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The impact of board quality and nomination committee on corporate bankruptcy

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ABSTRACT

This paper examines the effects of board quality on the relationship between corporate bankruptcy and nomination committee effectiveness. We argue that the proportion of outside directors, a proxy of board quality, arguably captures the extent of board control and resources. Based on dataset from 1835 firm-year observations for 98 bankrupt and 269 non-bankrupt UK listed non-financial firms between 1994 and 2011 and using the agency and resource dependence theories, we predict and find that nomination committee effectiveness negatively affects corporate bankruptcy and that board quality mitigates the negative effects. The results lend support to the notion that firms benefit from board quality in terms of outside directors' ability to monitor CEO on behalf of shareholders and also provide advice, counsel and legitimacy to the firm. This study extends the present research on corporate bankruptcy by providing evidence on the impact of board quality and nomination committee effectiveness on UK corporate bankruptcy.

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1. Introduction

This study is motivated by schemes to strengthen the effectiveness of corporate boards and their committees, in the wake of extraordinary profile corporate bankruptcy. For instance, Cadbury (1992) requires listed firms to establish a proper, rigorous and clear system for new board candidates. Cadbury (1992) also recommends that the majority of members on the nomination committee should be non-executive directors. Higgs (2003) approves Cadbury's (1992) recommendation of the nomination committee, emphasising on its main role and responsibilities. Integral in the nomination committee reforms is that an effective nomination committee enhances the board's ability to discharge their monitoring and resource functions effectively (Hillman & Dalziel, 2003), thereby mitigating the negative association between board quality and corporate bankruptcy (Platt & Platt, 2012).

Scholars use the agency (Jensen & Meckling, 1976), social network (Granovetter, 1985), stewardship (Davis, Schoorman, & Donaldson, 1997), institutional (DiMaggio & Powell, 1983) and resource dependence (Pfeffer & Salancik, 1978) perspectives to understand corporate

board attributes and corporate financial performance (Giráldez & Hurtado, 2014). Little, however, is known about the effects of the board quality and nomination committee on corporate bankruptcy, despite series of board composition and nomination committee's guidance in the Anglo-Saxon literature (Ruigrok, Peck, Tacheva, Greve, & Hu, 2006). This study contributes to this line of research. Using dataset from 1835 firm-year observations for 367 UK listed non-financial firms, consisting of 98 bankrupt and 269 non-bankrupt firms, drawn from the top 500 UK listed firms, from 1994 to 2011, the study investigates the effects of board quality on the relationship between nomination committee effectiveness and corporate bankruptcy. We use proportion of outsider directors as proxy for board quality. Proportion of outside directors (i.e. ratio of outside directors to board size) mirrors the degree to which the CEO controls the board and vice versa (Wincent, Anokhin, & Örtqvist, 2012). In addition, Pfeffer and Salancik (1978) suggest proportion of outside directors reflects the characteristics of the firm's environment, enhancing the firm's ability to access resources required to control uncertainty and thus avoid corporate bankruptcy. We argue that the effects of nomination committee effectiveness and corporate bankruptcy will be affected by board quality. Further, we contend that while nomination committee effectiveness is a necessary condition to prevent corporate bankruptcy, nomination committee effectiveness on its own is not sufficient to prevent corporate bankruptcy—we also need to consider the number of outside directors on the board to discharge their functions because their ability to control their CEOs' agenda and provide resources to the firm differs (Jermias & Gani, 2014). For instance, companies Non-bankrupt and Bankrupt have

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the same level of effectiveness for the board nomination committee. Company Non-bankrupt board, however, is outside dominated but not company Bankrupt, implying approval of the NC's decisions may be in the interest of shareholders but not the CEO. Accordingly, it is logical to expect that company Non-Bankrupt's board of directors will use the breadth and depth of their expertise to provide advice and counsel (Zahra & Pearce, 1989). These in turn, will enhance company Non-Bankrupt's legitimacy (Daily & Schwenk, 1996), thereby facilitating access to critical resources required to avoid corporate bankruptcy (Hillman, 2005).

Consistent with agency theory and resource dependence theory, we predict that nomination committee effectiveness will have a negative effect on corporate bankruptcy while board quality will also have a negative effect on corporate bankruptcy. The negative effect of nomination committee effectiveness will be mitigated by the board quality. We find that nomination committee effectiveness displays a negative but insignificant relationship with corporate bankruptcy. With regard to board quality, we document a negative relationship between board quality and corporate bankruptcy. We also find that board quality mitigates the negative effects between the nomination committee effectiveness and corporate bankruptcy.

This study's contributions are several. First, the use of agency and resource dependency theories in this study has shown that the proportion of outside directors is significant signposts to the corporate bankruptcy event. The results increase our understanding of the link between board quality and corporate bankruptcy. Thus, we have evidence to support to the notion that outside dominated boards exhibit a positive association with effective board control (Johnson, Daily, & Ellstrand, 1996) and resource provision function (Fich, 2005; Pearce & Zahra, 1991; Pfeffer, 1972) and, thus, thereby reducing corporate bankruptcy. Second, the findings suggest the negative but insignificant relationship between nomination committee effectiveness and corporate bankruptcy. However, the negative effect is mitigated by the board quality. To the best of our knowledge this area is under research. Platt and Platt (2012), for example, consider a direct link between nomination committee's variables and corporate bankruptcy, neglecting a comprehensive analysis of corporate bankruptcy and the interaction between board quality and nomination committee effectiveness. Platt and Platt's approach limits our understanding of the effects of nomination committee on corporate bankruptcy. Put differently, the use of agency and resource dependence theories in this study has shown that the effectiveness of the nomination committee contributes towards our understanding of the relationship between board quality and corporate bankruptcy. These findings lend support to the notion that well run board nomination committee strengthened the board quality to monitor managerial performance and in this way, reduces corporate bankruptcy. Finally, this study adds to existing research on nomination committee that mirrors the recommendations of the Cadbury (1992) on the board nomination committee, emphasising on its formal presence, size, membership independence and meetings of the nomination committee.

2. Literature review and hypotheses

2.1. Agency theory and the monitoring function

The separation of ownership and control in listed firms has induced acute agent–principal conflict regarding the firm's strategic direction. Managers seek personal wealth and are less interested in enhancing the shareholders' value (Baysinger, Kosnik, & Turk, 1991). Agency scholars, therefore, advocate enhanced monitoring of the CEO's agenda (Combs, Ketchen, Perryman, & Donahue, 2007) as well as incentives that tie executives' rewards to shareholders' value to lessen the agency loss (Eisenhardt, 1989) via reducing the moral hazards and adverse selection problems (Gomez-Mejia & Wiseman, 2007), and ultimately, reducing the bankruptcy of the firm (Jensen & Meckling, 1976). These

duties fall first to the board, outside directors and nomination committees, in particular (Combs et al., 2007). Monitoring by nomination committee enhances the quality of board composition. Board quality, in turn, reduces the agency problems and, in this way, mitigates the negative relationship between nomination committee and the likelihood of a firm's bankruptcy (Hillman & Dalziel, 2003). Consequently, the study examines the effects of board quality and nomination committee effectiveness on corporate bankruptcy through the agency-theoretical lens.

2.2. Resource dependence theory and the provision of resource function

The resource dependence theory suggests that corporate bankruptcy is an indication of a firm's lack of legitimacy to access critical resources from its constituents (Pfeffer & Salancik, 1978). This suggests that firm interdependence with exchange partners reduces its independence and increase uncertainty (Eisenhardt, 1989). In turn, uncertainty obscures the firm's control of resources (Rivas, 2012) thereby, reducing shareholders' value (Combs et al., 2007). To mitigate this, BOD links the firm with its external environment, thereby reducing uncertainty (Rivas, 2012), and enhancing firm's long-term viability (Hillman & Dalziel, 2003).

Overall, agency and resource dependence theories draw on diverse disciplines, but complement each other in identifying essential board attributes that might affect corporate bankruptcy. Accordingly, we invoke Hillman and Dalziel (2003) assertion that the resource dependence and agency theories suggest an integrative model that synthesises prior studies and specifies relationships between board quality and nomination committee effectiveness on corporate bankruptcy.

Second, the resource dependence theory suggests that boards, via their interlocks, provide resources including legitimacy, advice and counsel. Thus, boards via their network ties enhance firms' legitimacy (Hillman & Dalziel, 2003), which in turn, reduces uncertainties (Borgatti & Pacey, 2003), thereby inducing exchange partners for continual support to enhance firm's long term success.

2.3. Nomination committee, board quality, and corporate bankruptcy

The significance of board diversity has been increasingly recognised especially after the recent financial fiascos and high profile bankruptcies (Kaczmarek, Kimino, & Pye, 2012). Nomination committees (NCs) help to ensure the "right" candidates are selected on the board (Ruigrok et al., 2006). Interdependent directors may not perform their duties in the manner compatible with shareholder interests. The NC is a crucial institutional mechanism to overcome the limitations of the board selection process (Kaczmarek et al., 2012). Here, NCs resolve the power asymmetry between boards and management (Ruigrok et al., 2006) by raising directors' qualifications and independence. Thus, the absence of nominating committees is associated with more affiliated outside directors, who lack the confidence to evaluate CEO's performance (Shivdasani & Yermack, 2002). In turn, poor evaluation of the CEO may result in excessive cash compensation for CEOs (Westphal & Zajac, 1995), thereby resulting in a firm's bankruptcy. The existence of the NC effectively delegates the director selection process to an independent group, powerful enough to recruit independent thinkers who possess the necessary expertise to accomplish their role. Conversely, the NC's decisions are ratified by the board, implying that the board nomination process is a function of the distribution of power between the board and the CEO. The mere presence of the NC is not sufficient to mitigate the agency problem and/or enhance survival of a firm. An inside director, for example, serving on the NC is more likely to safeguard shareholders' interest (Ruigrok et al., 2006), thereby resisting the appointment of independent thinkers. ICSA (2007) also highlights that the NC should meet at least twice in the financial year to discharge their duties effectively. Fama and Jensen (1983) suggest that firms can reduce the agency

conflicts by raising the effectiveness of board NC. Effective NCs enhance the boards' ability to ratify CEO's decisions by screening new board applicants on the basis of their independence. In sum, the expectation is that an effective NC reduces the likelihood of a firm's bankruptcy by enhancing the board monitoring role. Little, however, is known about the effects of NC, board quality and corporate bankruptcy. To this end, based on the predictions from agency theory, this study argues that an effective nomination committee may enrich our understanding on the association between nomination committee–corporate bankruptcy. Korn/Ferry's (1999) survey reports that boards and sub-committees, especially the nomination committee, monitor CEO on behalf of shareholders and provide resources to the firm. In turn, these functions are associated to the likelihood of corporate bankruptcy (Hillman & Dalziel, 2003). From this point, hypothesis one states:

H1. *Ceteris paribus*, there is a negative relationship between the effectiveness of the nomination committee and corporate bankruptcy.

The agency perspective considers outside directors as shareholders' primary line of resistance against self-serving CEOs (Hermalin & Weisbach, 1988), implying the board's monitoring function is conceptually the key to avoid corporate bankruptcy (Hillman & Dalziel, 2003). Fama and Jensen (1983) suggest boards can reduce information asymmetry via inclusion of few inside directors in addition to the CEO. Daily and Dalton (1994b), however, suggest that interdependent directors, due to their loyalty to the CEO (Baysinger & Hoskisson, 1990) may consider CEO evaluation as a sensitive issue. Thus, effective boards arguably consist of a high proportion of outside directors. Evidence, however, on performance and board independence is unclear (Hillman & Dalziel, 2003). Kroll, Walters, and Le (2007) document the potential benefits of inside-dominated boards, stressing that executive board members possess valuable tacit knowledge of the firms and are in the best position to provide oversight. Daily and Dalton (1994a) also show that a large number of outsiders representing diverse interests may politicise the board process, thereby diluting effective board leadership, resulting in top management team conflict (Chaganti, Mahajan, & Sharma, 1985) and reduce the firm's economic flexibility. Further, top management, when faced with such conflicts, may seek ways of avoiding the pressures, rendering the board and its committee ineffective due to their lack of expertise, independence and satisfactory time to monitor the CEO. Klein (1998) confirms this notion and reports a negative relation between firm performance and the proportion of outsiders on committees focused on advising. This implies that insiders play an important informational role. Others show a positive association between the proportion of outside directors on both monitoring quality and firm financial performance (e.g. Faleye, Hoitash, & Hoitash, 2011), negotiating takeover premiums (e.g. Byrd & Hickman, 1992), CEO turnover (Borokhovich et al., 1996), and adoption of anti-takeover mechanisms (Brickley et al., 1994).

Using the resource dependency lens, the number of outside directors on board is an indication of the board's leadership efforts to lobby support from resources providers. Outside directors, due to diverse background and independence, offer independent alternative views to the board and linkages to external stakeholders that control the firm's access to resources (Goodstein, Gautam, & Boeker, 1994). This enriches strategic decision making (Baysinger & Hoskisson, 1990; Judge & Zeithaml, 1992), and in this way, enhances firm's legitimacy (Pfeffer & Salancik, 1978). In turn, legitimacy reduces uncertainty, thereby enhancing survival prospects of a firm (Kroll et al., 2007).

In the UK, the issue of the non-executive directors on board is addressed extensively in Cadbury and subsequent amendments, emphasising that half of the board, as well as the chairman, should be outside directors. Thus, the reforms in the UK invoke Pfeffer and Salancik's (1978) insightful perspective that outside directors offer expertise, control and resources to increase the board process in this manner enhancing the firm's survival. Therefore, we reiterate

the notion that, outside-dominated boards are effective boards, grounded in both the agency and the resource dependence theories. Agency theory, however, cautions that some outside directors are not crucial in reversing the downward spiral (Baysinger & Hoskisson, 1990), but monitors of the CEO's agenda to protect shareholders rights (Fama & Jensen, 1983). The expectation is that outsider dominated boards will exhibit a positive relationship with effective board control (Johnson et al., 1996) and resource provision function (Hillman & Dalziel, 2003) and, in this way, reduce the likelihood of a firm's bankruptcy. Agency and resource dependence theories lead to the same prediction, with respect to outside directors and corporate bankruptcy. From this point, hypothesis two states:

H2. *Ceteris paribus*, there is a negative relationship between the board quality and corporate bankruptcy.

Research links board quality with a number of board actions including CEO compensation, CEO turnover, the adoption of poison pills, adoption of greenmail (e.g. Frankforter et al., 2000). However, to the best of our knowledge there is no study which directly measures board quality from inside the boardroom committee in a way that might be used to directly examine the theoretical "black box" (Payne, Benson, & Finegold, 2009) between board quality, nomination committee and corporate bankruptcy. Given the number of previous studies that have tied many of the aforementioned board structure to corporate bankruptcy, we expect that proportion of outside directors, a proxy for board quality, will actually act as a moderator of the board nomination committee–bankruptcy relationships that have been neglected by governance scholars. This moderating role of board quality is implied in existing research both theoretical (Hillman & Dalziel, 2003) and empirical (Jermias & Gani, 2014). Golden and Zajac (2001) show that board attributes impact board quality, leading to more-quality strategic decisions and enhance performance. Forbes and Milliken's (1999) theoretical model depicts how board quality acts as a mediator between board processes and firm performance. Payne et al.'s (2009) findings indicate that most team effectiveness attributes are associated with higher levels of board quality, and that board quality is significantly related to corporate financial performance. Jermias and Gani (2014) predict and find that CEO duality and board dependence negatively impact performance and that board capital mitigates the negative effect.

Therefore, we expect that the negative association between nomination committee and corporate bankruptcy will be mitigated by board quality. From this point, hypothesis three states,

H3. *Ceteris paribus*, the negative relationship between the nominated committee effectiveness and corporate bankruptcy will be mitigated by board quality.

3. Methodology

We use pooled cross-sectional data LOGIT analysis to examine the association between board quality and nomination committee on the likelihood of corporate bankruptcy (Wu, Gaunt, & Gray, 2010). Our pooled LOGIT models are equivalent to Sheppard (1994) but differ slightly from Wu et al. (2010). In this regard, Wu et al. (2010) include one firm-year observation for each bankrupt firm but all firm-year observations for the non-bankrupt firms. As well, the pooled data LOGIT models are similar to the hazard model in Beaver, McNichols, and Rhie (2005); Xu and Zhang (2009), save the inclusion of maximum five firm-year observations for each bankrupt and non-bankrupt firm. This indicates that there are multiple observations of the same firm in each sample, denoting that residuals may be correlated across time and across firms. Consequently, we use robust standard errors estimation and adjust errors by year and firm clustering in the final estimations

of the models (Petersen, 2009). We test our hypotheses using the following model:

$$\begin{aligned} \text{Bankruptcy}_{i,t} = & \beta_0 + \beta_1 \text{Board Quality}_{i,t-1} \\ & + \beta_2 \text{Nomination Committee Effectiveness}_{i,t-1} \\ & + \beta_3 \text{Board Quality}_{i,t-1} * \text{Nomination Committee}_{i,t-1} \\ & + \beta_4 \text{CEO Duality}_{i,t-1} + \beta_5 \text{Board Size}_{i,t-1} + \beta_6 \text{Firm Age}_{i,t-1} \\ & + \beta_7 \text{Liquidity}_{i,t-1} + \beta_8 \text{Firm Size}_{i,t-1} \\ & + \beta_9 \text{Financial Leverage}_{i,t-1} + \varepsilon_{i,t-1} \end{aligned} \quad (1)$$

where

- Bankruptcy = dummy variable (1 if bankrupt firm, 0 otherwise),
- Board Quality = proportion of outsider directors,
- Nomination Committee Effectiveness = composite index consisting of the nomination committee's presence (NCP), independence (NCI), chairman independence (NCCI), size (NCS) and frequency of meetings (NCM),
- CEO Duality = dummy variable (1 if CEO-chair positions held by one person; 0 otherwise),
- Board Size = number of directors on the board,
- Firm Age = balance sheet date minus date of incorporation,
- Liquidity = working capital/total assets
- Firm Size = logarithm of book value of year-end total assets divided by Consumer Price Index-deflator,
- Financial Leverage = total liabilities/total assets
- ε = error term.

3.1. Sample and data collection

The population of bankrupt firms consists of firms under the UK Insolvency Act of 1986. We restrict our population period to 1st January 1994 to 31st December 2011. The rationale is to collect nomination committee attributes data post Cadbury (1992). Our sample of bankrupt firms is constructed as follows. First, we identify a list of 4233 insolvent and/or inactive firms and dates of insolvency (where available) from Financial Analysis Made Easy (50 firms) and Thomson One Banker (4183 firms) databases. Next, we confirm the status of each firm and extract the date of insolvency from the Companies House Website.² We identify the non-bankrupt firms from the Financial Analysis Made Easy database. The non-bankrupt firms are relatively large and within the top 500 publicly quoted firms in the London Stock Exchange Market. The criteria for the selection of the non-bankrupt-firms are not materially different from the bankrupt. We collect data on nomination committees manually from each company's annual reports, available from the Thomson One Banker database. We also collect company financial information from Worldscope. Consistent with Wu et al. (2010) we exclude private firms, foreign firms, firms with accounting year gap, firms with accounting period exceeding 12 months or less, and/or have demerged within the sample period, as well as firms from specially regulated industry (e.g. banks). Further, we omit bankrupt firms without data on employees and/or turnover. We include only entities with five years complete data prior to insolvency for computation of financial ratios and corporate governance proxies. Our final sample is 367 firms and 1835 firm-years observations, consisting of 98 bankrupt firms and 269 non-bankrupt firms. Finally, we winsorised the data save dummy and count variables. The intention is to obtain robust statistics. We turn to the definitions of the variables of the study.

3.2. Variables

The dependant variable, corporate bankruptcy is the filing of an insolvency petition. Corporate bankruptcy is a binary variable that takes the value of "1", if the firm is classified as bankrupt and "0" otherwise.

To test hypothesis 1, the primary variable of interest is nomination committee effectiveness (NCE). NCE is a composite measure comprising: (1) the presence of the nomination committee (NCP), (2) the size of the nomination (NCS), (3) independence of the nomination committee (NCI), (4) the independence of the chairman of the nomination committee (NCCI), and (5) the number of meetings held by the nomination committee (NCM). Thus, NCE Index is constructed as follows:

$$\text{NCE Index} = \text{NCP} + \text{NCI} + \text{NCS} + \text{NCCI} + \text{NCM}. \quad (2)$$

This index is inspired by Cadbury (1992), prior studies (e.g. Hart, 1995; Ruigrok et al., 2006; Vafeas, 1999) and recent reforms (Higgs, 2003), which require firms to maintain nomination committees based on these five main constructs. We define the five main constructs as follows. First, NCP is a binary variable with "1" denoting presence of appointment committee and "0" otherwise (Cadbury, 1992; Conyon & Peck, 1998; Ruigrok et al., 2006). Second, NCI is a dummy variable, where "1" means all members of the nomination committee are independent non-executive directors and "0" otherwise (Conyon & Mallin, 1997; Hart, 1995). Third, NCCI is a binary variable, where "1" means the committee's chair is an independent non-executive director or independent chairman of the board, save when the chairman's successor is being sought, and "0" otherwise (Conyon & Mallin, 1997; Code, 2010). Finally, NCS and NCM are both continuous variables, but NCS is coded "1", when nomination committee consists of at least three independent NED and "0" otherwise (see ICSA, 2007), due to the composite measure NCE (see Ruigrok et al., 2006). Likewise, NCM1 is coded "1", when nomination committee members meet at least twice and "0" otherwise (see ICSA, 2007).

To test Hypothesis 2, the primary variable of interest is proportion of outside directors, our proxy for board quality, is calculated as the number of outside directors divided by board size. To test Hypothesis 3, the primary variable of interest is the interaction between proportion of outside directors and nomination committee effectiveness. We use extensive control variables including board size, CEO duality, board size, firm age, liquidity, firm size and financial leverage. Appendix A contains a description of the variables used in the study.

4. Results

4.1. Descriptive statistics

Table 1 displays the descriptive statistics for our pooled data. The defining features of the 369 sample firms from the London Stock Exchange are the heavy skew in the distributions of liquidity, profitability and firm age. Firm age also takes a value between 1 and 119, but has a cross-sectional average of 36, indicating that the sample firms are relatively stable. On average, the majority of directors (54%) on boards in the UK are non-employee directors. This is slightly below the 58% and 69% reported in the US (Klein,

Table 1
Descriptive statistics.

Variables	Mean	Std. dev.	Min	Max
Corporate bankruptcy	0.27	0.44	0.00	1.00
CEO duality	0.13	0.33	0.00	1.00
Board size	7.45	2.28	3.00	14.00
Firm age	36.04	33.26	1.00	119.00
Liquidity	0.10	0.26	-0.70	0.90
Firm size	5.43	2.03	0.24	10.14
Financial leverage	0.62	0.26	0.08	1.56
Nomination Committee effectiveness	2.58	1.75	0.00	5.00
Board quality	0.54	0.16	0.00	0.82
Observations: 1835				

² <http://www.companieshouse.gov.uk>

Table 2
Pearson Correlation Matrix.

Variables	1	2	3	4	5	6	7	8	9
1. Corporate bankruptcy	1.00								
2. CEO duality	0.16**	1.00							
3. Board size	−0.38**	−0.21**	1.00						
4. Firm age	−0.16**	0.01	0.09**	1.00					
5. Liquidity	−0.00	0.04	−0.12**	0.10**	1.00				
6. Firm size	−0.60**	−0.25**	0.64**	0.18**	−0.111**	1.00			
7. Leverage	−0.02	−0.15**	0.11**	−0.10**	−0.548**	0.10**	1.00		
8. Nomination Committee effectiveness	−0.46**	−0.33**	0.46**	0.03	−0.10**	0.65**	0.13**	1.00	
9. Board quality	−0.34**	−0.32**	0.259**	0.027	−0.012	0.50*	0.10**	0.51**	1.00

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

1998) and Australian (Kiel & Nicholson, 2003), respectively. Lastly, UK firms have an average board size of 7. The distributions, however, are skewed; the minimum is 3, whereas the extreme case is 14. However, this is consistent with prior findings (e.g. Kiel & Nicholson, 2003). On average, UK firms record an average nomination committee effectiveness of 3. The distributions, however, are skewed; the minimum is 0, whereas the extreme case is 6. Overall, the descriptive statistics of the financial variables (i.e. liquidity, and financial leverage) compare favourably with figures reported in prior studies (e.g. Xu & Zhang, 2009). We employ Skewness–Kurtosis test in STATA 12 for normality testing.³ The Skewness test fails to reject the null hypothesis that all the predictive variables are not normally distributed at the 0.01 significance level. The Kurtosis test, however, accepts the null hypothesis of normality for all the predictive variables, indicating that the use of LOGIT is appropriate.

We use Pearson correlation and Variance Inflation Factor (VIF) to examine the possible degree of multicollinearity among the independent variables. Table 2 provides the Pearson correlations between variables used in prediction of corporate bankruptcy. Overall, both the results Pearson correlation and VIF Factor show no issue of multicollinearity. Specifically, the (VIF) scores were below 10.

4.2. Multivariate LOGIT analysis

Table 3 reports our LOGIT estimation without interaction terms. Concerning our control variables, our findings suggest that board size is negatively but insignificantly related with corporate bankruptcy ($\beta = -0.01$, $p > 0.10$). CEO Duality is also negatively but insignificantly related to corporate bankruptcy ($\beta = -0.01$, $p > 0.10$). Corporate bankruptcy also exhibits a negative and significant association with the liquidity ($\beta = -0.11$, $p < 0.01$) and firm size ($\beta = -0.11$, $p < 0.01$). Firm age, financial leverage and CEO duality are not related to corporate bankruptcy.

With respect to our hypotheses, our results lend support to two out of three hypotheses. Specifically, board quality is a significant predictor of corporate bankruptcy, implying Hypothesis 2 is supported.

Table 4 contains our LOGIT estimation with interaction terms, while Table 5 reports the model fit statistics. The interaction between board quality and nomination committee effectiveness is also significantly related to corporate bankruptcy. Hypothesis 3, therefore, receives full support. We, however, find no support for Hypothesis 1, which predicted a negative effect between board nomination committee effectiveness and corporate bankruptcy.

The model fit statistics namely Akaike Information Criterion (AIC), Schwarz Criterion (SC), negative two times the log-likelihood (-2 Log

³ Perhaps and more importantly, Skewness–Kurtosis test is conceptually similar to the Jarque–Bera test (Park, 2008), which is computed from Skewness and Kurtosis and asymptotically follows the chi-squared distribution with two degrees of freedom. By rule of thumb, normality is implied, when the Skewness and Kurtosis of a predictive variable are close to 0 and 3, respectively.

L) records 2131.62(1290.52), 2137.15(1345.67) and 2129.64(1270.52) for intercept only (intercept and covariates). The Test, Likelihood Ratio, the Score Chi-Square Test(Score) and Wald Chi-Square Test (Wald) are all significant at 0.0001 significance levels, implying our models fit our data quite well.

5. Discussion and conclusion

This study uses the agency and resource dependence theories to understand corporate bankruptcy in the UK context. This approach is fruitful, recognising that agency theory is predominantly concerned with the effects of the latent agency problem between shareholders and the CEO. Accordingly agency theory requires the board and its nomination committee, due to their presumed independence (Baysinger & Butler, 1985), to monitor and control the CEO's proposals as one of the mechanism required to mitigate the agency loss (Combs et al., 2007) and increase the board quality through reducing the moral hazards and adverse selection problems (Gomez-Mejia & Wiseman, 2007). Enhanced board quality, in turn, reduces the likelihood of the firm's bankruptcy. Resource dependence theory, on the other hand, suggests that board quality is determined by the external resources that the outside directors are able to draw on for the survival of the firm (Payne et al., 2009).

Drawing from agency and resource dependence theories, this paper examines the effect of board quality and nomination committee on corporate bankruptcy. Overall, our findings confirm the view that agency and resource dependence theories help explain the corporate bankruptcy phenomena. Our finding on the interaction term of board quality and nomination committee effectiveness has a significant negative association with corporate bankruptcy. This confirms propositions of Cadbury (1992), suggesting that the nomination committee enhances effective monitoring and advising of the board, a situation that could help the firm to avoid corporate bankruptcy. This finding also supports the agency theory's notion that NCs enhance directors' independence, board effectiveness and corporate survival by reducing the CEO's power (Westphal & Zajac, 1995). Finally, the finding verifies resource dependence theory's (Pfeffer & Salancik, 1978) assertion that NCs reduce the likelihood of bankruptcy by adjusting board composition to the demands posed by a firm's external environment (Ruigrok et al., 2006). This interpretation is consistent with the argument that nomination committees enhance firm's survival chances by strengthening the board selection process.

Turning to board quality, the result indicates that the proportion of outside directors has a significant negative association with corporate bankruptcy, which is consistent with agency theory's propositions. The possible explanations are several. First, we can speculate that outside dominated boards may have higher incentive, due in part to their independence and reputation, to maximise shareholder value. Second, the outside dominated boards may not rely on CEO's input to discharge their duties, implying that the CEO may not dominate the board selection process. This in turn, may enhance board quality thus reducing the probability of a firm's bankruptcy. This finding confirms contemporary studies in the US (e.g. Platt & Platt, 2012). Outside dominated

Table 3
Pooled LOGIT Results Without Interaction Terms.

Variables	Marginal effect	Robust standard error	VIF
Intercept	5.38***	0.50	
CEO duality	−0.01*	0.02	1.18
Board size	−0.01	0.00	1.73
Firm age	−0.00	0.00	1.07
Liquidity	−0.11**	0.04	1.46
Firm size	−0.11***	0.01	2.66
Financial leverage	0.00	0.04	1.48
Nomination Committee effectiveness	−0.01	0.01	2.00
Board quality	−0.16**	0.06	1.53

Observations: 1835.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01.

Table 4
Pooled LOGIT Results With Interaction Terms.

Variables	Estimate	Standard error	Wald chi-square
Intercept	4.73***	0.55	73.56
CEO duality	−0.06	0.19	0.09
Board size	−0.08*	0.04	3.45
Firm age	−0.00	0.00	1.11
Liquidity	−0.98**	0.39	6.50
Firm size	−1.01***	0.08	177.73
Financial leverage	−0.01	0.41	0.00
Nomination Committee effectiveness	+0.40**	0.17	5.67
Board quality	+0.09	0.76	0.02
Board quality * Nomination Committee effectiveness	−0.93**	0.33	8.12

Degrees of freedom = 1.

Clustered standard errors are clustered by year and firm.

Observations: 1835.

* Significant at 0.10.

** Significant at 0.05.

*** Significant at 0.01.

boards are more likely to demand more frequent board meetings to enhanced boards' ability to scrutinise CEO's agenda in this manner reduce the likelihood of a firm's bankruptcy. Put differently, we can speculate that firms with lesser outside directors are more likely to offer excess CEO remuneration and exhibit significantly poorer performance thereby increasing the firm's likelihood to bankruptcy. This argument may lend support for the suitability of the agency theory as analytical lens through which to study the efficacy of outside directors, as a board monitoring device, in the corporate bankruptcy context.

Overall, nomination committee effectiveness shows a negative but insignificant link on corporate bankruptcy, while board quality mitigate this negative effects; this supports the growing literature that suggests that greater proportion of outside directors on board is required to pursue shareholders' interests through reducing entrenched CEO's power in the board selection process. We find a direct relationship between the board quality and corporate bankruptcy on one hand. We, however, fail to show a direct link between nomination committee and corporate bankruptcy, additional studies may be needed that examine various organisational contexts more specifically. This said, we cannot assume causality, due to the statistical approached used.⁴ Future research may extend this to include several aspects of board diversity. Pearce and

⁴ The statistical approach used in the study, however, is well established in the literature.

Table 5
Model Fit Statistics.

Criterion	Intercept only	Intercept and covariates	
AIC	2131.64		1290.52
SC	2137.15		1345.67
−2 Log L	2129.64		1270.52
Testing global null hypothesis: BETA = 0			
Test	Chi-square	df	Prob > Chi-square
Likelihood ratio	859.1146	9	<0.0001
Score	689.3860	9	<0.0001
Wald	363.8290	9	<0.0001

Zahra's (1991) finding suggests that large and more diverse boards enhance firm's performance by reducing uncertainties associated with strategy development. Goodstein et al. (1994), however, suggest that board diversity may be a significant constraint on strategic change. These contradicting findings suggest that board diversity remains an empirical question to date. Thus, we argue that the board diversity may provide insightful findings in the context of corporate bankruptcy.

Appendix A. Description of variables

Variable	Label	Measurement	Expected sign
<i>Dependent variable</i>			
Bankruptcy	BANKR	Dummy variable (1 = bankrupt firm, 0 otherwise)	n/a
<i>Independent variables</i>			
Presence of Nomination Committee	NCP	Dummy variable (1 = NCP; 0 = otherwise)	−
Independence of Nomination Committee	NCI	Dummy variable (1 denotes all members of the nomination committee are independent NED; otherwise 0)	−
Size of Nomination Committee	NCS	Dummy variable ("1", when nomination committee consists of at least three independent NED and "0" otherwise)	−
Frequency of meeting of Nomination Committee	NCM	Dummy variable ("1", when nomination committee members meet at least twice and "0" otherwise)	−
Independence of the Nomination Committee's chairman	NCCI	Dummy variable ("1" means the committee's chair is an independent non-executive director or independent chairman of the board, save when the chairman's successor is being sought, and "0" otherwise).	−
Nomination Committee effectiveness	NCE	A composite index consisting of the nomination committee's presence (NCP), independence (NCI), chairman independence (NCCI), size (NCS) and frequency of meetings (NCM).	−
Board quality	BODC	Proportion of outsider directors	−
Board quality and Nomination Committee effectiveness	BODC*NCE	The interaction between proportion of outside directors and nomination committee effectiveness	−
<i>Control variables</i>			
Board size	BODS	Number of directors on the board	−
Duality	DUAL1	Dummy variable (1 = CEO-chair	+

Appendix A (continued)

Variable	Label	Measurement	Expected sign
Liquidity	WCTA	Working capital/Total assets	–
Leverage	TDTA	Total liabilities/Total assets	+
Firm size	LOGDA	Logarithm of book value of year-end total assets divided by Consumer Price Index–deflator	–
Firm age	FAGE	Balance sheet date minus date of incorporation	+ / –

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