)	-0.342* (0.185)	-0.202 (0.180)	-0.254 (0.246)	-0.262 (0.268)
AGE	0.008 (0.007)	0.007 (0.007)	0.003 (0.006)	0.006 (0.007)	-0.000 (0.007)
Observations	234	234	234	226	172
Log likelihood	-42.97	-40.78	-46.12	-40.79	-29.33
Chi-square	27.64***	31.80***	29.90***	34.15***	29.26***
Pseudo R <sup>2</sup>	0.470	0.497	0.431	0.479	0.508

Notes: (1) \*\*\*, \*\* and \* indicate significance at the  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.1$  levels, respectively, based on two-tailed tests; robust standard errors are presented in parentheses. (2) INED%: the percentage of board members who are independent directors; GNE%D: the percentage of board members who are grey directors; INED\_ED%: the ratio of independent directors to executive directors; GNE%D\_ED%: the ratio of grey directors to executive directors; GNE%D\_INED%: the ratio of grey directors to independent directors; ED%: the percentage of board members who are executive directors; DUALITY: the presence of leadership duality; SINED: the presence of a senior independent director; CEOTEN: number of years that the incumbent CEO has spent on the board; BLOCK: total percentage of shareholdings held by significant external shareholders; ROA: return on assets; LEV: percentage of total debts in terms of total assets; LnSIZE: natural log of total assets (thousands); AGE: firm age. (3) The table shows the results for one year prior to failure. The results are largely unchanged in the second, third and fourth years prior to failure.

**Table 6**

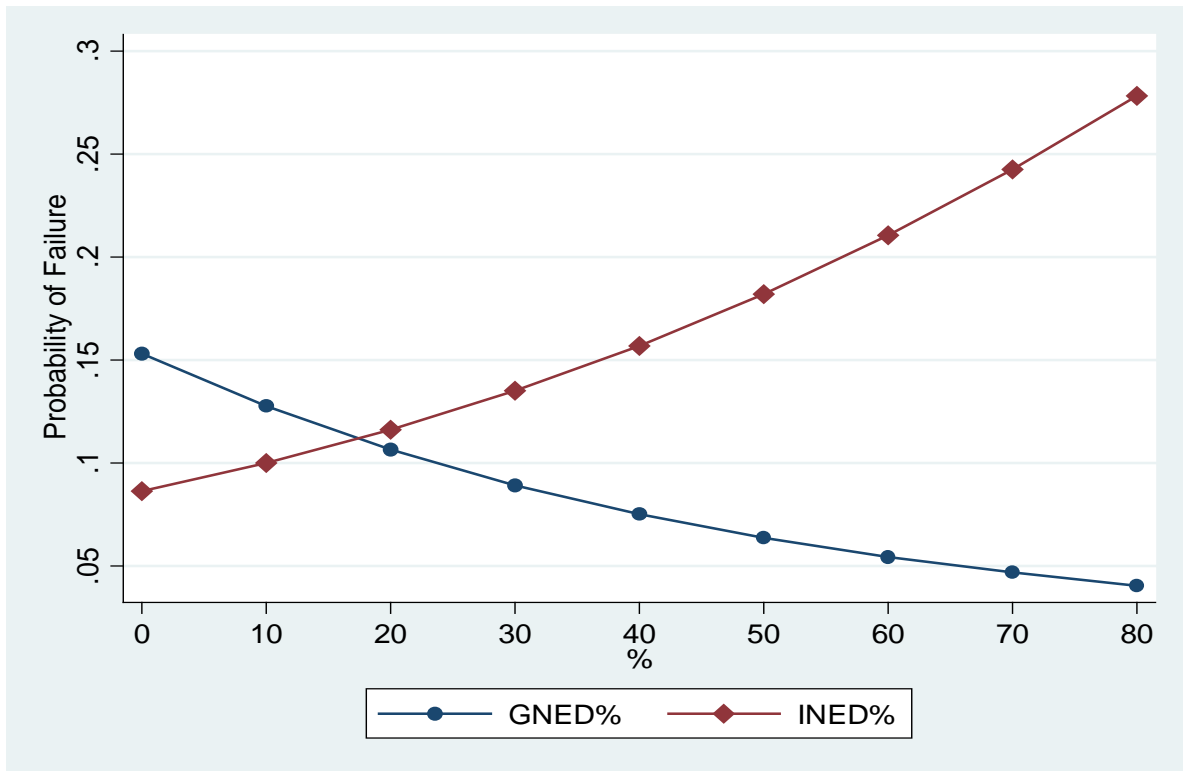
Conditional Logistic Regression of the Association between Different Category of Grey Directors and the Incidence of Corporate Failure

Dependent Variable: 1: Failed Firms, 0: Non-failed Firms							
Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)
GNED1%	-0.041** (0.018)						
GNED2%		-0.074*** (0.021)					
GNED3%			-0.056*** (0.020)				
GNED4%				-0.112* (0.059)			
GNED5%					-0.013 (0.015)		
GNED6%						-0.025* (0.015)	
GNED7%							-0.044** (0.018)
DUALITY	0.126 (0.619)	0.375 (0.744)	-0.019 (0.626)	0.151 (0.609)	0.211 (0.609)	0.082 (0.647)	-0.125 (0.565)
SINED	0.075 (0.495)	-0.034 (0.546)	0.044 (0.532)	0.098 (0.454)	0.164 (0.488)	-0.113 (0.524)	0.046 (0.557)
CEOTEN	-0.043 (0.050)	-0.046 (0.057)	-0.033 (0.051)	-0.043 (0.054)	-0.047 (0.054)	-0.047 (0.053)	-0.035 (0.043)
BLOCK	-0.003 (0.013)	-0.000 (0.014)	-0.002 (0.012)	-0.006 (0.013)	-0.003 (0.013)	-0.001 (0.014)	-0.003 (0.013)
ROA	-3.803** (1.699)	-4.253** (1.969)	-4.370** (1.794)	-3.747** (1.821)	-3.921** (1.733)	-3.915** (1.758)	-3.612*** (1.402)
LEV	4.246** (1.955)	3.709* (2.227)	4.215* (2.004)	4.380* (2.282)	4.155* (2.127)	4.138* (2.128)	3.914*** (1.469)
LnSIZE	-0.291 (0.177)	-0.162 (0.187)	-0.279 (0.182)	-0.260 (0.186)	-0.270 (0.182)	-0.254 (0.178)	-0.315 (0.165)
AGE	0.004 (0.006)	0.004 (0.007)	0.006 (0.006)	0.002 (0.006)	0.005 (0.006)	0.004 (0.006)	0.003 (0.007)
Observations	234	234	234	234	234	234	234
Log likelihood	-45.10	-42.27	-42.65	-45.26	-45.74	-45.03	-43.35
Chi-square	29.98***	28.55***	31.97***	25.16***	27.67***	28.47***	48.90***
Pseudo R <sup>2</sup>	0.444	0.479	0.474	0.442	0.429	0.445	0.465

Notes: (1) \*\*\*, \*\* and \* indicate significance at the  $p < 0.01$ ,  $p < 0.05$  and  $p < 0.1$  levels, respectively, based on two-tailed tests; robust standard errors are presented in parentheses. (2) GNED1%: the percentage of grey directors who have been an employee of the company or group; GNED2%: the percentage of grey directors who have or had a material business relationship with the company; GNED3%: the percentage of grey directors who have received additional remuneration apart from a director's fee; GNED4%: the percentage of grey directors who have close family ties with the company's other directors, advisors or senior employees; GNED5%: the percentage of grey directors who hold cross-directorships; GNED6%: the percentage of grey directors who represent significant shareholders; GNED7%: the percentage of grey directors who have served on the board for more than nine years. (3) The definitions for the control variables have been presented in **Table 5**.

**Figure 1.**

The relationships between board composition and the probability of corporate failure



Notes: (1) This figure depicts the margins of responses of the average probability of corporate failure for specific values of INED% and GNED%. We use the predictions of models (1) and (2) in **Table 5** to calculate the probability of failure for each observation at fixed values of INED% and GNED%, respectively, and the observed values of the remaining covariates. We then calculate the average probability of failure by averaging the probability of failure of each observation. (2) INED%: the percentage of board members who are independent directors; GNED%: the percentage of board members who are grey directors.