Does superior firm performance lead to higher quality outside directorships?

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Abstract

Purpose – Holding the number of outside directorships constant, this paper aims to test whether executive directors from superior performing firms are subsequently rewarded with better quality outside directorships.

Design/methodology/approach – The quality of new outside directorship appointments is modelled using a two-step Heckman selection procedure to control for the probability of acquiring a new outside board seat. Outside directorship quality is estimated using an index formed from series of observable firm-specific characteristics proxying for the following three latent aspects of quality: prestige, reputational risk and monetary rewards. The index aggregates across these three dimensions to produce an overall quality score, with higher scores signifying higher quality directorships.

Findings – Tests based on a sample of UK executive directors who subsequently acquire at least one new outside board seat show that the quality of newly acquired outside directorships is positively related to past and contemporaneous performance at the executive's own firm. Recent past performance appears to be a more important determinant of the quality of outside directorships than long-run performance reputations. However, effects are largely confined to executives that either switch between boards or enter the outside directorship market for the first time.

Research limitations/implications – Findings support the view that the market for outside directorships operates (at least in part) as a meritocracy by rewarding executives from superior performing firms with better quality outside board appointments.

Originality/value – Prior work on the market for outside directorships focuses on explaining cross-sectional variation in the number of outside board seats held. The paper is the first to measure and model directorship quality.

Keywords Labour market, Chief executives, Organizational performance, Non-executive directors

Paper type Research paper

1. Introduction

Outside (non-executive) directors play a pivotal role in corporate governance (Fama and Jensen, 1983). Independent outsiders are a primary mechanism for ensuring board accountability to shareholders and as a consequence recent UK governance reforms have sought to strengthen board accountability by highlighting the importance of

outside directors in the governance process, and by improving the procedures through which they are selected and compensated (Cadbury, 1992; Greenbury, 1995; Higgs, 2003; Tyson, 2003). Accordingly, the characteristics of individuals who serve as outside directors, together with the factors motivating them to execute their monitoring duties effectively, are issues of growing interest.

Prior research sheds some light on board appointment procedures by examining the association between firm performance and the number of additional outside board seats held by senior executives. Fama (1980) and Fama and Jensen (1983) conjecture that the market for outside directorships creates powerful incentives that help ensure directors act in shareholders' best interests. In addition to monetary compensation and promotions directly associated with their full-time employment, executives from superior performing firms also receive offers to serve as outside directors on other firms' boards. Results for the USA provide evidence of a positive link between firm performance and the stock of outside directorships held (Brickley *et al.*, 1999; Yermack, 2004).

This meritocracy view of the market for outside directorships contrasts with perceptions of how the outside director selection process operates in the UK. Critics highlight the informalities and opacity that frequently accompany outside director appointments in the UK. For example, Higgs (2003) found that less than one-third of firms outside the FTSE-350 operate a nomination committee; and where such a committee does exist, its procedures and processes lack sufficient transparency and rigor. These findings raise concerns about the outside director appointment process, not to mention the integrity and accountability of UK boards more generally.

Prior research on the market for outside directorships has concentrated on explaining cross-sectional variation in the number of outside board seats held. Implicit in this approach is the view that all outside directorships are equal. In reality, of course, outside board appointments are characterised by substantial heterogeneity. Outside directorships vary widely in terms of their perceived quality and status. For example, a seat on the board of a blue chip multinational corporation is not the same as a seat on the board of an obscure firm with a tiny market capitalisation. In a well-functioning labour market of the type envisaged by Fama (1980) and Fama and Jensen (1983), better performing executives are not only expected to hold more outside appointments; but they are also expected to hold higher quality outside directorships.

Outside directorship quality is not directly observable and to the best of our knowledge no research to date has attempted to investigate this feature empirically. Controlling for the number of board seats held, we examine the link between firm performance and the quality of newly acquired outside directorships. We construct an index of directorship quality using a series of observable firm-specific characteristics to proxy for three latent aspects of quality: prestige, reputational risk, and compensation. Using a sample of executive directors who acquired at least one non-executive board seat during the period 1997-2000, our study is the first to document evidence of a positive association between appointees' own firm performance and the relative quality of subsequent outside board engagements.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature and develops the predicted link between firm performance and the quality of additional outside directorships. Section 3 outlines our research design and explains how our directorship quality index is constructed. Section 4 reviews variable

definitions, sample selection procedures and data. Section 5 reports the results of our empirical analysis. Section 6 concludes.

2. Theoretical background

Large corporations with diffuse ownership are not managed by consensus. Instead, shareholders delegate operational duties to professional managers in return for assurances that empowered agents will not abuse their decision-making authority. Corporate governance systems help to ensure that managers to whom discretionary decision-making powers are granted remain accountable (Monks and Minow, 2004, p. 196). The board of directors represents the apex of firms' internal governance systems. Directors are representatives of owners with responsibility in law for safeguarding company assets.

Prior to the Cadbury (1992) report, UK boards were viewed as passive entities often dominated by the managers they were charged with monitoring. This led to concern about a possible lack of managerial accountability and resulted in the publication of a series of governance reports that focused attention on the board's monitoring role and the distinctive contribution of outside directors to this process (Cadbury, 1992; Greenbury, 1995; *The Combined Code*, 1998, 2003, 2006; Higgs, 2003). A large body of empirical research confirms the importance of outside directors for ensuring managerial accountability to shareholders[1].

Outside directorships provide a source of prestige, reputation, compensation, learning, and networking opportunities for executive directors (Mace, 1986; Lorsch and MacIver, 1989; Harford, 2003). Indeed, Fama (1980) and Fama and Jensen (1983) argue that incentives created by the market for outside directorships help to align managers' and shareholders' interests because only those executives who discharge their board duties effectively will receive offers to serve as outsider directors. One implication of this theory is that higher quality executive directors will hold a larger number of outside board appointments. Consistent with this view, research documents a positive association between firm performance and the number of outside directorships held by executives of US firms (Brickley *et al.*, 1999; Coles and Hoi, 2003; Ferris *et al.*, 2003; Fich and Shivdasani, 2007; Gilson, 1990; Kaplan and Reishus, 1990; Shivdasani, 1993; Srinivasan, 2005)[2].

While the number of additional board seats is likely to be an important consideration for executive directors, the relative quality of external appointments is also expected to influence how directors allocate their time and energy between executive and non-executive duties. Workload and personal liability considerations associated with an outside directorship are non-trivial and as such limit the number of board seats an executive is practically able to hold (Higgs, 2003). Consequently, competition for outside positions on the boards of leading firms is likely to be intense, while personal constraints mean that higher quality directors would tend to accept only the most prestigious offers received. Applying Fama and Jensen's theory concerning the allocation of outside directorships to a labour market where the supply of monitoring expertise is rationed suggests a link between director quality and the quality of outside board appointments. Specifically, holding the number of outside directorships constant, theory suggests that better performing directors should be rewarded with higher quality outside directorships. Accordingly, this paper tests whether executive directors from superior performing firms are subsequently

rewarded with better quality outside directorships relative to their counterparts from poorly performing firms.

3. Model development

3.1 Modelling framework

We examine the link between firm performance and outside directorships quality using the following model:

$$\text{Quality}_{jit+n} = \alpha + \beta \text{PERFORM}_{it} + \gamma \sum_{k=1}^{K} \gamma_k \text{Firm}_{kit} + \sum_{n=1}^{N} \lambda_n \text{Director}_{jit} + \varepsilon_{jit+n}, \quad (1)$$

where, Quality is the average quality of additional outside directorships acquired by the jth executive director of firm i during the interval t to $t + n$, PERFORM is firm i's performance over the period ending in year t, Firm is a vector of K firm-level control variables, and Director is a vector of N director-level controls. Our analysis focuses exclusively on directors who hold an executive board seat at firm i in year t because the link between director reputation and firm performance is expected to be particularly strong for executive directors (Fama and Jensen, 1983). In contrast, the perceived quality and performance of outside directors is likely to depend on a complex set of interactions. In particular, when outside directors also hold an executive board seat (at another firm) their reputation in the managerial labour market is likely to depend at least in part on the effectiveness with which they execute their executive duties.

The dependent variable in equation (1) captures the incremental quality of new outside directorships acquired by executive director j during the period t to $t + n$, and is computed as:

$$\text{Quality}_{jit+n} = \frac{\sum \text{New outside}_{jit+n}}{N} - \frac{\sum \text{Outside}_{jit}}{M}, \quad (2)$$

where New outside is the quality of the outside board seat(s) acquired by the jth executive director of firm i between t and $t + n$, N is the number of newly acquired board seats between t and $t + n$, Outside is the quality of the outside board seat(s) held by the jth executive director of firm i at time t, and M is the number of board seats held at time t. Equation (2) therefore measures the average quality of newly acquired outside directorships relative to the average quality of outside directorships held at time t[3].

By construction, the scope of our analysis is restricted to the subset of executive directors who acquire at least one new outside board seat during the period t to $t + n$. This inevitably introduces selection bias into our empirical tests, which could affect the validity of our analysis. We therefore employ standard sample selection techniques (Heckman, 1979) to correct for any bias introduced by our sampling method (see Section 4.1 for further details).

3.2 Measuring directorship quality

We use an index based on fundamental characteristics of the appointing firm to measure outside directorship quality. In particular, we measure quality with reference to the following three latent variables: the perceived status of the appointing firm (prestige); the risk of directors' reputational capital being tarnished through

association with the appointing firm (reputational risk); and the monetary rewards associated with the appointment (compensation). The three latent variables, together with their observable proxies, are discussed in more detail below. Inputs to our directorship quality index are summarised in Table I.

3.2.1 Prestige. Outside appointments at high-prestige firms help directors enhance their reputation in the managerial labour market and are therefore more likely to be viewed as higher quality directorships, all else equal. We use five criteria to proxy for different aspects of directorship prestige. Appointing firms are awarded one point for each criterion satisfied, resulting in a score ranging from zero to five. Higher scores indicate a more prestigious (higher quality) directorship.

Prior research suggests that the status of outside directorships is increasing in firm size because large firms provide greater visibility, wider contracting networks, and broader experience of managing complex operations (Booth and Deli, 1996; Brickley *et al.*, 1999; Peasnell *et al.*, 1999; Ferris *et al.*, 2003; O'Sullivan, 2005). We score appointing firms according to their size in the following two ways. Firms score a point if their market value exceeds median market capitalisation of their industry peers in year t[4]. Additionally, if the appointing firm is a member of the FTSE-100 index for at least six months during calendar year t then we award a further point on the grounds that FTSE-100 firms are associated with particularly high status.

Prestige is also expected to be positively associated with firm performance. All else equal, outside directorships in superior performing firms are expected to convey higher status due to the associated reputational glow effects. Consistent with this view, prior research reveals a positive link between firm performance and the number of board appointments (Ferris *et al.*, 2003; Yermack, 2004). We measure firm performance using accounting and stock market returns. Appointing firms whose return on assets (ROA) exceeds the industry median value in year t are awarded one point. Similarly, firms whose 12-month compounded share return exceeds the industry median return in year t are also awarded a point.

Our final dimension of prestige captures the presence of growth opportunities. All else equal, we expect directorships in growth firms to be viewed more favourably because directors' reputations stand to benefit from association with high growth. Growth opportunities are measured as the ratio of market value of equity to book value of shareholders' funds. Appointing firms whose market to book ratio exceeds the industry median value in year t are awarded one point.

3.2.2 Reputational risk. Directors of firms facing adverse circumstances suffer reputational losses (Gilson, 1990; Shivdasani, 1993; Fich and Shivdasani, 2007). Directorships where there is a risk of the appointee's reputation being tarnished by association are likely to be viewed less favourably. Accordingly, we consider low-reputational risk as indicative of higher quality directorships. We use six criteria to measure reputational risk, five of which relate to CEO power and one of which relates to firms' financial health. Appointing firms are awarded a point for each criterion they satisfied, resulting in a score ranging from zero to six. Higher scores indicate lower reputational risk and hence higher quality directorships.

Directorships in firms where the CEO enjoys unfettered decision-making power are considered reputationally more risky for outsiders due to the increased likelihood that their independent judgement will be compromised. We therefore score firms according to the following five attributes highlighted by prior research and the *The Combined*

Latent quality variable	Empirical proxies	Measured criterion	Scoring rule
A. Prestige	Firm size	Market capitalisation (MV)	1 if the MV of company is above the annual median MV of the industry, else 0
		Member of FTSE 100	1 if the company is in FTSE 100 for at least 6 months in the calendar year, else 0
	Firm performance	Accounting performance: ROA	1 if the ROA of company is above the annual median ROA of the industry, else 0
		Market performance: share returns	1 if the share returns of company are above the annual median returns of the industry, else 0
	Growth potential	Market value of equity to book value of shareholders' funds (MTB)	1 if the MTB of company is above the annual median MTB of the industry, else 0
B. Reputational risk	CEO power	Board composition	1 if the per cent of non-executives on the board is higher than the annual median, else 0
		CEO duality	1 if CEO is not the chairman, else 0
		CEO tenure	1 if the CEO's tenure is less than six years, otherwise 0
		CEO committee membership	1 if the CEO does not sit on the nomination committee, otherwise 0
		Voting rights	1 if the company practises one-share one-vote, else 0
	Financial distress	Altman Z-score (predicting likelihood of bankruptcy)	1 if Z-score of the firm is above 2,99, else 0
C. Compensation	Outside fees	Median fees paid out by firm i to its outside directors	1 if the median fee exceeds the median fees paid in the size quartile of the firm, else 0

Notes: This table presents a summary of the index used to measure the quality of outside directorships. The three latent variables, prestige, reputational risk and compensation, together with their 12 observable measures are described. Throughout the construction of the index, industry is defined using the Datastream industrial classification level three. For outside fees, firms are grouped in size quartiles formed each year on the basis of market capitalisation

Table I.
Components of quality
index for outside
directorships

Code (2003) as helping to reduce CEO dominance. The first attribute is board composition. Prior research indicates that board (and CEO) monitoring increases with the fraction of outside board members (Weisbach, 1988; Hermalin and Weisbach, 1998; Dahya and McConnell, 2005). We therefore award one point to appointing firms where the percentage of outside directors exceeds the sample median value in year t. CEO power is also expected to be lower where the positions of CEO and chairman are separate (Rechner and Dalton, 1991; Jensen, 1993; Pi and Timme, 1993; Goyal and Park, 2002). Firms where the positions of chairman and CEO are separated therefore score one point. Research also suggests that CEOs with shorter board tenures are less likely to be entrenched and therefore less able to exercise power over other board members (Hill and Phan, 1991). Firms where the CEO has served for less than six years therefore score one point. Shivdasani and Yermack (1999) find that boards are less likely to appoint CEO-friendly directors when the CEO is not a member of the nomination committee. We therefore award one point to firms where the CEO does not sit on the nomination committee. Finally, deviations from a policy of one-share one-vote provide an opportunity for a CEO to accumulate voting power in excess of their cash flow rights. Firms practicing a one-share one-vote policy therefore score one point because they are less likely to be characterised by extreme CEO power.

Directorships in financially distressed firms are associated with greater reputational risk. Prior research finds that directors of financially distressed firms suffer substantial reputational losses in the market for outside directorships (Gilson, 1990). Additionally, under the UK Company Directors Disqualification Act (1986), board members of insolvent companies can be subjected to disqualification proceedings. We measure financial distress using the Altman (1968) *Z*-score model[5]. Firms whose *Z*-score exceeds 2.99 face a low probability of failure and therefore directorships in such firms are viewed as being reputationally less risky. Appointing firms therefore score one point if their *Z*-score exceeds 2.99 in year t.

3.2.3 Compensation. Outside directorships that command relatively high fees are considered to be of higher quality, all else equal. Consistent with this view, Higgs' (2003, p. 56) survey of board remuneration practices revealed that a majority of directors felt that outside directors' fees were often too low for the amount of work involved. Since fee levels for outside directorships are highly correlated with firm size, we construct a size-adjusted fee measure by dividing firms into size quartiles each year (based on market capitalisation). We then compare the median outside director fee paid by appointing firm i against the global median fee for the corresponding size quartile. Appointing firms score one point where the median outsider fee exceeds the median fee for their corresponding size quartile.

3.3 Construction of directorship quality index

The preceding discussion identifies the 12 firm-specific characteristics, grouped across three latent quality dimensions (prestige, reputational risk, and compensation) that form the basis for our index of directorship quality. Since each latent quality dimension is associated with a different number of firm-specific attributes, and because no theoretical basis currently exists for assigning weights to each dimension (or firm-specific characteristic), we consider three alternative methods for calculating index scores. In each case, a higher score indicates a higher quality (more prestigious, lower risk, more highly paid) directorship.

Our primary aggregation method follows the approach used by Black *et al.* (2006) to construct their measure of governance quality. For each of our three latent quality constructs, we aggregate scores for all non-missing elements, divide by the number of non-missing elements and multiply by 100/3 to produce a standardised score ranging between 0 and 33.33 for each dimension. Then we aggregate the three standardised latent variable scores to produce an overall quality index score ranging from 0 to 100. This approach assigns equal weights to each of the three latent quality dimensions but assigns different weights to each of the 12 underlying firm-specific attributes. We use the Black *et al.* (2006) as our primary index method because it maximises sample size (by retaining observations even if one or more of the 12 underlying attributes are missing) and produces scores that are easy to interpret.

Our first alternative aggregation method borrows from Gompers *et al.* (2003) who construct a governance index consisting of 24 equally-weighted governance provisions. Gompers *et al.* (2003) aggregate scores for their 24 provisions to produce an index ranging from 0 to 24. Following this method, we aggregate the 12 firm-specific attributes in our index to obtain a score that ranges between 0 and 12. This method is simple, transparent, and easily reproducible. However, since our 12 criteria are not equally distributed across the three latent quality dimensions, this method implicitly places greater (less) weight on prestige and reputational risk (compensation). Our second alternative method is based on the approach used by Bertrand and Mullainathan (2001). Similar to Black *et al.* (2006), this approach weights each latent construct equally. The method involves summing all elements for a particular latent quality construct and then standardising resulting scores by deducting the sample mean and dividing by the sample standard deviation. The final index score is equal to the mean of the three standardised latent scores.

Panel A of Table II reports summary index scores for the three methods described above computed using the set of outside directorships used in our subsequent empirical tests (see Section 4.2 for details of the sample selection process[6]. All three indices produce scores that remain relatively stable across time. Pearson and Spearman correlations between the three methods are reported in Panel B. Results indicate strong positive correlations between all three measures. The highest correlation is between the Black *et al.* (2006) and Bertrand and Mullainathan (2001) methods (Pearson correlation coefficient $= 0.95$; Spearman correlation coefficient $= 0.94$). In untabulated robustness tests, regressions using the Gompers *et al.* (2003) and Bertrand and Mullainathan (2001) methods produce results consistent with those reported in the main text using the Black *et al.* (2006) procedure.

4. Variable definitions, sample and descriptive statistics
4.1 Regression model and variable definitions
We examine the relation between firm performance and the quality of subsequently acquired outside directorships using the following pooled ordinary least squares (OLS) regression model for the *j*th director holding an executive board seat at firm *i* at time *t*:

$$\text{Quality}_{jit+n} = \beta_0 + \beta_1 \text{PERFORM}_{it} + \beta_2 \Delta \text{ROE}_{it+2} + \beta_3 \text{CRET}_{it+2}$$
$$+ \beta_4 \text{GROWTH}_{it} + \beta_5 \text{BSIZE}_{it} + \beta_6 \text{SIZE}_{it} + \beta_7 \text{AGE}_{jit} \qquad (3)$$
$$+ \beta_8 \text{TENURE}_{jit} + \beta_9 \text{CEO}_{jit} + \beta_{10} \text{MILLS}_{jit} + \varepsilon_{jit+n}.$$

The dependent variable in regression equation (3) is the incremental quality of new outside directorships acquired over the interval t to $t + n$ (from equation (2)).

Panel A: summary statistics for the quality indices

	N	Mean	SD	Min	Q1	Median	Q3	Max
Index method 1: Black et al. (2006)								
Pooled	376	63.43	19.23	6.67	48.89	68.89	81.11	100.00
1996	114	63.89	18.98	17.78	48.89	68.89	81.11	94.44
1997	119	61.62	20.94	6.67	43.33	63.33	82.22	100.00
1998	143	64.51	17.98	13.33	52.22	68.89	81.11	94.44
Index method 2: Gompers et al. (2003)								
Pooled	347	7.61	1.72	2.00	6.00	8.00	9.00	12.00
1996	98	7.85	1.49	3.00	7.00	8.00	9.00	11.00
1997	110	7.65	1.79	3.00	7.00	8.00	9.00	12.00
1998	139	7.41	1.81	2.00	6.00	7.00	9.00	11.00
Index method 3: Bertrand and Mullainathan (2001)								
Pooled	347	0.03	0.59	−1.52	−0.37	0.08	0.59	1.41
1996	98	0.01	0.53	−1.55	−0.37	0.10	0.59	1.36
1997	110	0.03	0.64	−1.52	−0.41	0.08	0.60	1.41
1998	139	0.04	0.58	−1.39	−0.43	0.07	0.59	1.23

Panel B: correlation matrix for quality indices

	Index 1	Index 2	Index 3
Index 1: Black *et al.* (2006)	–	0.79 (0.01)	0.94 (0.01)
Index 2: Gompers *et al.* (2003)	0.77 (0.01)	–	0.91 (0.01)
Index 3: Bertrand and Mullainathan (2001)	0.95 (0.01)	0.92 (0.01)	–

Notes: Reported results relate to the one-year performance sample. Three alternative methods are used to construct the index of directorship quality. Black *et al.* (2006) method aggregates scores for all non-missing elements of each latent variable, divides by the number of non-missing elements, and multiplies by 100/3 to produce a standardised score ranging between 0 and 33.33 for each latent dimension. The three standardised latent variable scores are then aggregated to produce an overall quality index score ranging from 0 to 100. Gompers *et al.* (2003) method aggregates across the 12 firm-specific attributes of the three latent quality variables to obtain an index ranging between 0 and 12. Bertrand and Mullainathan (2001) method sums all elements for a particular latent quality construct and then standardises the resulting score by deducting the sample mean and dividing by the sample standard deviation. The final index score is equal to the mean of the three standardised latent scores. For each index method, higher index scores indicate better quality directorships. The three latent variables and associated empirical proxies on which each index is based are outlined in Table I. Panel B reports Pearson (lower left diagonal) and Spearman correlation coefficients (upper right diagonal) for index values computed using the three methods. Probability values are reported in parenthesis

Table II.
Summary statistics and correlation coefficients for three indices of directorship quality

Our primary explanatory variable is PERFORM, which captures firm performance over the period up to and including time t. Performance can be measured in a variety of ways and prior research provides little guidance on which particular performance metric is likely to be the most appropriate in the context of our analysis. To assess the robustness of our results to the choice of performance measure, equation (3) is implemented using both accounting- and market-based performance metrics. Our accounting-based performance measure is return on equity (ROE) while our market-based measure is share returns inclusive of dividends (RET). We also discriminate between permanent and transitory performance effects by employing both short-window (one-year) and long-window (three-year) measures of ROE and RET[7].

The remaining explanatory variables in regression equation (3) seek to capture additional factors expected to affect the quality of outside directorships acquired during the period[8]. All else equal, better contemporaneous performance is expected to lead to higher quality outside appointments (Ferris *et al.*, 2003; Yermack, 2004). We therefore include the change in return on equity (ΔROE) from t to $t + n$ and monthly share returns compounded over the interval t to $t + n$ (CRET). We include both accounting- and market-based metrics because each measure is expected to be incrementally informative with respect to performance (Lambert and Larcker, 1987; Sloan, 1993). Directors of growth firms may be in greater demand as outside directors but conversely may choose to supply fewer directorships because of the challenges associated with managing growth opportunities at their own firm (Booth and Deli, 1996). Accordingly, regression equation (3) includes the ratio of the market value of equity to book value of shareholders' funds (GROWTH) for firm i (where director j holds an executive board seat) at time t. All else equal, executives from firms with large boards are more likely to gain outside directorships due to their wider network of board contacts (Booth and Deli, 1996). We therefore include the number of board members (BSIZE). We also include the natural logarithm of market capitalisation for (SIZE) to control for residual size effects. Finally, we control for a series of director-level characteristics that are expected to affect the probability of executives acquiring an additional board seat. Director j's age at time t (AGE) is included because older executives may be more inclined to take additional board seats as part of their retirement strategy (Brickley *et al.*, 1999). The number of years director j has served in an executive capacity with firm i at time t (TENURE) is also included because executives with long tenures are more likely to hold additional board seats (Booth and Deli, 1996; Fich and White, 2005; O'Sullivan, 2005). CEOs are also more likely to acquire additional outside directorships (O'Sullivan, 2005). We therefore include a binary variable indicating whether or not director j is a CEO (CEO). Finally, MILLS is the inverse Mills ratio retrieved from the following probit regression modelling the likelihood that an executive director acquires an additional outside board seat during the interval t to $t + n$ (Heckman, 1979):

$$
\begin{aligned}
\Phi^{-1}(p_{jit}) = {} & \gamma_0 + \gamma_1 \text{ROE}_{it} + \gamma_2 \text{RET}_{it} + \gamma_3 \text{SIZE}_{it} + \gamma_4 \text{GROWTH}_{it} \\
& + \gamma_5 \text{BSIZE}_{it} + \gamma_6 \text{CEO}_{jit} + \gamma_7 \text{AGE}_{jit} + \gamma_8 \text{TENURE}_{jit} + \gamma_9 \text{OWN}_{jit} \quad (4) \\
& + \gamma_{10} \text{SEATS}_{jit} + \gamma_{11} \text{YEAR96} + \gamma_{12} \text{YEAR97},
\end{aligned}
$$

where p_{jt} is the probability that director j for firm i in time t acquires an additional outside board seat between t and $t + n$ ($y_{jt} = 1$) and $\Phi^{-1}(p_{jit})$ is the inverse of the cumulative distribution function of a standardised normal variable. The vector of explanatory variables includes the following firm- and director-level determinants of additional board seats drawn from prior research: OWN is the number of shares held by director j as a fraction of total shares outstanding for firm i; SEATS is the number of additional outside directorships held by the jth director at time t; YEAR96 and YEAR97 are time dummies used to control for the increasing demand for outside directors (Lin *et al.*, 2000); and the remaining variables are as defined in regression equation (3). In the tabulated results that follow, we set n equal to two years. In untabulated robustness tests n is set equal to one and three years with similar results.

4.2 Sample and descriptive statistics
Empirical tests employ two samples. The first sample, which is used to compute the inverse Mills ratio using regression equation (4), comprises all UK firms (excluding suspended, unquoted and unclassified equities, investment trusts and utilities) with governance data from Manifest and financial data from Datastream required to estimate the Heckman sample selection modeleckman[9]. The sample window covers the period January 1996-December 1998 and includes 3,928 executive-firm-years for 1,054 firms.

The second sample, which is a subset of the one used to estimate regression (4), forms the basis of our main tests examining the link between firm performance measured up to year t and the quality of outside directorships acquired between t and $t + 2$. The following filters are applied to the initial sample. First, we restrict the analysis to executives who acquired at least one new outside directorship between t and $t + 2$ (where $t = 1996$-1998). Further, to ensure direct correspondence between firm performance and perceived director performance, we restrict the analysis to those executives who served on their boards for the entire performance interval ending in year t. Observations must also have positive average shareholders' funds (to allow computation of ROE), plus complete data for all variables in regression equation (3). Finally, we exclude the extreme top and bottom one percentiles of PERFORM to mitigate the affect of outliers on our empirical tests. Application of these filters yields a sample of 376 (253) executive-firm-years for 310 (196) executives who served for the full one- (three-) year performance interval and who acquired at least one new outside directorship between t and $t + 2$.

Table III reports summary information for both the one- and three-year performance interval samples. Panel A presents descriptive statistics for a series of firm- and director-level characteristics. Sample firms are large, with median market capitalisation approaching £0.5 billion. This is consistent with evidence that executives from large firms are more likely to hold additional outside directorships (Booth and Deli, 1996; Peasnell *et al.*, 1999; O'Sullivan, 2005). Sample firms demonstrate strong past performance in terms of both ROE (PERFORM$_{ROE}$) and share returns (PERFORM$_{RET}$). Performance going forward tends to remain stable as evidenced by median ΔROE close to 0 over the period t to $t + 2$. The median firm has an eight member board (BSIZE), which is consistent with prior research on board size in the UK. The median director is in his or her early 50s, has served as an executive board with their present firm for over six years, owns a negligible fraction of the firm's outstanding shares, and has no additional board appointments at time t.

Pearson and Spearman correlations between the various performance measures are reported in Panel B of Table III. As expected, correlations between PERFORM$_{ROE}$ and PERFORM$_{RET}$ are positive and significant for both for the one- and three-year performance samples. However, correlation coefficients are relatively low (< 0.34), suggesting that accounting- and market-based measures capture different aspects of firm performance. PERFORM$_{ROE}$ is negatively correlated with subsequent changes in ROE (ΔROE) and positively correlated with future returns (CRET). In contrast, there is little evidence of any association between PERFORM$_{RET}$ and subsequent market performance. Finally, share returns are positively correlated with contemporaneous improvements in ROE over the period t to $t + 2$, although only Pearson correlation coefficients are significant at conventional levels.

Table III.
Sample characteristics for executive directors who acquired at least one new outside directorship over the interval t to $t+2$

Panel A: descriptive statistics

| | One-year performance sample | | | | Three-year performance sample | | | |
	N	Mean	SD	Median	N	Mean	SD	Median
PERFORM$_{ROE}$	376	0.20	0.26	0.17	253	0.19	0.18	0.17
PERFORM$_{RET}$	376	0.23	0.52	0.16	253	0.65	0.89	0.51
SIZE (millions)	376	3987.86	15729.84	477.62	253	2979.74	8424.14	436.19
GROWTH	376	5.34	22.46	2.48	253	3.42	3.66	2.32
BSIZE	376	8.52	3.46	8.00	253	8.74	3.63	8.00
ΔROE	376	−0.03	0.31	−0.01	253	−0.03	0.30	−0.01
CRET	376	0.29	0.81	0.13	253	0.27	0.74	0.07
AGE	376	51.10	6.51	52.66	253	52.51	5.87	53.71
TENURE	376	8.20	6.94	6.39	253	10.44	7.08	8.92
OWN	376	0.35	3.77	0.00	253	0.13	1.29	0.00
SEATS	376	0.33	0.60	0.00	253	0.40	0.66	0.00
Incremental quality	376	3.59	19.74	0.31	253	1.74	24.26	0.31

Panel B: Spearman and Pearson correlations for performance measures

	PERFORM$_{ROE}$	PERFORM$_{RET}$	ΔROE	CRET
One-year performance sample				
PERFORM$_{ROE}$		0.21 (0.01)	−0.36 (0.01)	0.13 (0.01)
PERFORM$_{RET}$	0.19 (0.01)		−0.02 (0.75)	−0.09 (0.10)
ΔROE	−0.58 (0.01)	−0.15 (0.01)		0.18 (0.01)
CRET	0.10 (0.08)	−0.04 (0.40)	0.08 (0.14)	
Three-year performance sample				
PERFORM$_{ROE}$		0.29 (0.01)	−0.24 (0.01)	0.16 (0.01)
PERFORM$_{RET}$	0.33 (0.01)		−0.02 (0.76)	−0.05 (0.47)
ΔROE	−0.46 (0.01)	−0.15 (0.02)		0.26 (0.01)
CRET	0.13 (0.04)	−0.02 (0.73)	0.04 (0.48)	

Panel C: new board seats by year and type

	One-year performance window				Three-year performance window			
	1996	1997	1998	Total	1996	1997	1998	Total
Full sample	114	119	143	376	84	89	80	253
Comprising								
NEW	84	85	107	276	58	59	55	172
EXPAND	23	25	19	67	16	21	16	53
REBALANCE	7	9	17	33	10	9	9	28

Notes: Only directors severing as executives at times t and $t + 2$, and who acquired a new outside board seat during this two-year interval, are included in the final sample. Panel A reports descriptive statistics for key regression variables. Variable definitions are as follows: $PERFORM_{ROE}$ ($PERFORM_{RET}$) is ROE (share returns) measured over the one- or three-year period ending in year t; SIZE is ratio of market value of equity to book value of shareholders' funds; BSIZE is the total number of executives and non-executives on the board; GROWTH is ratio of market value of equity to book value of shareholders' funds; BSIZE is the total number of executives and non-executives on the board; ΔROE is the change in ROE from t to $t + 2$; CRET is compounded share returns from t to $t + 2$; AGE is director age; TENURE is director board tenure; OWN is the number of shares held as a fraction of total shares outstanding; SEATS is the number of additional outside directorships held. All variables are measured at time t unless otherwise indicated. Panel B reports Spearman (top-right) and Pearson (bottom-left) correlation coefficients, with probability values in parentheses. Panel C decomposes outside director appointments into the following three groups. The NEW category comprises executive directors holding at least one outside directorship at $t + 2$ but who did not hold any outside board seats at time t. The EXPAND category comprises executives with at least one outside directorship at t and who increased the number of outside board seats held between t and $t + 2$. Directors holding the same number of outside board seats at t and $t + 2$ but who replace directorships in one firm with directorships in another firm are included in the REBALANCE category

Table III.

Panel C of Table III provides a breakdown of newly acquired board seats by year and type for our two performance interval samples. Of the 376 cases where an executive acquired at least one new outside directorship during the period t to $t + 2$, the majority (73 per cent) did not hold any outside directorships at time t. We classify these directors as new entrants into the market for outside board seats (NEW). The remaining 27 per cent of executive directors held at least one outside directorship at time t. Of these, 67 (18 per cent) expanded the number of additional seats held over the period t to $t + 2$ (EXPAND), while 33 (9 per cent) held a constant number of additional seats but moved between different firms (REBALANCE). Similar patterns are evident using the three-year performance interval sample.

5. Analysis and discussion

5.1 Preliminary regression results

First-stage Heckman sample selection probit regressions modelling the likelihood that director j acquires a new outside directorship during the period t to $t + 2$ are reported in Table IV. Probit regressions are estimated using all executive directors at time t with sufficient data to compute the explanatory variables in equation (4). Samples therefore include executives who had acquired at least one board seat by $t + 2$ ($y_{jt} = 1$), those without an additional board seat at time $t + 2$ ($y_{jt} = 0$), and executives whose board tenure or coverage on Manifest ceased prior to the end of $t + 2$ ($y_{jt} = 0$). Results reveal that older directors and CEOs have a greater likelihood of obtaining a new outside board appointment by $t + 2$. Executives who hold more board seats at time t are more likely to acquire a new directorship by $t + 2$, which could reflect networking effects. The probability of acquiring a new outside directorship is also positively associated with ROE, growth opportunities, and firm size. Finally, executives from firms with smaller boards are more likely to subsequently acquire new outside directorships.

Table V reports coefficient estimates and model summary statistics for Heckman second-stage OLS regressions of incremental directorship quality on firm performance and a vector of control variables. Past firm performance is measured over a one-year period ending in year t, and results are presented using both accounting- (Models 1-3) and market- (Models 4-6) based performance metrics. Coefficient estimates for PERFORM are positive and significant at the 5 per cent level using ROE (Model 1) and at the 10 per cent level using share returns (Model 4). These results support the view that executive directors from superior performing firms are rewarded by the managerial labour market with higher quality outside director appointments in subsequent periods (after controlling for the probability of acquiring a directorship).

Several control variables in Models 1 and 4 also influence the relative quality of newly acquired outside directorships. Most notably, quality is positively associated with contemporaneous improvements in ROE performance (ΔROE). Both current and past ROE performance considerations therefore appear to affect the quality of outside appointments. Conversely, no association between directorship quality and contemporaneous share returns (CRET) is apparent in Models 1 and 4. The Heckman control for selection (MILLS) is also highly significant in both models. While the sign and magnitude of the coefficient estimates have little economic meaning (Heckman, 1979), the degree of statistical significance suggests that failure to control for sample selection biases will result in misspecified tests. Finally, estimated coefficients on SIZE and GROWTH are negative and significant, indicating that

| | Performance period ending in year t | |
	One-year window	Three-year window
Intercept	-4.00 (0.01)	-4.51 (0.01)
ROE	0.28 (0.01)	0.14 (0.05)
RET	0.05 (0.39)	-0.04 (0.28)
SIZE	0.18 (0.01)	0.19 (0.01)
GROWTH	0.02 (0.05)	0.01 (0.04)
BSIZE	-0.02 (0.03)	-0.03 (0.07)
CEO	0.24 (0.01)	0.31 (0.01)
AGE	0.01 (0.01)	0.02 (0.01)
TENURE	0.00 (0.97)	0.00 (0.84)
OWN	0.01 (0.27)	-0.01 (0.57)
SEATS	0.31 (0.01)	0.32 (0.01)
YEAR96	-0.13 (0.07)	-0.09 (0.34)
YEAR97	-0.09 (0.23)	-0.03 (0.75)
N	3,928	2,431
Log likelihood	$-1,145.06$	-738.43
Probability value	0.01	0.01

Notes: Coefficient estimates and model summary statistics are for probit regressions from stage one of a Heckman two-step sample selection procedure modelling the probability that director j acquires a new outside directorship during the period t to $t + 2$. Models are estimated using the population of executive directors on the Manifest database at time t. The dependent variable is $\Phi^{-1}(p_{jt})$ where p_{jit} is the probability that director j for firm i at time t acquires an additional outside board seat between t and $t + 2$ ($y_{jit} = 1$) and $\Phi^{-1}(p_{jit})$ is the inverse of the cumulative distribution function. The vector of explanatory variables comprises the following measures: ROE is the ratio of earnings to average shareholders' funds measured over the one- or three-year period ending in year t; RET is 12- or 36-month raw stock returns; SIZE the natural logarithm of market capitalisation; GROWTH is ratio of market value of equity to book value of shareholders' funds; BSIZE is the total number of executives and non-executives on the board. AGE is director age; TENURE is the number of years service on the current board; CEO is a dummy variable that takes the value of one if the director is the CEO and zero otherwise; OWN is the number of shares held as a fraction of total shares outstanding; SEATS is the number of additional outside directorships held; and YEAR96 and YEAR97 are indicator variables for 1996 and 1997, respectively. All variables are measured at time t. Two-tailed probability values are reported in parentheses

Table IV.
Coefficient estimates and model summary statistics for probit regressions modelling the likelihood that director j acquires a new outside directorship during the period t to $t + 2$

executives from smaller firms and low market-to-book firms, respectively, acquire (incrementally) higher quality directorships.

To shed further light on the association between past performance and directorship quality, we re-parameterise the PERFORM coefficient in regression equation (3) to allow performance effects to vary across the three categories of newly acquired directorships (NEW, EXPAND, and REBALANCE). Focusing initially on Models 2 and 3 where past performance is measured in terms of ROE, results reveal differences in the impact of past performance across the three categories. Coefficient estimates on performance for new entrants into the market for outside directorship (PERFORM^{NEW}) and executives who switched between outside board appointments while holding their total stock of seats constant (PERFORM^{REBALANCE}) are positive, large in magnitude, and statistically significant at the ten percent level or better (using a two-tailed test). The effect appears to be strongest for the new entrant category. In contrast, the relative quality of newly acquired board seats is unrelated to past performance for the subset of

		One-year ROE	Perform variable equal to		One-year share returns	
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	94.24 (0.01)	81.57 (0.04)	78.77 (0.05)	68.07 (0.03)	65.12 (0.06)	71.88 (0.04)
PERFORM	11.42 (0.03)			0.19 (0.09)		
PERFORM^{REBALANCE}		15.94 (0.09)	43.65 (0.01)		9.04 (0.08)	18.21 (0.02)
PERFORM^{EXPAND}		16.84 (0.20)	18.01 (0.34)		−1.77 (0.80)	−0.28 (0.67)
PERFORM^{NEW}		22.93 (0.02)	84.01 (0.01)		18.86 (0.01)	37.99 (0.01)
ΔROE	8.43 (0.04)	8.22 (0.01)		3.27 (0.03)	3.72 (0.01)	
ΔROE^{REBALANCE}			40.47 (0.01)			20.83 (0.01)
ΔROE^{EXPAND}			17.86 (0.13)			14.15 (0.11)
ΔROE^{NEW}			80.90 (0.01)			43.36 (0.01)

(*continued*)

Table V.
Coefficient estimates and model summary statistics for ordinary least squares regressions testing the association between firm performance and incremental quality of newly acquired outside directorships

| Variables | One-year ROE | | Perform variable equal to | | One-year share returns | |
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CRET	−0.66 (0.61)	−0.68 (0.82)		−0.18 (0.88)	−0.39 (0.89)	
CRET^REBALANCE			−11.89 (0.46)			−8.86 (0.30)
CRET^EXPAND			4.45 (0.78)			6.23 (0.93)
CRET^NEW			0.28 (0.86)			0.04 (0.77)
SIZE	−3.55 (0.01)	−3.06 (0.01)	−3.31 (0.08)	−2.21 (0.08)	−2.16 (0.01)	−2.80 (0.03)
GROWTH	−0.12 (0.02)	−0.11 (0.54)	−0.10 (0.99)	−0.10 (0.06)	−0.09 (0.63)	−0.06 (1.00)
BSIZE	0.40 (0.37)	0.32 (0.48)	0.46 (0.97)	0.09 (0.83)	0.10 (0.99)	0.31 (0.98)
AGE	−0.05 (0.80)	−0.03 (1.00)	−0.01 (1.00)	0.03 (0.88)	0.03 (1.00)	0.05 (0.99)
TENURE	−0.23 (0.17)	−0.23 (0.95)	−0.27 (0.97)	−0.24 (0.16)	−0.23 (0.95)	−0.28 (0.96)
CEO	−2.09 (0.41)	−1.56 (0.21)	−0.88 (0.85)	−0.85 (0.73)	−0.62 (0.62)	−0.65 (0.87)
MILLS	−26.02 (0.01)	−22.59 (0.01)	−20.27 (0.02)	−20.87 (0.01)	−19.68 (0.01)	−20.29 (0.01)
N	376	376	376	376	376	376
Adjusted R^2	0.07	0.08	0.12	0.06	0.07	0.10
F-statistic	2.43	2.48	3.02	2.14	2.19	2.50

Notes: Coefficient estimates and model summary statistics are from the second stage ordinary least squares model of a Heckman two-step sample selection procedure. The first stage of the Heckman procedure involves estimating a probit regression modelling the likelihood that director j acquires a new outside directorship during the period t to $t + 2$. The probit model is estimated using the population of executive directors on the Manifest database at time t ($N = 3928$). The second stage ordinary least squares regression is estimated using the sample of executive directors who acquired at least one new outside directorship during the two-year period t to $t + 2$ (see Panel A of Table III). The dependent variable is the quality of newly acquired outside directorships relative to the quality of outside directorships held at time t. Explanatory variables are as follows: PERFORM is the either ROE or share returns measured over the one-year period ending in year t; ΔROE is the change in ROE from t to $t + 2$; CRET is compounded share returns from t to $t + 2$; SIZE is the natural logarithm of the market capitalisation; GROWTH is ratio of market value of equity to book value of shareholders' funds; BSIZE is the total number of executives and non-executives on the board. AGE is director age and TENURE is director board tenure at time t; CEO is a dummy variable which equals one if the director was the CEO at time t, and zero otherwise; and MILLS is the inverse Mills ratio retrieved from the first stage probit regression. Superscripts NEW, EXPAND, and REBALANCE refer to directorship appointment types. NEW comprises executive directors holding at least one outside directorship at $t + 2$ but who did not hold any outside board seats at time t. EXPAND comprises executives with at least one outside directorship at t and who increased the number of outside board seats held between t and $t + 2$. REBALANCE comprises directors holding the same number of outside board seats at t and $t + 2$ but who replace directorships in one firm with directorships in another firm during the period. Two-tailed probability values are reported in parentheses

Table V.

executives who expand their stock of outside directorships (PERFORM^{EXPAND}) during the interval t to $t + 2$. The precise reason for the absence of any performance effect for the expander group is unclear. Models 5 and 6 in Table V repeat the analysis with PERFORM set equal to past share return performance. Results are similar with those reported in Models 2 and 3: estimated coefficients on PERFORM^{NEW} and PERFORM^{REBALANCE} are positive and significant, while those on PERFORM^{EXPAND} are indistinguishable from 0.

In addition to allowing coefficient estimates on past performance to vary for the NEW, REBALANCE and EXPAND groups, Models 3 and 6 also allow contemporaneous performance effects to vary across the three directorship categories. Significant contemporaneous ROE effects are apparent in both models for new entrants into the market for outside directorship (ΔROE^{NEW}) and executives who switched between outside board appointments while holding their total stock of seats constant (ΔROE^{REBALANCE}). In contrast, the incremental quality of newly acquired outside directorships for executives in the expander group is unrelated to contemporaneous ROE performance. Consistent with Models 1 and 4, contemporaneous share returns (CRET) has no significant impact on the quality of newly acquired outside directorships for any of the three groups.

Overall, results presented in Table V support the view that superior accounting- and market-based performance leads to subsequent acquisition of higher quality outside directorships, although the effects are confined to executives switching between boards or entering the outside directorship market for the first time. In addition, we find that contemporaneous ROE performance is also associated with an incrementally significant effect for these two categories.

Table VI reports the same analysis as Table V but with past performance measured over a longer (three-year) interval. Measuring past performance over a three-year window provides a means of distinguishing superior persistent performance from superior transitory performance. The cost of requiring two additional years of performance prior to year t is a 33 per cent reduction in sample size (from 376 to 253 directors). In Models 1-3, PERFORM is equal to average ROE computed over the three-year interval ending in year t. Contrary to results in Table V using ROE computed over a one-year interval, little evidence of a positive association between long-window past performance and the quality of directorships acquired during the period t to $t + 2$ is evident for the full sample (Model 1) or for the individual directorship categories (Models 2 and 3). The only exception is the EXPAND category in Model 3, where estimated coefficient is positive and marginally significant (two-tailed probability value 0.09). The link between directorship quality and past ROE performance therefore appears sensitive to the length of the performance interval used.

Models 4-6 in Table VI report the findings using PERFORM set equal to share returns compounded over the 36-month period to t. Similar to findings using ROE, the positive association between PERFORM and directorship quality documented in Table V for the full sample is no longer apparent in Table VI when past returns are measured over a three-year window (Model 4). However, a statistically significant positive association between past long-run share price performance and the quality of subsequently acquired directorships is evident for the EXPAND group in Model 5 and for all three groups in Model 6. Results for the NEW and REBALANCE groups are

Variables	Model 1	Three-year ROE Model 2	Model 3	Perform variable set equal to Model 4	Three-year share returns Model 5	Model 6
Intercept	8.39 (0.88)	24.14 (0.70)	0.89 (0.99)	10.52 (0.85)	−23.08 (0.70)	−40.25 (0.49)
PERFORM	−1.65 (0.86)			0.14 (0.95)		
PERFORM^{REBALANCE}		−55.08 (0.01)	−13.49 (0.58)		−0.41 (0.94)	21.36 (0.01)
PERFORM^{EXPAND}		15.71 (0.11)	12.27 (0.09)		8.15 (0.02)	34.78 (0.01)
PERFORM^{NEW}		0.43 (0.13)	−6.68 (0.91)		−0.84 (0.87)	43.77 (0.01)
ΔROE	9.56 (0.07)	8.89 (0.01)		9.99 (0.03)	10.33 (0.01)	
ΔROE^{REBALANCE}			29.63 (0.01)			40.48 (0.01)
ΔROE^{EXPAND}			39.40 (0.18)			59.98 (0.25)
ΔROE^{NEW}			59.25 (0.01)			78.96 (0.02)

(continued)

Table VI.
Coefficient estimates and
model summary statistics
for ordinary least squares
regressions testing the
association between firm
performance and
incremental quality of
newly acquired outside
directorships

Table VI.

| | | Three-year ROE | Perform variable set equal to | | Three-year share returns | |
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CRET	−1.25 (0.56)	−0.82 (0.84)		−1.31 (0.53)	−1.47 (0.73)	
CRET$^{\text{REBALANCE}}$			18.85 (0.01)			35.06 (0.01)
CRET$^{\text{EXPAND}}$			50.36 (0.23)			85.49 (0.51)
CRET$^{\text{NEW}}$			38.04 (0.47)			70.28 (0.18)
SIZE	−1.16 (0.60)	−2.07 (0.01)	−1.47 (0.94)	−1.29 (0.57)	−0.21 (0.59)	−0.16 (0.99)
GROWTH	0.69 (0.15)	0.95 (0.01)	0.85 (0.09)	0.65 (0.17)	0.73 (0.01)	0.57 (0.98)
BSIZE	−0.09 (0.89)	0.09 (0.99)	0.11 (0.99)	−0.05 (0.94)	−0.16 (0.97)	−0.04 (1.00)
AGE	0.32 (0.41)	0.34 (0.99)	0.40 (0.95)	0.31 (0.43)	0.41 (0.94)	0.49 (0.95)
TENURE	−0.24 (0.35)	−0.28 (0.96)	−0.30 (0.97)	−0.24 (0.36)	−0.25 (0.96)	−0.23 (0.98)
CEO	2.56 (0.52)	1.50 (0.46)	3.21 (0.64)	2.40 (0.55)	4.29 (0.04)	6.18 (0.42)
MILLS	−4.38 (0.66)	−8.24 (0.15)	−1.30 (0.19)	−4.74 (0.64)	3.68 (0.18)	9.55 (0.14)
N	253	253	253	253	253	253
Adjusted R^2	0.05	0.06	0.13	0.04	0.05	0.17
F-statistic	2.05	2.07	2.24	1.96	2.25	3.01

Notes: Coefficient estimates and model summary statistics are from the second stage ordinary least squares model of a Heckman two-step sample selection procedure. The first stage of the Heckman procedure involves estimating a probit regression modelling the likelihood that director j acquires a new outside directorship during the period t to $t + 2$. The probit model is estimated using the population of executive directors on the Manifest database at time t ($N = 2431$). The second stage ordinary least squares regression is estimated using the sample of executive directors who acquired at least one new outside directorship during the two-year period t to $t + 2$ (see Panel A of Table III). The dependent variable is the quality of newly acquired outside directorships relative to the quality of outside directorships held at time t. Explanatory variables are as follows: PERFORM is the either ROE or share returns measured over the three-year period ending in year t; ∆ROE is the change in ROE from t to $t + 2$; CRET is compounded share returns from t to $t + 2$; SIZE is the natural logarithm of the market capitalisation; GROWTH is ratio of market value of equity to book value of shareholders' funds; BSIZE is the total number of executives and non-executives on the board. AGE is director age and TENURE is director board tenure at time t; CEO is a dummy variable which equals one if the director was the CEO at time, and zero otherwise; and MILLS is the inverse Mills ratio retrieved from the first stage probit regression. Superscripts NEW, EXPAND, and REBALANCE refer to directorship appointment types. NEW comprises executive directors holding at least one outside directorship at $t + 2$ but who did not hold any outside board seats at time t. EXPAND comprises executives with at least one outside directorship at t and who increased the number of outside board seats held between t and $t + 2$. REBALANCE comprises directors holding the same number of outside board seats at t and $t + 2$ but who replace directorships in one firm with directorships in another firm during the period. Two-tailed probability values are reported in parentheses

similar to those reported in Table V using one-year returns. In sum, therefore, while findings relating to past ROE are sensitive to the length of the performance measurement period, results based on past share returns appear more robust to the choice of short- and long-run performance intervals.

Results for contemporaneous performance effects reported in Table VI are broadly consistent with those presented in Table V. In particular, directorship quality is associated with contemporaneous changes in ROE for the full sample (Models 1, 2, 4 and 5), and for the NEW and REBALANCE directorship categories (Models 3 and 5). Meanwhile, no association between directorship quality and contemporaneous ROE performance is apparent for executives who expand their stock of additional directorship between t and $t + 2$ or between directorship quality and contemporaneous share returns for the NEW and EXPAND categories (Models 3 and 5).

Taken together, findings reported in Tables V and VI reveal evidence of a positive link between prior-period firm performance and the quality of newly acquired outside directorships. Short-window past performance generally appears to be a more important determinant of the quality of outside directorships than long-run performance reputations, particularly when performance is measured using ROE. In addition to past performance, contemporaneous changes in ROE have an incrementally significant positive impact on directorship quality. However, both past and contemporaneous performance effects appear confined to executives who either switch between boards or enter the outside directorship market for the first time.

5.2 Robustness tests

This section reports results of a series of sensitivity tests designed to assess the robustness of findings presented in Tables V and VI. First, all models are re-estimated using the quality index metrics constructed using the Gompers *et al.* (2003) and Bertrand and Mullainathan (2001) methods. Second, we examine the impact of outliers by re-estimating all models after excluding influential observations. Third, we exclude from the model all control variables that proved insignificant throughout the analysis. Fourth, we substitute industry-adjusted performance measures for raw performance metrics. Fifth, we re-estimate regression equation (3) separately for the NEW, EXPAND and REBALANCE categories rather than combining all three directorship types in a single pooled regression. Sixth, all *t*-statistics and associated probability values are recomputed using White-adjusted standard errors to control for heterskedasticity (White, 1980). In all cases, findings correspond closely to those reported in Tables V and VI indicating that the quality of executive directors' newly acquired outside directorships is positively associated with the performance of firms where they hold an executive role. Overall, our results support the notion that the market for outside directorships operates as a meritocracy by rewarding executives from superior performing firms with better quality outside board appointments.

In separate analyses, we replaced the second-stage OLS model with a logistic regression relating the probability of a director acquiring an incrementally higher quality board seat to measures of past performance and a vector of control variables. Specifically, we create an indicator variable equal to one if the value from equation (2) is positive, and 0 otherwise. In contrast to results reported in Tables V and VI, the estimated coefficient on PERFORM fails to attain significance for either the one- or three-year performance interval tests using either ROE or share returns. One possible

reason for this loss of significance is that transforming directorship quality to a binary variable leads to an excessively coarse partitioning of directorship quality.

6. Conclusions

The process by which outside directors are appointed is an important determinant of board effectiveness. As stressed in the Cadbury (1992, para. 4.15) report, outside directors should be selected with the same impartiality and care as senior executives. Fama (1980) and Fama and Jensen (1983) view outside directorships as a reward bestowed on executives who execute their board duties effectively. Prior research has tested this conjecture by examining the link between executive performance, proxied by his or her own firm's performance, and the number of additional outside directorships held. Results reveal the number of additional board appointments to be positively associated with performance at the executive's own firm. Although this result is consistent with the managerial labour market allocating outside directorships on a competitive basis in the manner predicted by Fama (1980) and Fama and Jensen (1983), focusing on the number of outside directorship ignores variation in the quality of board appointments. Directorships, like directors, vary in terms of their quality (both real and perceived). In the type labour market conjectured by Fama (1980) and Fama and Jensen (1983), better performing executives are not only expected to hold more outside appointments; but they are also expected to hold higher quality outside directorships. Accordingly, holding the number of outside directorships constant, we examine whether executive directors from superior performing firms are subsequently rewarded with better quality outside directorships.

Outside directorship quality is estimated using a quality index that captures three dimensions of an outside directorship (prestige, risk, and compensation), with a higher score indicating a better quality appointment. Empirical tests are based on a sample of UK executive directors who subsequently acquire at least outside board seat. Consistent with claims that the market for outside directorships operates as a meritocracy by rewarding executives from superior performing firms with better quality outside directorships, results indicate a positive association between past performance and the incremental quality of newly acquired outside board seats. However, results are confined to executives that either switch between boards or enter the outside directorship market for the first time. Further, recent past performance appears to be a more important determinant of the quality of outside directorships than long-run performance reputations. Tests also reveal a positive association between the quality of newly acquired outside directorships and contemporaneous improvements in ROE.

Our analysis contributes to prior research in the following ways. First, to the best of our knowledge this is the first study to model directorship quality. Prior research, in contrast, has focused on modelling the number of additional board seats independent of quality. Our findings suggest that recognising the heterogeneity associated with outside directorship quality represents an important step towards developing a more complete understanding of the market for board appointments. Second, we develop and describe a method for estimating directorship quality. Third, our results shed new light on the process by which outside directorships are allocated in the UK. The lack of rigor and transparency associated with the outside director selection process at some firms raises concern that appointments may be driven by factors other than ability

(Higgs, 2003). Evidence of a positive association between executive performance and the quality of subsequently acquired outside directorships provides some comfort to governance activists concerns that outsiders are selected on the basis of informal networks and friendships rather than merit. Nevertheless, the fact that some appointments (e.g. where executives in possession of at least one outside directorship expand their stock of board holdings) do not correlate with performance suggests that other factors may drive the selection process in certain cases.

The preliminary evidence reported in this paper on the hitherto overlooked dimension of directorship quality represents only a starting point for further analysis. For example, we make no attempt to model how executives trade-off aspects of quantity versus quality when deciding which outside directorships to accept or reject. We also adopt a narrow, shareholder-oriented perspective on firm performance, monitoring by outside directors, and board accountability more generally. From a broader stakeholder perspective, the benefits of a positive link between shareholder-based measures of executives' own firm performance and the quality of additional outside board appointments remain unclear for those concerned about board accountability to non-shareholder groups (DTI, 2002). On the one hand, if rewards to executives in the form of additional outside directorships depend largely on traditional measures of financial performance, directors intent on maximising the value of their own human capital may be less inclined to consider broader stakeholder issues that threaten short-term financial performance. On the other hand, insofar as matters of interest to customers, employees, suppliers and society more generally are also relevant to shareholders because of the likely impact on profitability and share returns, incentives provided by the market for outside directorships may serve to promote board accountability to other stakeholder groups.

Notes

1. See, Hermalin and Weisbach (2003) for an overview of this literature.

2. Research also suggests that factors other than firm performance affect the allocation of outside directorships. In particular, director-level characteristics such as role, tenure, personal contacts, and political connectedness appear to play an important role in the appointment process (Agrawal and Knoeber, 2001; Booth and Deli, 1996; Higgs, 2003; O'Sullivan, 2005).

3. A potentially more intuitive approach would involve computing the difference in the average quality of outside directorships held at time t and $t + n$. However, this approach introduces measurement error problems when outside directorship quality is based on firm-level characteristics that are themselves subject to time-series variation. In particular, changes in average directorship quality will be observed even in cases where the stock of directorships remains constant over time. By focusing on the relative quality of newly acquired outside directorship(s), equation (2) overcomes this measurement error problem.

4. Throughout the construction of the quality index, we define industrial sectors using the Datastream level-three industrial classification.

5. Altman combined a set of five weighted financial ratios to derive the Altman Z-score model that determines the likelihood of bankruptcy amongst companies within a two-year period. The lower the Z-score, the higher are the odds of bankruptcy:

$$\text{Altman } Z - \text{score} = \frac{\text{earning before interest and tax}}{\text{total assets}} \times 3.3 + \frac{\text{net sales}}{\text{total assets}} \times 0.99$$

$$+ \frac{\text{market value of equity}}{\text{total liabilities}} \times 0.6 + \frac{\text{working capital}}{\text{total assets}} \times 1.2$$

$$+ \frac{\text{retained earnings}}{\text{total assets}} \times 1.4.$$

6. Almost identical summary statistics and correlation coefficients to those reported in Table II are obtained using both the three-year performance sample ($N = 253$) and a broader sample of UK firms over the period 1996-2002.

7. The three-year ROE metric is annual ROE averaged over years $t - 2$ to t. The three-year return metric is monthly share returns compounded over the 36-month window ending in year t.

8. In initial specifications of regression equation (3), we also included industry and performance-year dummy variables. However, inclusion of these variables had no significant impact on results and therefore in the interests of parsimony we have excluded them from our main analysis.

9. Manifest Ltd is a private sector proxy voting agency specialising in the collection and analysis of UK governance data.

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