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Board governance and corporate performance

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Abstract

We examine the link between the monitoring capacity of the board and corporate performance of UK listed firms. We also investigate how firms use the flexibility offered by the voluntary governance regime to make governance choices. We find a strong positive association between the board governance index we construct and firm operating performance. Our results imply that adherence to the board-related recommendations of the UK Corporate Governance Code strengthens the board's monitoring capacity, potentially helping mitigate agency problems, but that investors do not value it correspondingly. Moreover, in contrast to prior UK findings suggesting efficient adoption of Code recommendations, we find that firms at times use the Code flexibility opportunistically, aiming to decrease the monitoring capacity of the board, which is followed by subsequent underperformance. This finding questions the effectiveness of the voluntary approach to governance regulation followed in the UK and in many countries around the world.

KEYWORDS

agency theory, board committees, board independence, board of directors, comply or explain, corporate governance, corporate governance codes, firm performance, managerial opportunism, non-executive directors

1 | INTRODUCTION

According to agency theorists, there are two main functions of the board: decision management, i.e. initiation and implementation of decisions, and decision control, i.e. ratification and monitoring of decisions (Fama & Jensen, 1983). The UK Corporate Governance Code (henceforth, the Code) reflects this distinction by stating that "[c]*orporate governance is the system by which companies are directed and controlled*" and "[b]*oards of directors are responsible for the governance of their companies*" (Financial Reporting Council, 2016, p. 1). While the primary responsibility for providing direction that is "*setting the strategic aims of the company*" and "*providing the leadership to put them into effect*" (Financial Reporting Council, 2016, p. 1), i.e. decision management, rests with managers (i.e. executive directors), the

primary responsibility for decision control or *"supervising the management of the business"* (Financial Reporting Council, 2016, p. 1), i.e. monitoring, rests with outside directors (Fama & Jensen, 1983), termed independent non-executive directors by the Code. From its inception in the form of the Cadbury Report in 1992, the Code, implicitly drawing on the insights from agency theory, has encouraged firms to strengthen the monitoring capacity of their boards. This is to be achieved by avoiding CEO-Chair duality and by promoting independence of the board and its key monitoring committees. Hence, in theory, one can expect greater adherence to the Code's board-related recommendations to be associated with reduced agency problems, and hence superior operating performance and firm value (cf. Adams, Hermalin, & Weisbach, 2010; Renders, Gaeremynck, & Sercu, 2010). This is the first proposition tested in this study.

The Code is based on the principle of voluntary compliance and mandatory disclosure. Hence, the second and more novel question we address in this study is how the flexibility in the choice of governance arrangements offered by the Code is used. It has been argued that the underlying reason for the flexibility offered by the voluntary nature of the Code is to allow for sound deviations from recommendations where these are warranted (Arcot, Bruno, & Faure-Grimaud, 2010). While the emphasis of the Code is on strengthening the monitoring capacity of the board (as per agency theory: Fama & Jensen, 1983; Jensen & Meckling, 1976), there is also an implicit recognition that there may be times when the directing, i.e. what agency theorists consider the decision initiation and implementation capacity of the board (Fama & Jensen, 1983), may need to be strengthened. A voluntary approach to governance favoured by regulators in the UK as in many other countries (European Corporate Governance Institute, 2017), puts power in the hands of the corporate board to choose its structure and composition as it deems appropriate at a particular point in time (MacNeil & Li, 2006). Hence, firms may deviate from full adherence to boost the board's directing capacity. For instance, they may aim to strengthen the leadership structure by combining the CEO and chair positions (Donaldson & Davis, 1991). They may induct more insiders or non-independent outsiders (like past employees) on the board. Such individuals, by virtue of possessing firm-specific knowledge, may then play a more effective advisory role, thus assisting managerial decision making (Fahlenbrach, Minton, & Pan, 2011; Fama & Jensen, 1983; Klein, 1998). Based on the above rationale, we first argue that the weakening of board monitoring capacity, if driven by efficiency reasons, should be associated with subsequent superior firm performance. Alternatively, if driven by managerial self-interest (as per agency theory; Jensen & Meckling, 1976), reductions in board monitoring capacity should be associated with subsequent underperformance. We examine the evidence to discern which of these two alternative propositions holds.

To test our hypotheses we develop a board governance index which captures the overall monitoring capacity of the board and is based on the extent of adherence to the Code's key board-related recommendations. Prior international evidence shows that the strengthening of the board independence and reduction of duality (consistent with the Code recommendations) are generally associated with a more effective board oversight function (e.g. Beasley, 1996; Boeker & Goodstein, 1991; Chan & Li, 2008; Conyon & Peck, 1998; Core, Holthausen, & Larcker, 1999; Dahya, McConnell, & Travlos, 2002; Weisbach, 1988; Yeh, Chung, & Liu, 2011). Hence the board governance index we develop is rooted in agency theory predictions (Fama & Jensen, 1983) and is supported by relevant empirical evidence.

Employing a large panel dataset on board characteristics of UK listed companies spanning the years 1999–2008, we find a strong positive association between the board governance index and various measures of a firm's operating performance. This finding implies that stronger monitoring capacity is likely associated with better oversight function and hence better operating performance. This result challenges some of the prior UK findings (e.g. Arcot et al., 2010; Vafeas & Theodorou, 1998; Weir, Laing, & McKnight, 2002). However, consistent in essence with prior US evidence on the governance–performance link (Gompers, Ishii, & Metrick, 2003), we find that investors in the UK also do not seem to be recognising the value of governance: subsequent stock returns are higher for firms with stronger board monitoring arrangements.

In terms of the second set of competing propositions, we find decreases in the board governance index to be associated with higher managerial power and higher information asymmetries. This gives a first indication regarding the possible motive, namely managerial opportunism (cf. Boone, Field, Karpoff, & Raheja, 2007; Linck, Netter, & Yang, 2008).

Next, we find such decreases to be associated with inferior subsequent firm performance. This finding lends further support to the managerial opportunism hypothesis (cf. Bowen, Rajgopal, & Venkatachalam, 2008). Finally, we find that board governance index decreases are most often due to weakening of the independence of the key board monitoring committees, in particular the remuneration and audit committees. Taken together, this body of evidence suggests that firms tend to make opportunistic use of Code flexibility. These findings are inconsistent with the efficient use of Code flexibility suggested by some prior UK evidence (e.g. Hillier & McColgan, 2006; Peasnell, Pope, & Young, 2003; Young, 2000). It also calls into question the effectiveness of the self-regulatory approach advocated by the promulgators of the Code (cf. MacNeil & Li, 2006).

2 | LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 | Board governance and firm performance

While there are a range of governance mechanisms that can help align managerial and shareholder interests, the corporate board is not only considered the ultimate internal monitor (Adams et al., 2010; Fama & Jensen, 1983), but it also remains at the centre of governance reforms in the UK, as indeed in code-based systems of corporate governance around the world (Arcot et al., 2010; European Corporate Governance Institute, 2017). Therefore, our focus on the board and its monitoring capacity is rooted in theory and relevant from a policy perspective. Following the seminal work of Fama and Jensen (1983) and Jensen and Meckling (1976) on agency theory, a large body of theoretical and empirical work has examined the effectiveness of various elements of the board's structure and composition in delivering good corporate governance and superior financial performance (see Adams et al., 2010, for a review). In the interest of brevity, we limit our discussion here to only those studies that are most relevant to our focus on corporate boards and the board-related recommendations of the Code.

2.1.1 | Duality, governance and firm performance

A number of scholars have studied the role of the leadership structure at the top, i.e. combining of the CEO and chair position (duality) in delivering or otherwise, good governance and superior firm performance. The results are largely mixed. While some studies find a positive relation of duality with firm performance consistent with the view that by empowering managers, duality helps speed up decision making and focus accountability (e.g. Donaldson & Davis, 1991), others find that by empowering managers it leads to managerial entrenchment thus contributing to weak governance and firm performance (e.g. Coles, McWilliams, & Sen, 2001; Core et al., 1999). The latter view is also implicit in the UK Code's key recommendation of splitting the CEO and chair positions. Yet other studies find no link between duality and various market-based measures of firm performance (e.g. for the US: Brickley, Coles, & Jarrell, 1997; for the UK: Dahya, Garcia, & van Bommel, 2009; Vafeas & Theodorou, 1998; and Weir et al., 2002). Moreover, Dedman (2000) finds that older CEOs with longer tenures and higher firm equity ownership are less likely to comply with the Code recommendation of splitting CEO-chair roles. Hence, while evidence on the link of duality with firm performance is mixed, duality appears to help entrench management, thus providing support for the Code recommendation of splitting the CEO and chair roles.

2.1.2 | Board independence, monitoring committee independence, governance and firm performance

According to Fama and Jensen (1983) and Hermalin and Weisbach (1998), the primary responsibility for board oversight (including hiring, firing and compensating of the top managers) rests with the outside directors, i.e. independent non-executive directors (henceforth NEDs) on corporate boards. Due to their reputational concerns in the managerial and directorial labour markets, such NEDs are expected to perform an effective oversight function via their adequate representation on the board and its key monitoring committees, i.e. the remuneration, audit and nomination committees.

While the evidence on the link between board independence and firm performance is mixed (cf. Brown & Caylor, 2006; Bhagat & Black, 1999; Dahya & McConnell, 2007; Vafeas & Theodorou, 1998; Weir et al., 2002), many studies find that independent directors perform an effective oversight function. For instance, Weisbach (1988) and Dahya et al. (2002) find a higher sensitivity of CEO turnover to poor firm performance in companies with more independent boards, while Core et al. (1999) find less independent boards to be associated with lower pay–performance sensitivity. Moreover, Boeker and Goodstein (1991) find lower likelihood of CEOs being replaced by outsiders in insider-dominated boards.

However, it is not simply board independence that matters. The evidence suggests that board governance effectiveness often goes hand in hand with the quality and independence of key board monitoring committees (Chan & Li, 2008; Yeh et al., 2011). For instance, Shivdasani and Yermack (1999) show that when CEOs serve on the nominating committee or when there is no such committee, fewer independent directors are appointed. They interpret this finding as evidence of powerful CEOs being able to influence the structure of the board. Moreover, Beasley (1996) finds a lower probability of fraud on boards with more independent audit committees, while Conyon and Peck (1998) document that managerial compensation is more performance-sensitive in companies with more independent remuneration committees.

In sum, while the evidence on the association between various separate dimensions of board governance arrangements and corporate performance is somewhat mixed, both the predictions of agency theory (e.g. Fama & Jensen, 1983) and the extant empirical evidence suggest that adoption of board structure and composition as recommended by the Code (and captured by the board governance index) have the potential to strengthen the oversight function of the board and thus, in theory, should be associated with superior firm performance. Accordingly, we hypothesise that:

H1: Higher values of the board governance index are associated with higher firm operating performance and market value.

2.2 | Antecedents and consequences of the changes in the board governance index

The flexibility offered by the voluntary nature of the Code is meant to allow the board to deviate from full compliance (with board-related recommendations) where such deviation is warranted (Arcot et al., 2010). Extant literature on the determinants of board structure and composition starting from Fama and Jensen (1983), followed by Hermalin and Weisbach (1988, 1998) through to the more recent work of Boone et al. (2007), Coles, Daniel, and Naveen, 2008, and Linck et al. (2008) argues and finds that the representation of insiders versus outsiders on the board, usually termed as board independence, is an outcome of the negotiations between the managers and the non-executive directors on the board (Hermalin & Weisbach, 1998). These negotiations and their board outcomes are influenced by two factors, i.e. the relative power of managers vis-à-vis NEDs and outsiders (Boone et al., 2007; Hermalin & Weisbach, 1988, 1998), and the perceived costs and benefits of monitoring by the board (Boone et al., 2007; Coles et al., 2008; Hermalin & Weisbach, 1998; Linck et al., 2008).

Given that managers would inherently prefer lower monitoring (Hermalin & Weisbach, 1998), boards where managerial power is high are likely to lower its monitoring capacity, perhaps by outright reduction of the proportion of independent directors or, more tacitly, by reducing the independence of its key monitoring committees. The opportunistic motives driving such decreases in the board governance index could be further inferred from subsequent firm underperformance (Bowen et al., 2008; Core et al., 1999). Managerial power has been measured in the literature using a number of variables including past firm performance (i.e. stronger past operating performance, higher managerial power, cf. Boone et al., 2007; Hermalin & Weisbach, 1998), CEO shareholdings (higher shareholdings implying greater power, Boone et al., 2007; Core et al., 1999), and CEO age. Prior evidence shows that older CEOs tend to have higher equity ownership, longer tenures and are less likely to comply with the Code (Dedman, 2000). They are also more likely to fill the board seats with insiders (Boone et al., 2007; Hermalin & Weisbach, 1988; Linck et al., 2008).

The perceived costs and benefits of monitoring are largely influenced by the level of information asymmetry between the managers and the non-executive directors (Hermalin & Weisbach, 1998). The higher the level of

information asymmetry, the higher the perceived costs of monitoring (or, alternatively, the higher the benefits of stronger directing).[1] Accordingly, the board may choose to lower its monitoring capacity by becoming less independent (say by outright reduction of the number of independent directors) or it may aim to strengthen its directing capacity by inducting more insiders (Fama & Jensen, 1983; Harris & Raviv, 2008; Klein, 1998) or other affiliated directors such as past employees, who by virtue of their superior firm-specific knowledge can help strengthen the board's directing capacity (Fahlenbrach et al., 2011; Fama & Jensen, 1983). Boards may even strengthen the leadership structure by combining the CEO and chair positions (Brickley et al., 1997; Donaldson & Davis, 1991). All such actions, if driven by efficiency reasons, should be associated with subsequent superior firm performance (cf. Bowen et al., 2008).

Based on the preceding discussion we posit the following competing hypotheses:

H2a: Decreases in board governance index are associated with subsequent superior firm performance (relative to the control group).

H2b: Decreases in board governance index are associated with subsequent inferior firm performance (relative to the control group).

Finding support for H2a would be indicative of the efficiency motives, while support for H2b would be consistent with the opportunistic rationale. To test the above hypotheses, we first examine the factors associated with the likelihood of changes in the board governance index. We then examine the subsequent performance implications of index decreases employing the propensity score matching approach. As a final test, we also examine which components of the index are adjusted most often by firms for which the board governance index decreases.

We specifically focus on index decreases since these are informative for drawing the inferences about the potential rationale for the use of Code flexibility, i.e. for weakening of the monitoring capacity and/or strengthening of the directing capacity of the board. In particular, as argued above, the opportunism and the efficiency explanations generate opposite implications regarding expected performance consequences of index decreases, which underlie the main test of H2a versus H2b. Moreover, while index increases are very unlikely to be driven by managerial opportunism, prior literature on governance choices in the UK hints at efficiency motives being the driving force behind improvements in board governance arrangements. For instance, Peasnell et al. (2003) and Young (2000) find that larger firms having less than the suggested number of NEDs adjusted their board structures to meet the Cadbury recommendations after 1992. Similar trends in compliance and associated benefits are also documented by Dahya and McConnell (2005, 2007) and Hillier and McColgan (2006).

3 | SAMPLE AND INDEX CONSTRUCTION

3.1 | Sample

The sample is constructed as the intersection of BoardEx and Thomson ONE Banker databases for UK listed companies. We analyse BoardEx data on board characteristics covering the years 1999–2008 and merge it with financial data collected from Worldscope and Datastream (retrieved via Thomson ONE Banker). Given the lead-lag structure of our research design, we collect the corresponding financial data for the period, 1998–2009. While BoardEx coverage of UK firms yields an unbalanced panel of 11,712 firm-years (corresponding to 2,212 companies), availability of data for some financial variables restricts the sample size to 10,493 firm-years. In our analyses of portfolio performance, we estimate the four-factor model of Carhart (1997) and employ UK factor-mimicking portfolios constructed by Gregory, Tharyan, and Christidis (2013). Finally, in some of our analyses we employ data on analyst EPS forecasts from I/B/E/S (retrieved via WRDS).

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[1] Some of the costs of monitoring are indirect. Young (2000) echoes the concerns expressed among the business community at the time of the Code's introduction that its emphasis on strengthening the control function may inhibit managerial enterprise and commercial competitiveness. Aguilera, Filatotchev, Gospel, and Jackson (2008) highlight that compliance with governance codes involves opportunity costs such as directors' time spent on governance issues instead of business strategy, changes in managerial risk preferences, or proprietary costs (e.g. costs of disclosure of strategic information).

TABLE 1 Sample descriptive statistics

Variable	Mean	Median	Std. dev.	Minimum	Maximum
TSR	3.91	−1.88	60.39	−91.00	276.36
ROA	−4.81	3.89	29.65	−194.55	35.55
ROE	−7.34	6.79	110.49	−792.79	450.14
ROIC	−6.38	5.88	51.10	−349.25	81.99
Tobin's Q	2.81	1.79	5.51	−16.45	40.16
Sales (£ millions)	709.02	43.59	2311.61	0.00	15490.00
Ln(1 + Sales)	3.90	3.97	2.69	−3.67	9.71
Market capitalization (£ millions)	846.73	57.53	2950.19	0.58	20649.28
Ln(1 + Market capitalization)	4.24	4.05	2.22	−0.54	9.94
Total assets (£ millions)	1868.53	62.43	9278.87	0.56	82651.00
Ln(1 + Total assets)	4.45	4.19	2.27	0.35	11.02
Free cash flow/Total assets	−0.06	−0.01	0.23	−1.36	0.27
Leverage	20.49	8.80	30.16	−36.99	195.85
P/E ratio	1.47	8.50	175.80	−1214.39	1083.30
Intangibles/Total assets	0.20	0.10	0.23	0.00	0.99
Std. dev. TSR	16.75	11.74	16.09	2.27	105.36
EPS analyst forecast dispersion	0.02	0.01	0.05	0.00	0.30
CEO equity ownership	5.70	0.69	10.82	0.00	56.77
CEO equity-linked wealth	6.17	1.45	10.82	0.00	56.78
CEO tenure	4.56	2.80	5.01	0.00	24.90
CEO age	50.66	50.00	7.79	33.00	70.00
CEO incentive pay	0.58	0.59	0.24	0.00	1.00

Note: All financial variables are winsorised at both ends of the distribution at the 1% level. TSR denotes total shareholder return (which incorporates dividends and capital gains) and is expressed in percentage terms. Sales are expressed in millions of pounds. Leverage is measured as the ratio of total debt to total assets. ROA denotes return on assets, defined as the ratio of earnings before interest and taxes (EBIT) to total assets and is expressed in percentage terms. ROE denotes return on equity, defined as the ratio of net income to the book value of equity. ROIC is the return on invested capital, as defined by the Worldscope database (i.e. (Net Income before Preferred Dividends + ((Interest Expense on Debt − Interest Capitalised) * (1 − TaxRate)))/Average of Previous Year's and Current Year's (Total Capital + Last Year's Short Term Debt & Current Portion of Long Term Debt) * 100). Tobin's Q is defined as the ratio of the sum of the book value of debt and market value of equity to the book value of total assets. Market capitalisation and total assets are expressed in millions of pounds. Free cash flow is defined by Worldscope as (funds from operations − capital expenditures − cash dividends paid)—the variable used here is scaled by the book value of total assets. Leverage is the ratio of book values of total debt and total assets. P/E ratio denotes price-earnings ratio corresponding to the end of the year *t*. Intangibles/Total assets is the ratio of the net value of intangible assets (as defined in Worldscope) to the value of total assets of the firm. Std. dev. of TSR is defined as the standard deviation of monthly total shareholder returns in a particular year. EPS analyst forecast dispersion is the standard dispersion of 1-year-ahead I/B/E/S analyst forecasts of earnings per share (EPS) scaled by per-share book value of assets at the beginning of the period. CEO equity ownership is expressed as the ratio of the value of CEO's stock holdings to the total market capitalisation of the firm and is expressed in percentage terms. CEO equity-linked wealth is expressed as the ratio of the CEO's equity-related wealth (i.e. stocks, options, equity-related LTIPs) to the total market capitalisation of the firm and is expressed in percentage terms. CEO tenure and CEO age are expressed in years. CEO incentive pay is defined as ratio of CEO performance-related pay to the total pay earned by the CEO in a particular year.

Our data set thus covers the vast majority of market capitalisation of the London Stock Exchange (both of the main market and of the AIM) for the period analysed. The analysis excludes firms for which BoardEx reports no executives sitting on the board, i.e. mostly exchange-traded funds and similar financial companies. All other financial firms for which data are available are included in the sample. Table 1 presents descriptive statistics for the sample (pooled across 10 years).

3.2 | Board governance index construction

As already discussed, while studies examining the governance–performance link based on individual governance mechanisms have found mixed results (e.g. Vafeas & Theodorou, 1998; Weir et al., 2002, for the UK; Agrawal & Knoeber, 1996, and Bhagat & Black, 1999, for the US), studies that have examined this link by developing an index measuring the overall governance quality based on different aspects of governance (e.g. strength of shareholder rights in the case of Gompers et al., 2003) have proved more successful. These include the initial work of Gompers et al. (2003), followed by Bebchuk, Cohen, and Ferrell (2009), Bhagat and Bolton (2008), Brown and Caylor (2006), and Renders et al. (2010). All of these studies tend to find a positive link between indices capturing various aspects of a firm's governance and various measures of a firm's financial performance. A possible explanation for the success of the index approach in governance–performance studies is that an index potentially captures better the overall strength of a particular aspect of governance (say, shareholder rights in Gompers et al., 2003) or the level of managerial entrenchment (Bebchuk et al., 2009), thus improving the power of the test of the aspect of governance under study.

While Gompers et al. (2003) focus on the strength of shareholder rights in the US (based on an index which counts the number of anti-takeover provisions adopted by US firms), in this study, we focus on the strength of the monitoring capacity of the board (based on the number of board-related provisions of the UK Code adopted by a firm). Our index takes guidance from the Code's recommendations related to different oversight functions of the board and thus it allows us to comprehensively gauge the strength of the monitoring capacity of the board. Moreover, our fine-tuned approach allows us to focus on the quality of governance arrangements both at the board as well as at the sub-committee level. Chan and Li (2008) and Yeh et al. (2011) highlight the importance of the monitoring committee composition in performing its oversight function. Hence, the board governance index we develop here is not only rooted in an established theory (namely agency theory), but the validity of its components is also supported by relevant prior empirical evidence.

The Code's board recommendations dealing with different oversight functions (e.g. remuneration, audit, etc.) can be seen as complementary aspects of strong governance arrangements at the board level. Thus, consistent with the approach in the prior literature (e.g. Brown & Caylor, 2006; Gompers et al., 2003; Renders et al., 2010), we consider the index components to be complementary and additive (cf. Bhagat, Bolton, & Romano, 2008). Moreover following a large body of literature employing the index approach, we construct the index by weighting different provisions equally (Bebchuk et al., 2009; Gompers et al., 2003).

Panel A of Table 2 illustrates that a typical board has seven members. On average, about half of the board members are NEDs, a majority of whom could also be classified as independent.[2] Panel B of Table 2 provides the descriptive statistics over the entire period for the provisions we take into account for constructing the board governance index (mean values for each provision are presented in parentheses in the text below). In particular, the 1998 version of the Code recommends that the board of directors should not be chaired by the company CEO (in approximately 16% of the sample, however, this is the case). Moreover, at least one-third of the board members should be NEDs (91.36%), the majority of whom should also be independent (74.43%). The board should have a senior independent member other than the chair, either a deputy chair or a senior NED (56.50%). The board should have remuneration (89.00%), audit (98.81%), and nomination (60.57%) committees, and the prior two committees should be headed by independent NEDs (70.69% and 71.93%, respectively). The remuneration committee should be composed entirely of independent NEDs (53.48%). The audit committee should be composed of NEDs only, the majority of whom should be independent (78.59%). Finally, the nomination committee should be chaired either by the chairman of the board or by a NED (33.15%) and the majority of its members should be NEDs (59.39%).

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[2] It is important to clarify at this point that the UK code makes a clear distinction between NEDs, or so-called outside directors in the US, and independent NEDs (similar to unaffiliated outside directors in the US). For instance, the 2003 version of the Code stipulates that NEDs are deemed formally independent, if they satisfy the following criteria: (1) a director has not previously been an employee of the company, (2) has no family ties with other board members, (3) has no business link with the company, (4) receives no remuneration other than a fee for a directorship, (5) does not hold a cross-directorship, (6) does not represent a significant shareholder, and (7) has not been on the board for more than nine years.

TABLE 2 Board governance index components and key board characteristics (pooled sample averages)

Panel A: Key board characteristics	
Board size (N)	6.99
Number of NEDs	3.66
Number of independent NEDs	2.58
Panel B: Averages for board governance index components	
No CEO/chair duality	84.44%
Percentage of NEDs on the board (at least 33%)	91.36%
Majority of NEDs independent	74.43%
Presence of deputy chair and/or senior NED	56.50%
Presence of remuneration committee	89.00%
Independent NED chairing remuneration committee	70.69%
Remuneration committee composed entirely of independent NEDs	53.48%
Presence of audit committee	98.81%
Independent NED chairing audit committee	71.93%
At least half of audit committee members are independent	78.59%
Presence of nomination committee	60.57%
NED or board chair is chairing nomination committee	33.15%
Majority of nomination committee members are NEDs	59.39%
Board governance index	**9.38**

Note: For each of the index provisions, 1 corresponds to the case when the statement is true and 0 otherwise. Board governance index is therefore the sum of all the provisions. Accordingly a firm which confirms to all provisions gets a score of 13, having the best board composition and structure, while a firm scoring 0 would have the worst designed board according to the UK Code.

For each of the provisions, we assign a value of 1 for compliance and 0 for non-compliance with the Code's recommendations, and define the board governance index for each firm-year as the sum of its scores on each of the 13 provisions. Hence, the index value can vary between 0 and 13, with 13 corresponding to full adherence to the Code's recommendations related to board structure and composition. The high mean and median values of the board governance index (9.38 and 10.00, respectively) suggest that in the sample period firms are designing the board largely in accordance with the Code's recommendations.

Our sample is an unbalanced panel. Therefore, in order to examine the temporal trends in the values of the index, we estimate a simple fixed-effect panel data regression explaining the index with year fixed effects only. This approach allows us to control for the sample composition changes by focusing only on within-firm variation in index values. We then calculate model predictions from this regression, as depicted in Figure 1. It illustrates that the adherence to the board-related Code recommendations (and thus the values of the index) increases on average, albeit at a slowing rate, over the sample period. This finding complements prior evidence documenting a similar increase in adherence in periods immediately following the Cadbury Report (e.g. Dahya & McConnell, 2007; Guest, 2008; Hillier & McColgan, 2006). However, we also find that some firms decrease the index in some years, an issue that we examine in greater detail later in the paper.

4 | ANALYSIS

4.1 | Governance, operating performance and firm value

In this section we examine whether average and median values of operating performance and valuation indicators differ between firms belonging to a portfolio of companies with the strongest board governance arrangements (as
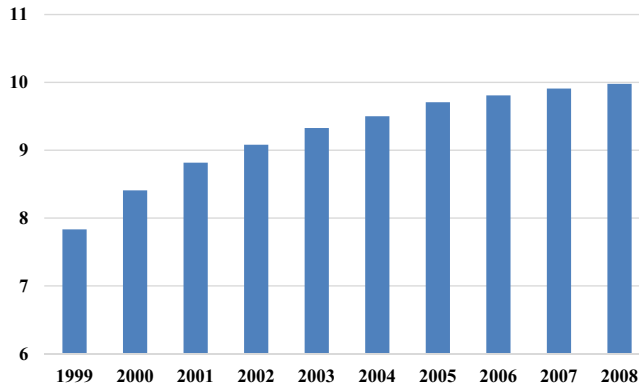
FIGURE 1 Implied average values of board governance index [Colour figure can be viewed at wileyonlinelibrary.com] *Note*: The figure depicts model prediction from a simple fixed-effect panel data regression explaining the values of board governance index with year fixed effects only.

indicated by high values of the board governance index) and those belonging to a portfolio of companies with the weakest board governance arrangements, as postulated by H1. We apply a test similar to that reported by Gompers et al. (2003). As governance provisions are recorded annually in the database, for each of the sample years we construct two equally-weighted portfolios: firm-years where index values do not exceed 5 (which corresponds to the bottom quintile of our sample) are classified as belonging to the weak governance portfolio, while observations where the index equals 13 (i.e. the top quintile) are classified as belonging to the strong governance portfolio.

Table 3 provides support for H1 with respect to measures of operating performance. The differences in industry-adjusted[3] indicators of operating performance between firms belonging to strong and weak governance portfolios are highly significant both contemporaneously and in the subsequent year. However, the average contemporaneous Tobin's Q of the best governance firms is not significantly different from that of the worst governance ones according to the *t*-test result (although the difference is significant according to the Wilcoxon test). Taken together, these findings suggest that while strong governance arrangements at the board level are associated with potentially reduced agency problems and higher firm operating performance, investors do not seem to immediately recognise their value in full.[4]

4.2 | Portfolio return analysis

While the analysis above has established a positive association between the board's monitoring capacity and firm operating performance, in this section we examine further whether there are significant differences in stock performance of the weak and the strong governance portfolios defined above. In particular, we examine a zero-investment portfolio which comprises a long position in the strong governance portfolio and a short position in the weak governance portfolio. We then analyse total shareholder returns on these portfolios over the following year, i.e. we use governance provisions in year *t* to construct portfolios and then analyse their performance in year (*t* + 1). We use monthly data and assume that the portfolios are re-balanced monthly to keep equal weights of its constituents. Having computed the portfolio returns, we investigate whether the differences in performance of the two portfolios could be attributed to differing characteristics of these portfolios. In this attribution analysis we follow Gompers et al. (2003) and employ the four-factor model by Carhart (1997) with the UK factor-mimicking portfolios constructed by Gregory et al. (2013). Like Gompers et al. (2003) we remain agnostic as to whether the factors employed are proxies for risk and we

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[3] Industry definitions throughout the paper are based on the 17-industry classification of Fama and French (1997).

[4] The governance index is strongly correlated with firm size, which may confound the effects of governance reported here. However, in untabulated analyses (employing either propensity score matching or sample split by firm size), we show that the relation between the governance index and performance indicators holds even after controlling for firm size and other observable firm characteristics.

TABLE 3 Board governance, operating performance, and firm value

Performance measure	Subsample means		Subsample medians		t-Test for equality of means	Wilcoxon test for equality of medians	No. of observations: Weak/Strong gov. portfolio
	Weak governance portfolio	Strong governance portfolio	Weak governance portfolio	Strong governance portfolio			
Panel A: Contemporaneous performance indicators							
Industry-year median-adjusted ROA_t	−17.68	0.15	−3.40	1.39	19.01***	16.54***	1696/2123
Industry-year median-adjusted ROE_t	−23.01	−3.97	−3.83	2.69	5.30***	12.60***	1770/2148
Industry-year median-adjusted $ROIC_t$	−26.34	1.30	−5.20	2.30	17.50***	16.80***	1652/2118
Industry-year median-adjusted Tobin's Q_t	0.71	0.98	−0.15	0.09	1.59	5.07***	1764/2144
Panel B: Lead performance indicators							
Industry-year median-adjusted ROA_{t+1}	−17.35	−0.28	−2.84	1.20	18.23***	14.55***	1630 / 2041
Industry-year median-adjusted ROE_{t+1}	−24.08	−8.71	−2.90	2.34	3.86***	9.86***	1632 / 2052
Industry-year median-adjusted $ROIC_{t+1}$	−25.30	0.56	−4.18	1.98	16.92***	15.02***	1573 / 2025
Industry-year median-adjusted Tobin's Q_{t+1}	0.52	0.79	−0.18	0.11	1.83†	4.00***	1633 / 2051

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. The weak governance portfolio is defined as an equally weighted portfolio comprising firms from the lowest quintile of the distribution of the board governance index. The strong governance portfolio is defined as an equally weighted portfolio comprising firms from the highest quintile of the distribution of the board governance index. Portfolios are constructed annually. Performance indicators are based on the measures defined in Table 1. The analysis is based on the pooled sample of 10 years. The testing procedure does not assume equal variances.

TABLE 4 Four-factor model for weak and strong governance portfolios and for the arbitrage portfolio (based on monthly total shareholder returns) for board governance index

	Excess return on weak governance portfolio		Excess return on strong governance portfolio		Return on the arbitrage portfolio (strong – weak)	
	Estimate	t-value	Estimate	t-value	Estimate	t-value
Alpha	−1.80	−3.37***	0.02	0.05	1.82	4.40***
$(R_M - R_F)$	0.20	1.57	0.23	2.46*	0.03	0.30
SMB	0.18	1.39	0.17	1.82†	−0.01	−0.07
HML	0.04	0.26	0.17	1.65	0.13	1.23
UMD	−0.04	−0.39	0.10	1.24	0.14	1.67†
R^2	0.06		0.11		0.04	
No. of observations (months)	120		120		120	
F-test	F(4,115) = 1.96		F(4,115) = 3.45		F(4,115) = 1.15	

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. The weak governance portfolio is defined as an equally weighted portfolio comprising firms from the lowest quintile of the distribution of the board governance index. The strong governance portfolio is defined as an equally weighted portfolio comprising firms from the highest quintile of the distribution of the board governance index. Excess returns are total shareholder returns in excess of risk-free rate. The arbitrage portfolio is a zero-investment portfolio consisting of a long position in the strong governance portfolio and a short position in the weak governance portfolio (as defined above). Portfolios are constructed annually, i.e. governance provisions in year t are used to construct portfolios the performance of which is then analysed in year (t+1).

interpret the estimated intercept coefficient as the abnormal return in excess of what could have been achieved by passive investment in the factor portfolios.

In untabulated analyses, we find that the portfolio of firms with strongest governance arrangements delivered higher unadjusted total shareholder return, compared with the portfolio of firms with the weakest board governance standards. Moreover, Table 4 illustrates that the discrepancy in performance of the two portfolios cannot be explained by their differing characteristics (proxied by the four factor exposures). The results suggest that the portfolio of companies falling short on strong governance arrangements in the preceding year underperforms a passive strategy of investing in factor portfolios. Therefore, the investment strategy of buying companies with the best board governance arrangements and of shorting firms with the weakest standards delivers a highly significant monthly alpha of 182 bp over the sample period. The results suggest that in the UK, investors fail to recognise the value of strong governance arrangements even more substantially than in the US market (as estimated by Gompers et al., 2003). Moreover, contrary to the findings of Bebchuk, Cohen, and Wang (2013), who document convergence of returns on strong and weak governance firm portfolios in the US at the very beginning of the twenty-first century, here we show that the corresponding wedge in the UK is still present and very sizeable even in more recent years.

4.3 | Analysis of the changes in the index

The findings discussed so far are consistent with the view that firms with stronger governance arrangements tend to enjoy stronger operating performance, but that investors do not appreciate the implications for firm value correspondingly. However, as discussed earlier, adherence to the Code recommendations is a considered choice and there are competing reasons for deviations from such arrangements. Non-compliance with the Code may be a step in the right direction if driven by efficiency considerations (i.e. in situations where the perceived costs of monitoring outweigh potential benefits) in line with the predictions of H2a. Alternatively, the reasons for reducing compliance may be opportunistic, consistent with H2b. Our tests below aim to discern these motives.

In Table 5 we examine the factors associated with the firms' decisions to lower, maintain, or increase the values of their board governance index. In particular, we investigate whether CEO influence (proxied by the CEO share

TABLE 5 Ordered logit models explaining the likelihood of index changes between years $t-1$ and t

Regressors	Model 1 Coeff.	Model 1 z-stat	Model 2 Coeff.	Model 2 z-stat	Model 3 Coeff.	Model 3 z-stat	Model 4 Coeff.	Model 4 z-stat	Model 5 Coeff.	Model 5 z-stat
Board governance index$_{t-1}$	−0.15	−14.92***	−0.16	−14.50***	−0.16	−14.75***	−0.19	−12.69***	−0.42	−11.33***
Industry-year median-adjusted ROA$_{t-1}$	0.00	1.34	0.00	0.94	0.00	0.92	0.00	0.69	0.00	0.19
LN(1 + Total assets$_{t-1}$)	0.05	2.53*	0.04	1.61	0.04	1.71†	0.03	1.22	−0.09	−1.69†
LN(Board size$_{t-1}$)	0.15	1.36	0.13	1.13	0.15	1.27	0.18	1.17	−0.06	−0.20
Free cash flow$_{t-1}$/Total assets$_{t-1}$	0.22	1.10	0.43	1.93†	0.44	1.97*	0.44	1.29	0.56	0.90
Leverage$_{t-1}$	0.00	−0.26	0.00	−0.63	0.00	−0.60	0.00	−0.52	0.00	1.56
CEO equity ownership$_{t-1}$			−0.01	−3.16**	−0.01	−2.86**	−0.01	−2.36*	−0.02	−2.13*
CEO age$_{t-1}$					−0.01	−1.74†	0.01	1.17	0.01	0.77
Std. dev. TSR$_{t-1}$							−0.65	−2.03*	−1.98	−2.54*
EPS analyst forecast dispersion$_{t-1}$									−3.87	−2.04*
Industry fixed effects	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A
Year fixed effects	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A	Yes	N/A
Cut-off-1	−3.87		−4.22		−4.55		−4.17		−8.06	
Cut-off-2	−0.04		−0.34		−0.68		−0.20		−3.63	
Pseudo-R²	0.03		0.04		0.04		0.04		0.11	
Log-likelihood	−5232.65		−4664.42		−4616.73		−2817.41		−1004.67	
LR test statistic	$\chi^2(31)=346.51$***		$\chi^2(32)=338.35$***		$\chi^2(33)=343.73$***		$\chi^2(34)=262.62$***		$\chi^2(35)=251.54$***	
No. of observations	6889		6202		6125		3836		1518	
No. of firms	1546		1408		1381		633		332	

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. The dependent variable is a categorical (ordered) variable, which takes the value of −1 in cases of firm-years, where the board governance index decreased between years $t-1$ and t, 0 in cases of firm-years where the board governance index remained unchanged between years $t-1$ and t, and 1 in cases of firm-years where the board governance index increased between years $t-1$ and t. All the regressors are measured in year $t-1$. All the other variables are defined as in Table 1. The analysis is based on the pooled sample of 10 years.

ownership and CEO age; cf. Boone et al., 2007; Core et al., 1999; Dedman, 2000) and information asymmetry vis-à-vis outsiders (as reflected by standard deviation of stock returns or dispersion of analyst earnings forecasts, cf. Core et al., 1999; Dittmar & Thakor, 2007; Guest, 2008; Lang & Lundholm, 1996) are positively associated with the likelihood of weakening board governance arrangements. In the ordered logit regressions explaining index changes we control for the starting value of the governance index (to capture possible path-dependence in board arrangements, cf. Hermalin & Weisbach, 1998) and a number of firm characteristics that are shown by the prior literature to be important determinants of board structure and composition. These include firm performance, firm size, board size, free cash flow, leverage, as well as year and industry fixed effects (cf. Boone et al., 2007; Coles et al., 2008; Linck et al., 2008).

We find the coefficients for all of the key variables of interest (i.e. measures of CEO influence and information asymmetry) to be significant and negative as expected. Specifically, Table 5 shows that firms managed by CEOs with larger equity stakes or those with older CEOs are more likely to decrease the index (although the effect of age is not fully robust across the model specifications). The index is also more likely to decrease in firms characterised by higher information asymmetries (i.e. riskier and more opaque firms) and those where the starting values of the index are higher. In terms of other control variables, we find some evidence consistent with the efficiency motive: firms with higher free cash flows are more likely to increase the index (presumably to strengthen the monitoring capacity of the board).

At this stage however, neither opportunism nor efficiency can yet be ascertained as a factor explaining board arrangements. In order to empirically distinguish between these two competing explanations, in Table 6 we examine performance implications of the index changes. We calculate propensity scores (i.e. implied probabilities to decrease the index) implied by Models 1–5 of Table 5 and use these to match an index-decreasing firm with a similar firm (i.e. nearest neighbour according to the calculated propensity score) for which the index remains unchanged. We then calculate the treatment effects (both the average treatment effect on the treated, ATT, and the average treatment effect, ATE), where the treatment is defined as the index decrease between years $t − 1$ and t, on subsequent firm performance (i.e. in year $t + 1$) using focal and control firm-years sharing a common support of the propensity score distribution (cf. Caliendo & Kopeinig, 2008). The empirical approach followed allows us to take into account potential endogeneity of the treatment (since we argue that the governance arrangements are a considered choice made by the firm) and unobserved heterogeneity of the focal and control samples. In testing for significance of ATTs and ATEs, we employ a bootstrapping procedure with 100 repetitions to obtain critical values for significance tests (Leuven & Sianesi, 2015).

Hypotheses 2a and 2b make opposite predictions regarding the expected sign of the treatment effects. The former postulates superior performance of the index-decreasing firms (and thus positive ATTs and ATEs), which is likely to ensue due to realised efficiency gains. The latter implies negative performance consequences for the index-decreasing firms (i.e. negative ATTs and ATEs), if the index change was driven by opportunistic motives. Table 6 illustrates that the treatment effects for two out of the three operating performance indicators (i.e. ROA and ROIC, but not ROE) are all negative and statistically significant (in line with H2b) for tests relying on propensity scores implied by Models 1–4.[5] Moreover, the three statistically significant treatment effects for Tobin's Q are all negative as well. As none of the treatment effects analysed are significantly positive, we fail to find any support for H2a here.[6]

The results discussed here are also economically significant: for example, the index decrease is followed by a 3.2–5.7 percentage point decrease (depending on the model used to draw inferences) in ROA relative to performance firms would achieve were they not to weaken their governance (cf. ATTs), and is associated with a 2.7–3.1 percentage gap in ROA in year $t + 1$ relative to the control sample firms (cf. ATEs). Hence, we conclude that the index decreases are likely driven by opportunistic motives (corroborating H2b) and that they are followed by substantial adverse performance consequences.

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[5] The results regarding treatment effects for ROE are insignificant and thus inconclusive. The same applies to all the results relying on propensity scores from Model 5 (possibly due to small sample sizes available for the corresponding tests).

[6] While our hypotheses pertain to index decreases, in untabulated analyses, we redefined the treatment and looked at index increases instead. Most of the treatment effects are insignificant in this case. One possible interpretation could be that while weakening of the board monitoring capacity could be detrimental to firm performance even in the relatively short run (given the immediately increased managerial discretion), the effect is not symmetrical, i.e. governance improvements may not directly translate into corporate performance improvements.

TABLE 6 Treatment effects: Performance consequences of the board governance index decreases

Performance indicator	Statistic	Model used to calculate propensity scores for matching procedure				
		Model 1	Model 2	Model 3	Model 4	Model 5
Industry-year median-adjusted ROA$_{t+1}$	ATT (Average treatment effect on the treated)	−5.67	−3.23	−4.11	−3.21	1.20
	Z-statistic for ATT	−3.99***	−2.20*	−2.49*	−2.23*	0.60
	ATE (Average treatment effect)	−2.73	−2.65	−3.06	−3.03	−0.52
	Z-statistic for ATE	−2.58**	−2.27*	−3.27**	−2.56*	−0.41
Industry-year median-adjusted ROE$_{t+1}$	ATT (Average treatment effect on the treated)	−3.73	5.93	−1.07	−4.82	−2.72
	Z-statistic for ATT	−0.68	1.14	−0.18	−0.82	−0.29
	ATE (Average treatment effect)	0.40	1.68	1.40	−6.00	−9.17
	Z-statistic for ATE	0.10	0.47	0.34	−1.37	−1.17
Industry-year median-adjusted ROIC$_{t+1}$	ATT (Average treatment effect on the treated)	−9.12	−4.56	−6.59	−5.52	1.87
	Z-statistic for ATT	−3.40***	−1.81†	−3.04***	−2.21*	0.59
	ATE (Average treatment effect)	−4.55	−4.87	−5.51	−4.99	−0.52
	Z-statistic for ATE	−2.60**	−2.23*	−2.89**	−2.23*	−0.25
Industry-year median-adjusted Tobin's Q	ATT (Average treatment effect on the treated)	0.01	−0.11	−0.17	−0.05	−0.10
	Z-statistic for ATT	0.07	−1.38	−2.12*	−0.54	−0.46
	ATE (Average treatment effect)	−0.08	−0.11	−0.13	0.00	−0.11
	Z-statistic for ATE	−1.34	−1.98*	−2.62**	−0.01	−1.03

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. The treatment group comprises cases where the firm's board governance index decreased between years $t − 1$ and t. The control group comprises cases where the board governance index remained unchanged between years $t − 1$ and t. Firm-years in the control sample are propensity score-matched on the basis of the propensities to decrease the board governance index calculated from Models 1–5, respectively, employing the nearest-neighbour matching algorithm. Z-statistics for ATT and ATE are based on bootstrap procedure with 100 repetitions.

Table 7 reports a further test of H2a against H2b and examines the arrangements that are most likely to be changed by firms reducing their board governance index. It indicates that the axe is falling most frequently on the independence of the remuneration committee: 35% of the companies decreasing compliance weaken this aspect. This is followed by appointment of non-independent chairs of key board committees, i.e. nomination (23%), remuneration (21%), and audit (18%). The efficiency motivation for all of these changes seems quite implausible. Thus, taken together the results of our analyses suggest that it is likely to be managerial opportunism rather than efficiency considerations which drive firms' decision regarding decreases in the board governance index. In other words, the evidence is consistent with H2b rather than H2a: firms attempt to weaken the monitoring capacity of the board in situations where managerial power is high. Even for firms characterised by high information asymmetries, it is quite likely that the reduction in monitoring capacity could be driven by managerial opportunism rather than efficiency, given that in such firms managers would have a significant informational advantage, which they could use to their benefit (cf. Adams et al., 2010).

Moreover, the relatively low occurrence of companies suddenly falling short of sufficient proportion of independent NEDs on their boards (11.3%) suggests that firms adopt more tacit techniques in weakening the board's monitoring capacity.[7] It seems that it is easier to 'clip the wings' of independent NEDs by reshuffling their positions on the board rather than their outright removal. This finding is consistent with the insight of Alan J. Patricof, a leading US venture capitalist, who argues that "[d]*eep down* [CEOs] *really wish they didn't have boards. That's why, at the end of the day, most independent directors get neutralized in one fashion or another*" (Smale, Patricof, Henderson, Marcus, & Johnson, 1995, p. 158). Our findings are also consistent with the conjecture of Chan and Li (2008), who argue that key committee independence is far more important than the independence of the board *per se*.

5 | ADDITIONAL ANALYSES AND ROBUSTNESS CHECKS

5.1 | Alternative board governance index (new board governance index)

A new version of the Code stipulating a more stringent set of governance provisions regarding the design of the board came into force in 2003. Specifically, the 2003 version calls for the majority of the board to consist of independent NEDs, with the board chair position also to be held by an NED deemed independent at the time of appointment. The purpose of these new provisions was to further improve board balance, i.e. the division of power at the top (by encouraging independence of board chair), as well as to further strengthen the monitoring capacity of the board (by not only having more independent NEDs, but also requiring audit committee and remuneration committee to be composed exclusively of independent NEDs).

We amend the board governance index accordingly and construct a new index (henceforth, the new board governance index), which takes into account these new recommendations.[8] The new board governance index can also take values ranging from 0 to 13 with higher values corresponding to stronger governance arrangements. Strikingly, the trends observed here (not illustrated) mirror those for the board governance index (discussed earlier, see Figure 1) almost perfectly and the two indices are quite highly correlated. This suggests that in the UK, as has been the philosophy of the Code from the beginning, it is the prevailing best practice that is later codified rather than the other way round. Finally, the conclusions of the analysis employing the new board governance index are fully in line with those reported earlier.

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[7] In the robustness check section below, we document in more detail that index changes can only be partly explained by the changes in board size and composition.

[8] While the actual governance recommendations used to construct the new board governance index were only published in 2003, the analysis of this new index and its link to subsequent corporate performance over the entire sample period is still meaningful. It allows us to examine whether investors perceived differently board governance provisions recommended by the version of the Code in place at the time (i.e. 1998 version) and those, more exacting ones, going beyond its letter. It also allows us to verify the claim by Henry (2008) that governance arrangements adopted by firms beyond those imposed by regulations and common practices among firms in a given country have a strong, positive effect on firm performance. Moreover, it provides an additional robustness check of the previously tested relation. The results pertaining to the new board governance index are not reported, but available upon request.

TABLE 7 Where is compliance weakened if firms decrease their board governance index?

	Duality	% of NEDs on board	NEDs' independence	Presence of senior NED or NED Deputy Chair	RemCo existence	RemCo Chair independence	RemCo members' independence	AudCo existence	AudCo Chair independence	AudCo members' independence	NomCo existence	NomCo Chair independence	NomCo members' independence
1999	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000	21.05	13.16	5.26	7.89	21.05	15.79	31.58	0.00	5.26	7.89	5.26	0.00	13.16
2001	11.32	20.75	1.89	26.42	18.87	20.75	30.19	0.00	13.21	11.32	7.55	15.09	9.43
2002	19.70	18.18	12.12	7.58	7.58	16.67	30.30	0.00	12.12	7.58	0.00	18.18	3.03
2003	15.52	12.07	12.07	17.24	7.76	14.66	31.90	0.86	18.10	11.21	0.86	31.03	1.72
2004	18.97	15.52	11.21	12.07	10.34	19.83	38.79	0.00	17.24	12.07	0.86	29.31	1.72
2005	14.16	17.70	11.50	9.73	14.16	19.47	29.20	0.88	11.50	12.39	2.65	27.43	4.42
2006	17.83	22.58	14.73	17.05	12.40	21.71	34.88	1.55	14.73	13.18	2.33	17.05	4.65
2007	16.77	17.96	10.18	13.77	8.98	15.57	38.32	0.00	17.37	12.57	3.59	22.16	4.19
2008	15.60	10.55	12.84	6.88	21.10	32.11	38.53	2.29	28.90	22.02	16.51	23.85	18.35
Pooled	16.54	15.94	11.32	12.50	13.48	21.06	35.04	0.89	17.91	13.88	5.51	22.83	7.28

Note: Year-by-year and pooled percentages of companies switching to non-adherence to a specific Code recommendation among the companies decreasing board governance index (defined in Table 2) in a particular year.

5.2 | Index changes versus sample and board composition effects

The analysis of within-firm index changes suggests that the overall trends in adherence to the Code regarding board arrangements are not due to the sample composition effects. By construction, this approach requires tracking the same firms over two consecutive years. We find that governance is less sticky than indicated by some earlier studies (e.g. Arcot et al., 2010) and companies actually do change over time as far as their board arrangements are concerned. Specifically, the average absolute change of the index is 0.67 per year, which is a much higher magnitude than the average change of 0.6 over three-year intervals documented by Gompers et al. (2003) for their US index. This is not entirely surprising: our index captures the quality of governance arrangements at the board level while the measure constructed by Gompers et al. (2003) focuses on charter provisions. It is likely that board arrangements are more flexible and easier to modify than charter provisions. Moreover, we also find that in about a third of firm-years observed, the value of the index actually changes compared to the previous year. This proportion varies between 28.61% in 2006 and 42.14% in 1999.

Table 8 documents that the board governance index components are positively correlated with each other. In particular, firms with boards comprising a larger proportion of (independent) NEDs tend to have key board committees adhering more closely to the Code guidelines. To minimise the risk of inflating the effects of board composition and independence, we amend the construction of the index and exclude provisions (2) and (3) capturing the proportion of NEDs on the board and their independence. We then re-do the analysis using the modified index based on the remaining 11 components. The results obtained (available upon request) are consistent with those reported in the main body of the paper, further highlighting the importance of the overall quality of board governance arrangements (in particular, at the committee level) beyond just board independence studied by most of the extant literature.

Hermalin and Weisbach (1998) predict that the governance changes (in particular, those pertaining to the board) are likely to be relatively permanent. On the other hand, Hillier and McColgan (2006) argue that firms change their governance structures following 'shocks' such as CEO succession. These events could lead to temporary changes to the board structure, e.g. a non-executive chair becoming an executive and taking over as an interim CEO. Such transient board changes could be associated with substantial variations in firm performance. In order to rule out this transient nature of changes (and the associated performance turbulence) as a possible explanation for the findings of Tables 5 and 6, we re-do the corresponding analyses focusing only on permanent changes to the index. We define a change as permanent if the index changed between years $t - 1$ and t and the change was not reversed immediately afterwards (i.e. between t and $t + 1$). The results (available upon request) pertaining to both the antecedents and the performance consequences of permanent index changes are qualitatively similar to those reported in Tables 5 and 6, further corroborating support for H2b as opposed to H2a.[9]

Finally, we perform additional analyses (available on request) examining the changes in the size of the board, the number of NEDs and of independent NEDs in firms that increase, keep unchanged, or decrease the index. In particular, focusing on index decreases, we find that board size decreases in only 41.55% of index-decreasing firms. More importantly, only 36.76% of index-decreasing firms actually lower the number of NEDs on boards (while the corresponding figure for independent NEDs is also less than half, at 41.11%). Finally, only 15.94% of index-decreasing firms lower their NEDs' share of board seats below the Code-prescribed minimum. Taken together, we believe that the data provide sufficient evidence that firms adopt tacit techniques in weakening the board's monitoring capacity (i.e. 'clipping the wings' of (independent) NEDs by reshuffling their positions on the board) and that the index decreases in most cases are not the result of (independent) NEDs' removals, unexpected departures, or their shift to executive roles.

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[9] Unfortunately, statistical significance of some of the results weakens compared with Tables 5 and 6, which is likely to be driven by smaller sample sizes, due to data availability requirements. For instance, in order to classify a change as permanent or transient, three consecutive years of governance data are required for firms where the index changes. Moreover, while most of the changes are indeed permanent, some are transient, which reduces the sample of the treatment and control groups used in the calculation of treatment effects here.

TABLE 8 Pairwise correlations between variables constituting the board governance index

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) No CEO/chairman duality												
(2) Percentage of NEDs on the board (at least 33%)	0.13											
(3) Majority of NEDs independent	0.08	0.13										
(4) Presence of deputy chair and/or senior NED	0.07	0.16	0.47									
(5) Presence of remuneration committee	0.08	0.12	0.24	0.27								
(6) Independent NED chairing remuneration committee	0.08	0.12	0.68	0.44	0.55							
(7) Remuneration committee composed entirely of independent NEDs	0.06	0.12	0.52	0.37	0.37	0.68						
(8) Presence of audit committee	0.07	0.10	0.07	0.08	0.15	0.12	0.09					
(9) Independent NED chairing audit committee	0.09	0.13	0.67	0.47	0.42	0.71	0.58	0.17				
(10) At least half of audit committee members are independent	0.08	0.12	0.86	0.44	0.27	0.69	0.54	0.21	0.73			
(11) Presence of nomination committee	0.15	0.15	0.32	0.43	0.26	0.36	0.32	0.11	0.38	0.36		
(12) NED or board chair is chairing nomination committee	0.13	0.13	0.30	0.26	0.19	0.37	0.39	0.06	0.35	0.33	0.56	
(13) Majority of nomination committee members are NEDs	0.15	0.17	0.32	0.44	0.25	0.36	0.33	0.11	0.38	0.37	0.97	0.56

Note: All correlations significant with *p*-value < 0.001.

TABLE 9 The effects of board governance and other governance mechanisms on operating performance and firm value

	Model 6		Model 7		Model 8		Model 9	
Dependent variable	Industry-year median-adjusted ROA_{t+1}		Industry-year median-adjusted ROE_{t+1}		Industry-year median-adjusted $ROIC_{t+1}$		Industry-year median-adjusted Tobin's Q_{t+1}	
Regressors	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat
Board governance index$_t$	0.58	4.14***	−0.50	−0.75	0.72	2.91**	0.02	0.57
CEO equity-linked wealth$_t$	0.10	1.73†	−0.51	−1.80†	0.10	0.91	0.02	1.22
CEO incentive pay$_t$	5.94	5.04***	6.91	1.06	12.39	5.80***	1.12	3.80***
Leverage$_t$	−0.00	−0.18	0.05	0.78	−0.04	−1.92†	−0.00	−1.52
CEO tenure$_t$	0.24	3.50***	0.36	1.02	0.43	3.46***	0.02	1.42
LN(Board size$_t$)	−5.91	−4.44***	−6.76	−1.08	−6.04	−2.54*	0.90	3.10**
LN(1 + Sales$_t$)	2.98	14.54***	4.41	4.98***	4.83	13.48***	−0.02	−0.44
Intangibles/Total assets$_t$	−17.00	−9.42***	−30.16	−3.94***	−22.14	−6.98***	−0.45	1.24
Intercept	−13.98	−5.02***	−9.47	−0.74	−27.89	−5.67***	−1.73	−2.93**
Log-likelihood	−18600.20		−26352.26		−21159.09		−12656.23	
Wald test statistic	$\chi^2(8) = 426.35$***		$\chi^2(8) = 66.39$***		$\chi^2(8) = 353.81$***		$\chi^2(8) = 33.92$***	
No. of observations	4405		4414		4399		4417	
No. of firms	1186		1188		1182		1188	

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. The variables above are defined as in Table 1. The models are estimated using the entire panel of 10 years as multilevel mixed-effects linear regression with two-way random effects (for years and firms). All the regressors are lagged one year, i.e. performance and firm value in year $t + 1$ are modelled as a function of independent variables as measured in year t.

5.3 | Board governance versus other governance mechanisms

Some prior studies (e.g. Agrawal & Knoeber, 1996; Conyon & Peck, 1998; Hillier & McColgan, 2006; Peasnell et al., 2003; Young, 2000) suggest that governance arrangements at the board level might be related to the presence and strength of other governance mechanisms. Thus, we model firm performance and firm value as functions of board governance index, other governance mechanisms (i.e., CEO equity-linked wealth, CEO incentive pay, leverage), and control variables (i.e., CEO tenure, board size, firm size, and asset intangibility). All the regressors are lagged one year (and thus, predetermined) to address the issue of possible endogeneity of the governance–performance link (see Adams et al., 2010; Renders *et al.*, 2010). To account for the panel structure of the dataset, we employ multilevel mixed-effects linear regression with two-way random effects (for years and firms).

Table 9 illustrates that after controlling for other governance mechanisms, board monitoring capacity tends to be associated with better operating performance, although this result does not hold uniformly across all three of the performance measures: while the coefficients for the board governance index are positive and highly significant in regressions explaining ROA and ROIC, the corresponding estimate is not significantly different from zero in Model 7 (explaining ROE). We do not find the effects of board monitoring capacity on firm value in Model 9 either. Regarding other governance mechanisms, only CEO incentive pay is associated with both stronger operating performance and higher firm value. Moreover, we find that larger companies, those managed by longer-tenured CEOs, those having smaller boards and less intangible asset base, tend to outperform their industry peers.

In order to further mitigate potential endogeneity concerns, in Table 10 we estimate instrumental-variable random-effect panel regression model counterparts of Models 6–9 from Table 9. In 2003 the UK Corporate Governance Code was revised (see above), which provides us with an exogenous shock allowing us to examine the effects of board

TABLE 10 The effects of board governance and other governance mechanisms on operating performance and firm value (controlling for potential endogeneity of the board governance index)

Dependent variable	Model 6A Industry-year median-adjusted ROA_{t+1}		Model 7A Industry-year median-adjusted ROE_{t+1}		Model 8A Industry-year median-adjusted $ROIC_{t+1}$		Model 9A Industry-year median-adjusted Tobin's Q_{t+1}	
Regressors	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat
Board governance index$_t$	3.67	5.93***	8.44	2.05*	4.35	4.18***	0.24	0.96
CEO equity-linked wealth$_t$	0.15	2.08*	0.08	0.16	0.09	0.66	0.03	1.50
CEO incentive pay$_t$	6.08	5.13***	7.27	0.97	12.34	5.86***	1.23	3.85***
Leverage$_t$	0.00	0.41	0.05	0.70	−0.03	−1.36	−0.00	−1.59
CEO tenure$_t$	0.23	3.31***	−0.30	−0.67	0.33	2.65**	0.02	1.27
LN(Board size$_t$)	−9.02	−6.12***	−36.32	−3.86***	−11.66	−4.45***	0.68	1.77†
LN(1 + Sales$_t$)	0.50	1.56	0.27	0.12	1.11	2.00*	−0.12	−1.00
Intangibles$_t$/Total assets$_t$	−23.46	−11.10***	−66.99	−5.27***	−32.72	−8.35***	−0.41	−1.09
Intercept	−26.93	−5.20***	−12.65	−0.39	−35.01	−3.63***	−3.15	−1.86†
R^2-overall	0.09		0.00		0.08		0.00	
Wald test statistic	$\chi^2(8) = 240.99$***		$\chi^2(8) = 47.30$***		$\chi^2(8) = 155.92$***		$\chi^2(8) = 34.21$***	
No. of observations	4405		4414		4399		4417	
No. of firms	1186		1188		1182		1188	

Note: †, *, ** and *** denote significance at 10%, 5%, 1% and 0.1% levels, respectively. Post-2003 dummy equals 0 for observations corresponding to years up to and including 2002, and 1 for those from year 2003 onwards. This indicator variable is used as an instrument for the board governance index. All the other variables above are defined as in Table 1. The models are estimated using the entire panel of 10 years as random-effect instrumental-variable panel regressions. All the regressors are lagged one year, i.e. performance and firm value in year $t + 1$ are modelled as a function of independent variables as measured in year t.

monitoring capacity on firm performance.[10] Therefore, we use the post-2003 dummy as an instrument for the index in Models 6A–9A in Table 10.

Overall, Table 10 documents that, after controlling for the strength of other governance mechanisms and potential endogeneity of the board governance index, board monitoring capacity is strongly and significantly associated with better operating performance (for all performance indicators used). Consistent with the earlier results, we again find no statistically significant association between board monitoring capacity and firm value. While in Table 10 we document that CEO equity-linked wealth and incentive pay are associated with better operating performance and higher firm value, the effects of other variables examined here are in line with those reported in Table 9 earlier.

5.4 | Other robustness checks

First, we examine if the phenomenon of higher stock returns for companies with stronger corporate governance arrangements is not due to observable firm characteristics. In the regression framework employing multilevel mixed-effects linear regression with two-way random effects (for years and firms), we model annualised TSR as a function of the lagged board governance index, a vector of firm-year specific control variables (i.e. profitability, firm size, leverage, the price-to-earnings ratio, and asset intangibility) lagged one year, and industry and year fixed effects. In line with the results reported in the main body of the paper, these additional analyses (not reported, but available upon request)

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[10] While we follow the approach similar to that of Dahya *et al.* (2002), who treat the Cadbury Report as an exogenous shock, we acknowledge that this assumption of exogeneity is rather strong. Both in the case of the Cadbury Report and subsequent governance reforms in the UK (including the 2003 revision of the Code), consultations were invited in advance of publication and both events allowed firms time to respond in advance of publication of the Code updates. We would like to thank the anonymous reviewer for highlighting this issue.

again reveal a significant positive relationship between the TSR and the board governance index, after controlling for firm characteristics, as well as industry and year fixed effects. Hence, all else equal, companies with stronger board arrangements tend to deliver higher returns.

Second, instead of defining weak and strong governance portfolios using absolute thresholds (as explained in Section 4.1), we also considered portfolios based on relative thresholds, i.e. weak (strong) governance portfolio comprising companies belonging to the bottom (top) quintile of the board governance index distribution *in a particular year*. The resulting cutoff points vary substantially depending on the year. For instance, in years 1999–2001, companies with the board governance index value of 7 or less end up in the weak governance portfolio, while for years 2006–2008, the corresponding criterion is that the board governance index value is 4 or less only. The results of analyses employing these alternatively defined portfolios are virtually identical to those reported earlier in the paper.

Third, we find that our results are not driven by the inclusion of the financial firms in the sample (i.e. industry 16 in the 17-industry classification of Fama & French, 1997). While the exclusion of these firms considerably reduces the sample size, the key results of the paper carry through even in such a restricted sub-sample.

Finally, our sample covers three distinctive sub-periods, i.e. the peak and collapse of the so-called dotcom bubble, the period of credit expansion from 2003 to 2006, and the onset of the global financial crisis from late 2007 until the end of the sample. In untabulated analyses we find that the results robustly hold in each of these three sub-periods and are not driven by observations from any of them.

6 | DISCUSSION AND CONCLUSIONS

This paper provides new evidence on the association between board monitoring capacity and firm performance for a large panel of UK listed companies. It also makes a substantial contribution to the literature on the antecedents and consequences of board structure and composition in the UK and beyond.

First, we refine the methodological approach followed by a number of prior UK board-related studies (e.g. Mac-Neil & Li, 2006; Vafeas & Theodorou, 1998; Weir et al., 2002) and provide novel empirical evidence. Employing a large longitudinal data set, we capture the overall strength of the monitoring capacity of the board by developing a board governance index. This approach differs from the relevant prior UK research which is largely cross-sectional and studies associations between individual monitoring mechanisms on the board and firm performance. The first set of results pertains to the trends in the quality of board governance arrangements. Consistent with prior related evidence, mostly pertaining to earlier periods (e.g. Dahya & McConnell, 2007; Guest, 2008; Hillier & McColgan, 2006; Peasnell et al., 2003; Renders et al., 2010; Young, 2000), we find that adherence to the board-related recommendations of the Code rises over time albeit at a slowing rate and even in the final sample years the adherence falls short of 100%. However, we also observe cross-sectional differences in this respect with a number of companies actually decreasing the board governance index, at least in some years.

Second, consistent with H1, we find a statistically as well as economically significant positive association between the board governance index and different measures of a firm's operating performance. However, our analyses indicate that share prices do not fully factor in the value of strong governance arrangements: stock returns of firms with strong board monitoring arrangements are consistently higher than those of companies with weaker board monitoring arrangements. This pattern cannot be explained by differing characteristics of the constituents of the two portfolios. Thus, UK investors in the first decade of the twenty-first century appear to remain indifferent to the value of strong governance arrangements, in a manner similar to the US investors a decade earlier (cf. Gompers et al., 2003).

Third, the flexibility offered by the voluntary nature of the Code is based on the expectation that firms will choose their governance structures efficiently. While we acknowledge that cost-benefit considerations could be plausible antecedents of firm decisions to determine their board structures (as postulated by H2a), we also propose and test an alternative explanation focusing on managerial opportunism (and formalised as H2b). Our empirical evidence supports the latter explanation. While we find that the board governance index is likely to decrease in riskier or more

opaque firms (where the costs of monitoring are likely to be higher due to information asymmetries) and in firms with lower free cash flows (where the benefits of monitoring are likely to be smaller), similar decreases are also likely in firms where the influence of the CEO is considerable (consistent with the managerial power view). We then document that performance consequences of index decreases are negative: that is, performance of index-decreasing firms is significantly worse than that of the control sample (as implied by treatment effects based on propensity score-matched samples). These results are in line with the predictions of H2b and are inconsistent with the logic underlying H2a: were the governance adjustments made for efficiency reasons, they would be associated with positive subsequent performance outcomes. Thus, the paper not only makes an empirical contribution to the literature on the antecedents of board governance arrangements, it also proposes an alternative approach for drawing inferences about these antecedents, compared to that followed by prior related studies (e.g. Boone et al., 2007).

Moreover, the board governance index decreases aim at weakening the monitoring capacity of the board (rather than strengthening its directing capacity): we find that it is most often the independence of key board monitoring committees (particularly, the remuneration committee), which is sacrificed when the index decreases. This result is in contrast to the implications of prior findings, particularly those of Hillier and McColgan (2006), Peasnell et al. (2003), and Young (2000), who on the whole suggest that firms use the Code flexibility in an efficient manner, particularly when it comes to the use of NEDs, including independent NEDs. Taken together, our results suggest that while on the whole adherence to the Code's voluntary recommendations has strengthened the monitoring capacity of the boards of listed firms in UK, firms at times have also behaved opportunistically and abused the Code's flexibility.

Our study has limitations. First, our empirical analyses are based on a single country setting. Testing our inferences regarding opportunistic use of soft regulation in a multi-country context would lend further support to our findings. Second, it is worth noting here that we focus mainly on one of the many roles of boards, namely oversight. While we briefly touch upon the stewardship role of the managers (cf. Donaldson & Davis, 1991) in our analysis on the use of Code flexibility, we are silent on the important 'service' role of the non-executive directors (as per resource dependency theory, Pfeffer & Salancik, 1978). However, given our focus on the Code's board-related recommendations, analysis of these roles in any detail is beyond the scope of this study. It could be fruitfully addressed by future research.

The paper has a number of important implications. First, the arguments motivating our hypotheses meet the postulate that "*a model of corporate governance should be consistent with both perspectives; it should explain both how some boards are active monitors of management, yet how some CEOs are able to avoid scrutiny*" (Hermalin & Weisbach, 1998, p. 111). Our theoretical discussion and related findings therefore provide a more nuanced and realistic picture of the dynamics of board governance role than that provided by many prior studies. Future work can explore these board nuances and their dynamics in different institutional settings.

Second, if companies at times indeed make opportunistic use of the Code flexibility, then it questions the voluntary approach to governance regulation adopted in the UK, as in many other jurisdictions. Therefore, we challenge to some extent the conclusions reached by Arcot and Bruno (2007), who stress the benefits of flexibility offered by the voluntary governance regime. There may be scope for a more mandatory approach to governance, at least in some aspects of the Code recommendations.

Third, given that the opportunistic decrease in adherence to the Code is mostly achieved by the weakening of independence of key board monitoring committees (rather than a simple reduction of the number of independent NEDs on the board), our findings suggest that it is not just the proportion of independent directors that matters for board effectiveness, but, perhaps more importantly, where these directors sit on the board (corroborating the arguments of Chan & Li, 2008, and Yeh et al., 2011). Our findings thus make an empirical contribution to the growing literature on the design of the structure and composition of the effective board (Adams et al., 2010). If, as argued above, some of the Code's recommendations were to be mandated, the composition of its key monitoring committees appears a worthy target of such action.

Finally, while in this study we focus solely on the financial performance implications of a board's monitoring capacity, future research can not only fruitfully examine the link between such a board governance index and firm performance in other jurisdictions adopting a UK-type code approach, but also between such an index and other board and

organisational outcomes including CEO compensation, CEO turnover, corporate acquisition activity, earnings management, audit quality, quality of corporate reporting and corporate social responsibility-related outcomes among others.

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REFERENCES

Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature*, *48*(1), 59–108.

Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, *31*(3), 377–397.

Aguilera, R. V., Filatotchev, I., Gospel, H., & Jackson, G. (2008). An organizational approach to comparative corporate governance: Costs, contingencies, and complementarities. *Organization Science*, *19*(3), 475–492.

Arcot, S., & Bruno, V. (2007). One size does not fit all, after all: Evidence from corporate governance, Working paper, 1st Annual Conference on Empirical Legal Studies.

Arcot, S., Bruno, V., & Faure-Grimaud, A. (2010). Corporate governance in the UK: Is the comply or explain approach working? *International Review of Law and Economics*, *30*(2), 193–201.

Beasley, M. S. (1996). The empirical analysis of the relation between the board of directors composition and financial statement fraud. *The Accounting Review*, *71*(4), 443–465.

Bebchuk, L. A., Cohen, A., & Ferrell, A. (2009). What matters in corporate governance? *Review of Financial Studies*, *22*(2), 783–827.

Bebchuk, L. A., Cohen, A., & Wang, C. C. Y. (2013). Learning and the disappearing association between governance and returns. *Journal of Financial Economics*, *108*(2), 323–348.

Bhagat, S., & Black, B. S. (1999). The uncertain relationship between board composition and firm performance. *Business Lawyer*, *54*(3), 921–963.

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, *14*(3), 257–273.

Bhagat, S., Bolton, B., & Romano, R. (2008). The promise and perils of corporate governance indices. *Columbia Law Review*, *108*(8), 1803–1882.

Boeker, W., & Goodstein, J. (1991). Organizational performance and adaptation: Effects of environment and performance on changes in board composition. *Academy of Management Journal*, *34*(4), 805–826.

Boone, A. L., Field, L. C., Karpoff, J. M., & Raheja, C. G. (2007). The determinants of corporate board size and composition: An empirical analysis. *Journal of Financial Economics*, *85*(1), 66–101.

Bowen, R. M., Rajgopal, S., & Venkatachalam, M. (2008). Accounting discretion, corporate governance, and firm performance. *Contemporary Accounting Research*, *25*(2), 351–405.

Brickley, J. A., Coles, J. L., & Jarrell, G. (1997). Leadership structure: Separating the CEO and chairman of the board. *Journal of Corporate Finance*, *3*(3), 189–220.

Brown, L., & Caylor, M. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy*, *25*(4), 409–434.

Caliendo, M., & Kopeinig, S. (2008). Some practical guidance for the implementation of propensity score matching. *Journal of Economic Surveys*, *22*(1), 31–72.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, *52*(1), 57–82.

Chan, K. C., & Li, J. (2008). Audit committee and firm value: Evidence on outside top executives as expert-independent directors. *Corporate Governance: An International Review*, *16*(1), 16–31.

Coles, J., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fits all? *Journal of Financial Economics*, *87*(2), 329–356.

Coles, J., McWilliams, V., & Sen, N. (2001). An examination of the relationship of governance mechanisms to performance. *Journal of Management*, *27*(1), 23–55.

Conyon, M. J., & Peck, S. (1998). Board control, remuneration committees, and top management compensation. *Academy of Management Journal*, *41*(2), 146–157.

Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, *51*(3), 371–406.

Dahya, J., Garcia, L. G., & van Bommel, J. (2009). One man two hats: What's all the commotion! *Financial Review*, *44*(2), 179–212.

Dahya, J., & McConnell, J. (2005). Outside directors and corporate board decisions. *Journal of Corporate Finance*, *11*(1–2), 37–60.

Dahya, J., & McConnell, J. (2007). Board composition, corporate performance, and the Cadbury Committee recommendation. *Journal of Financial and Quantitative Analysis*, *42*(3), 535–564.

Dahya, J., McConnell, J., & Travlos, N. G. (2002). The Cadbury Committee, corporate performance, and top management turnover. *The Journal of Finance*, *57*(1), 461–483.

Dedman, E. (2000). An investigation into the determinants of UK board structure before and after Cadbury. *Corporate Governance: An International Review*, *8*(2), 133–153.

Dittmar, A., & Thakor, A. (2007). Why do firms issue equity? *The Journal of Finance*, *62*(1), 1–54.

Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory. *Australian Journal of Management*, *16*(1), 49–65.

European Corporate Governance Institute (2017). Index of Codes. Retrieved from http://www.ecgi.global/content/codes.

Fahlenbrach, R., Minton, B. A., & Pan, C. H. (2011). Former CEO directors: Lingering CEOs or valuable resources? *Review of Financial Studies*, *24*(10), 3486–3518.

Fama, E. F., & French, K. (1997). Industry costs of equity. *Journal of Financial Economics*, *43*(2), 153–193.

Fama, E., & Jensen, M. (1983). Separation of ownership and control. *Journal of Law and Economics*, *26*(2), 301–325.

Financial Reporting Council (2016). UK Code of Corporate Governance (April 2016 version). Retrieved from https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-April-2016.pdf (accessed 24 August 2017).

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, *118*(1), 107–155.

Gregory, A., Tharyan, R., & Christidis, A. (2013). Constructing and testing alternative versions of the Fama–French and Carhart models in the UK. *Journal of Business Finance & Accounting*, *40*(1–2), 172–214.

Guest, P. M. (2008). The determinants of board size and composition: Evidence from the UK. *Journal of Corporate Finance*, *14*(1), 51–72.

Harris, M., & Raviv, A. (2008). A theory of board control and size. *Review of Financial Studies*, *21*(4), 1797–1832.

Henry, D. (2008). Corporate governance structure and the valuation of Australian firms: Is there value in ticking the boxes? *Journal of Business Finance & Accounting*, *35*(7–8), 912–942.

Hermalin, B., & Weisbach, M. (1988). The determinants of board composition. *RAND Journal of Economics*, *19*(4), 589–606.

Hermalin, B., & Weisbach, M. (1998). Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review*, *88*(1), 96–118.

Hillier, D., & McColgan, P. (2006). An analysis of changes in board structure during corporate governance reforms. *European Financial Management*, *12*(4), 575–607.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

Klein, A. (1998). Firm performance and board committee structure. *Journal of Law and Economics*, *41*(1), 275–303.

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *The Accounting Review*, *71*(4), 467–492.

Leuven, E., & Sianesi, B. (2015). PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing. Retrieved from https://ideas.repec.org/c/boc/bocode/s432001.html (accessed on 7 September 2015).

Linck, J. S., Netter, J. M., & Yang, T. (2008). The determinants of board structure. *Journal of Financial Economics, 87*(2), 308–328.

MacNeil, I., & Li, X. (2006). "Comply or explain": Market discipline and non-compliance with the Combined Code. *Corporate Governance: An International Review, 14*(5), 486–496.

Peasnell, K. V., Pope, P. F., & Young, S. (2003). Managerial equity ownership and demand for outside investors. *European Financial Management, 9*(2), 231–250.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective.* New York, NY: Harper and Row.

Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate-governance ratings and company performance: A cross-European study. *Corporate Governance: An International Review, 18*(2), 87–106.

Shivdasani, A., & Yermack, D. (1999). CEO involvement in the selection of new board members: An empirical analysis. *The Journal of Finance, 54*(5), 1829–1853.

Smale, J. G., Patricof, A. J., Henderson, D., Marcus, B., & Johnson, D. W. (1995). Redraw the line between the board and the CEO. *Harvard Business Review, 73*(2), 153–164.

Vafeas, N., & Theodorou, E. (1998). The association between board structure and firm performance in the UK. *British Accounting Review, 30*(4), 383–407.

Weir, C., Laing, D., & McKnight, P. J. (2002). Internal and external governance mechanisms: Their impact on the performance of large UK companies. *Journal of Business Finance & Accounting, 29*(5–6), 579–611.

Weisbach, M. (1988). Outside directors and CEO turnover. *Journal of Financial Economics, 20*(1–2), 431–460.

Yeh, Y.-H., Chung, H., & Liu, C.-L. (2011). Committee independence and financial institution performance during the 2007–08 credit crunch: Evidence from a multi-country study. *Corporate Governance: An International Review, 19*(5), 437–458.

Young, S. (2000). The increasing use of non-executive directors: Its impact on board structure and governance arrangements. *Journal of Business Finance & Accounting, 27*(9–10), 1311–1342.