Board governance and corporate performance in the UK

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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 when and 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 operating performance. Our results imply that adherence to the board-related recommendations of the UK Code of Corporate Governance helps mitigate agency problems, but 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 Code flexibility opportunistically, which challenges the effectiveness of the voluntary approach to governance regulation.

Board Governance and Corporate Performance in the UK

1. INTRODUCTION

According to the 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 and Jensen, 1983). The UK Code of Corporate Governance (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, 2014, 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*" (*ibidem*), i.e. decision management, rests with managers (i.e. executive directors), the primary responsibility for decision control or "*supervising the management of the business*" (*ibidem*), i.e. monitoring, rests with outside directors, termed independent non-executive directors by the Code. From its inception in the form of the Cadbury Report in 1992, the Code based on the principle of voluntary compliance and mandatory disclosure has encouraged firms to strengthen the monitoring capacity of their boards. This is to be achieved primarily by the separation of the two top positions on the board i.e. the CEO and the Chair (thereby helping reduce managerial power), and by encouraging the presence of (independent) non-executive directors (henceforth NEDs) on the board and on its key monitoring committees, namely the remuneration, audit, and nomination committees. Hence, in theory, the greater the voluntary adherence to the Code's board related recommendations, the stronger should be the board's monitoring capacity, which in turn should help mitigate agency costs related to managerial opportunism, and thus translate into higher operating performance and market value of the firm (cf. Adams *et al.*, 2010; Renders *et al.*, 2010). This is the main proposition tested in this study.

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 and Jensen, 1983), but it also remains at the center of reforms in the

UK, as indeed in code-based systems of corporate governance around the world (Arcot *et al.*, 2010; European Corporate Governance Institute, 2013). Therefore, our focus on the board and its monitoring capacity is rooted in theory and relevant from a policy perspective.

While some prior studies in the UK (e.g. Arcot *et al.*, 2010; Dahya and McConell, 2007; Vafeas and Theodorou, 1998; Weir *et al.*, 2002) as also in the US (e.g. Bhagat and Black, 1999; Brown and Caylor, 2009; Klein, 1998) have tested associations between specific aspects of the board's monitoring capacity and various measures of a firm's financial performance, these have generally met with mixed results. This could be due to the data and methodological limitations of prior work. First, many prior studies, at least in the UK, employ rather limited samples covering at most a few hundred firms, are quite often only cross-sectional, or cover quite a short time frame (e.g. Arcot and Bruno, 2007; MacNeil and Li, 2006, Weir *et al*. 2002). Second and more importantly, most authors adopt a relatively fragmented approach to measuring a board's monitoring capacity and employ only limited number of firm performance measures (e.g. Bhagat and Black, 1999; Brown and Caylor, 2009; Dahya and McConnel, 2007; Vafeas and Theodorou, 1998; Weir *et al.*, 2002).

Our study contributes to the extant literature in a number of ways. First, we develop a board governance index which gauges comprehensively the strength of the board's monitoring capacity based on the extent of adherence to the Code's key board-related recommendations. As pointed earlier, these recommendations are collectively aimed at reducing managerial power as well as strengthening the control and oversight function of independent directors. Second, we study the associations between this index and various measures of a firm's operating and market performance employing a large new panel dataset on board characteristics of UK listed companies spanning the years 1999 to 2008. We find a strong positive association between the board index and various measures of a firm's operating performance. This part of our empirical analyses challenges some of the prior UK findings (e.g. Arcot *et al.*, 2010; Vafeas and Theodorou, 1998; Weir *et al.*, 2002) and is consistent with

the view that the strengthening of the monitoring capacity of the board (as per adherence to the Code's board related recommendations) may indeed have helped mitigate agency costs and enhance firm operating performance. However, consistent in essence with prior US evidence on the governance-performance link (Gompers *et al.*, 2003), we find that investors in the UK also do not seem to be recognizing the value of governance: subsequent stock returns are higher for firms with stronger board monitoring arrangements. These findings imply that the market does not appear to be acting as effective monitor of Code adherence (which a voluntary governance regime such as that of UK implicitly requires): markets appear neither to factor in the value of good board governance arrangements nor penalize poor ones.

In this study we also address the under-examined issue of 'when' and 'how' firms use the flexibility provided by the UK Code to adjust board governance arrangements. 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 *et al.*, 2010). While the emphasis of the Code recommendations is on strengthening the monitoring capacity of the board (as per agency theory: Fama and Jensen, 1983; Jensen and Meckling, 1976), the flexibility of the Code is based on the recognition that there may be times when directing, i.e. what agency theorists consider the decision initiation and implementation capacity of the board (Fama and Jensen, 1983), may need to be strengthened. A voluntary approach to governance favored by regulators in the UK as in many other countries (European Corporate Governance Institute, 2013), 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 and 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 and 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 (Fama and Jensen, 1983). Alternatively, driven by managerial self-interest (as per agency theory, Jensen and Meckling, 1976), firms may choose to weaken the board's monitoring capacity in order to reduce managerial accountability (Hermalin and Weisbach, 1998).

We examine the evidence to discern which of these two alternative propositions holds and find support for the latter. In particular, we find that when expecting tough times ahead (i.e. weak performance), firms with greater managerial power (as measured by CEO equity ownership) or those where managers have greater informational advantage vis-à-vis the outside board members, decrease the monitoring capacity of the board by weakening the independence of the key board monitoring committees, particularly the remuneration and audit committees. This finding challenges the efficient use of Code flexibility suggested by some prior evidence (e.g. Hillier and McColgan, 2006; Peasnell *et al.*, 2003; Young, 2000). It also calls into question the effectiveness of the self-regulatory approach advocated by the promulgators of the Code (cf. MacNeil and Li, 2006). Our study also has implications for the design of an effective board (see e.g. Adams *et al.*, 2010). Perhaps, it is not just the proportion of independent NEDs on the board that matters for effective oversight, but more importantly, which committees they sit on, on the board (Chan and Li, 2008; Yeh *et al.*, 2011).

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

(i) Board Governance and Firm Performance

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 (for a recent review see Adams *et al.*,

2010). 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.

(a) 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 and Davis, 1991), others find that by empowering managers it leads to managerial entrenchment thus contributing to weak governance and firm performance (e.g. Coles *et al.*, 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. Brickley *et al.*, 1997, for the US; Vafeas and Theodorou, 1998, and Weir *et al.*, 2002 for UK). However, 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. To conclude while evidence on the link of duality with firm performance is inconclusive, duality does appear to help entrench management thus providing support for the Code recommendation of splitting the CEO and the chair roles.

(b) Board Independence, Governance, and Firm Performance

According to Fama and Jensen (1983), the primary responsibility for board oversight (including the hiring, firing and compensating of the top managers) rests with the outside directors, termed independent NEDs by the Code, on corporate boards. Such NEDs are expected to perform these functions primarily through their adequate representation on the board and its key monitoring committees, i.e. the remuneration, audit, and nomination

committees (discussed below). Hermalin and Weisbach (1998) theorize that whilst being selected through a process at least partially controlled by the CEO, more independent boards can be more effective at monitoring the CEO because the opportunity cost of monitoring (what they term as the board's distaste for monitoring) declines with rising board independence and information about CEO ability and firm's operations. Moreover, Fama and Jensen (1983) and Hermalin and Weisbach (1998) argue that outside directors can be effective monitors due to their reputational concerns in the managerial and directorial labor markets.

Based either explicitly or implicitly on the above rationale, many studies have examined the link between insider-outsider ratio on boards and firm performance, providing mixed results. While Brown and Caylor (2009) and Bhagat and Black (2002) in the US and Vafeas and Theodorou (1998) and Weir *et al.* (2002) in the UK find no link between board independence and firm performance, Dahya and McConnell (2007) document a positive link with firm operating performance, especially for firms which become compliant with the corresponding Cadbury recommendation post-1992.

Evidence also suggests that independent directors perform an effective oversight role. For instance, Weisbach (1988) for the US and Dahya *et al.* (2002) for the UK, both find a higher sensitivity of CEO turnover to poor firm performance in companies with more independent boards. Conyon and Peck (1998) for the UK and Core *et al.* (1999) for the US provide evidence consistent with the notion that boards with more outside directors are better able at aligning CEO pay with firm performance. In terms of NEDs' role in CEO succession, Boeker and Goodstein (1991) find lower likelihood of CEOs being replaced by outsiders, in insider dominated boards in the US. Finally, Beasley (1996) finds a lower likelihood of financial fraud in companies having a higher proportion of outside directors. Thus, while the link with firm performance is mixed, board independence is associated with increased effectiveness of the boards in carrying out their oversight function.

(c) Independence of Key Board Monitoring Committees

As noted earlier, board's controlling activities are mostly performed through established committees, e.g. audit, nomination, or remuneration committees (Adams *et al.*, 2010). Different committees discharge different oversight functions and thus they require specific expertise. Consequently, it is likely that the relationship between board composition, independence, and corporate performance may be more complex than discussed earlier. In particular, it might be that it is the quality of specific committees rather than that of the entire board that enhances firm value (Chan and Li, 2008; Yeh *et al.*, 2011).

There is evidence to suggest that board governance effectiveness often goes hand in hand with the quality and independence of key board committees. 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 and the market reaction to such appointments is less favorable. They interpret this finding as the evidence of powerful CEOs being able to influence the structure of the board. Beasley (1996) finds a lower probability of fraud on boards with more independent audit committees. Moreover, 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 link between various individual dimensions of board governance and corporate performance is somewhat mixed, the extant literature suggests that, taken together, the aspects of board structure and composition as recommended by the Code have the potential to strengthen the oversight function of the board. In particular, the separation of CEO and chair positions, board independence, and independence of key board monitoring committees should have this effect. Therefore, we conjecture that adherence to the corresponding Code guidelines should strengthen board oversight function thus helping mitigate agency problems faced by corporations and hypothesize that:

Hypothesis 1: Higher voluntary adherence to the Code's board-related recommendations is associated with higher firm operating performance and market value.

(ii) Use of the Code Flexibility

As discussed earlier, the voluntary nature of the Code is intended to allow firms the flexibility to make sound deviations from the rule where these are warranted (Arcot *et al.*, 2010). Hence, there may be circumstances where there is a need to strengthen the directing capacity of the board. In this regard, 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 *et al.* (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).

In terms of using the UK Code's flexibility, prior empirical evidence indicates that firms have generally made efficient choices adjusting their board structure and composition based on perceived corporate costs and benefits. Peasnell *et al.* (2003) and Young (2000), studying the periods closely following the introduction of the Cadbury recommendations, find that larger firms having less than suggested number of NEDs adjusted their board structures to meet the Cadbury recommendations. Similar trends in compliance were also observed by Dahya and McConnell (2007) and Hillier and McColgan (2006).

The preceding discussion suggests that adherence to the Code's recommendations is a considered choice made by the management, usually based on perceived corporate costs and benefits. Moreover the CEO (as perhaps the only or among the very few insiders on the board, Jensen, 1993) is in the best position to assess these costs and benefits given his/her superior firm-specific knowledge vis-à-vis the outside directors on the board (Fama and Jensen, 1983).

Thus, given this informational advantage coupled with his/her bargaining power (based on his/her perceived ability and other measures of power, such as level of equity ownership), CEOs are likely to be able to influence the structure and composition of the board as they see appropriate at a point in time (Boone *et al.*, 2007; Hermalin and Weisbach, 1998). Accordingly, if the managers expect difficult times ahead for the firm, they may strive to adopt a board structure that could potentially enhance the directing capacity of the board. For example, firms may appoint experienced insiders or non-independent NEDs (e.g. past employees) to the board. Such members by virtue of possessing valuable firm- and industry-specific knowledge can play a more effective advisory role and assist the board in effective decision making (Fama and Jensen, 1983; Klein 1998). Alternatively, a firm may choose to unify the chair and CEO posts, which can help speed up board decision making and focus accountability (cf. Brickley *et al.*, 1997; Donaldson and Davis, 1991). In short, given that adherence is a choice which potentially involves a tradeoff between the directing and monitoring capacities of the board, firms may choose not to comply if the benefits of non-compliance for the firm exceed the costs.

Alternatively, driven by opportunism (Jensen and Meckling, 1976) and the threat of declining bargaining power vis-à-vis outsiders on the board (Hermalin and Weisbach, 1998), managers expecting weak performance (especially in firms where they have greater informational advantage or higher managerial power) may try to weaken the monitoring capacity of the board and impose more executive-friendly board arrangements. As discussed earlier, Dahya *et al.* (2002) and Weisbach (1988) show that more independent boards are more likely to dismiss underperforming CEOs. Independence of remuneration committees is also found to be associated with greater pay-performance sensitivity (e.g. Conyon and Peck, 1998; Core *et al.*, 1999). Thus, less compliant (and, by implication, weaker) board and board monitoring committees may be less likely to hold executives accountable for poor firm performance. In essence, this rationale is similar to the argument put forward by Gompers *et al.*

(2003), who suggest that managers expecting weak firm performance could stymie hostile takeovers by amending charter provisions accordingly. Hence, non-compliance in the wake of poor performance may be driven by opportunism and self-interest rather than efficiency reasons on the part of management.

Finally, Crutchley *et al.* (2002) provide evidence of outside board members leaving poorly performing firms to protect their reputation capital (cf. Fama and Jensen, 1983). Consistent with this argument, Gilson (1989) provides evidence that directors who leave prior to announcement of bankruptcy can avoid subsequent devaluation in the labor market. Thus, it is plausible that in the wake of looming underperformance firms might find it more difficult to attract or retain (independent) NEDs due to reputational considerations and, as a result, their compliance with the Code letter may fall. Such a loss of independent monitors from the board is likely to result in the weakening of its monitoring capacity.

Given the alternative explanations outlined above, we propose the following two competing hypotheses:

Hypothesis 2a: Firms decrease voluntary compliance with the Code in order to strengthen the directing capacity of the board.

Hypothesis 2b: Firms decrease voluntary compliance with the Code in order to weaken the monitoring capacity of the board.

3. SAMPLE AND INDEX CONSTRUCTION

(i) Sample

The sample is constructed as the intersection of BoardEx and Thomson ONE Banker databases for UK listed companies. We analyze 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 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 sample size to 10,493 firm-years. In our analyses of portfolio performance we estimate four-factor model of Carhart (1997) and employ UK factor-mimicking portfolios constructed by Gregory *et al.* (2013). Finally, in some analyses of our analyses we employ data on analyst EPS forecasts from I/B/E/S (retrieved via WRDS).

Our data set thus covers the vast majority of market capitalization of the London Stock Exchange (both of the main market and of the AIM) for the period analyzed. The analysis excludes exchange-traded funds and similar financial companies (as for most of them the board structure is different than that for other firms). Table 1 presents descriptive statistics for the sample (pooled across 10 years).

Insert Table 1 about here

(ii) Board Index Construction

While studies examining the governance-performance link based on individual governance mechanisms have been less than fruitful (e.g. Vafeas and Theodorou, 1998, and Weir *et al.*, 2002, for the UK; Agrawal and Knoeber, 1996, and Bhagat and Black, 1999, for the US), studies which 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 Brown and Caylor (2006), Bhagat and Bolton (2008), Bebchuk *et al.* (2009), 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 better captures the overall strength of a particular aspect of governance (say, shareholder rights in Gompers et al., 2003) or level of managerial entrenchment (Bebchuk *et al.*, 2009), thus improving the power of the test of the aspect of governance in question.

While the index approach has also been adopted for studies of emerging markets (e.g. Black *et al.*, 2006) and of other legal settings besides the US (e.g. Henry, 2008, for Australia), the corresponding body of work for the UK is considerably smaller. Arcot and Bruno (2007) and Arcot *et al.* (2010) are notable exceptions, but they use quite a small sample and focus primarily on the decision to comply or to explain. In addition, the multi-country study by Renders *et al.* (2010) employing the index approach (based on Deminor ratings) covers a very small subsample of UK listed firms. Hence, to the best of our knowledge, our paper is one of the first UK studies adopting an index approach to studying the link between the board's monitoring capacity and a firm's financial performance, using a large longitudinal data set.

While Gompers *et al*. (2003) focus on the strength of the 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 clear guidance from the Code's recommendations related to different oversight functions of the board and thus it allows us to comprehensively gauge the monitoring capacity of the board. Moreover, our index construction approach allows us to focus on the quality of governance arrangements at both board and board sub-committee level, in line with the arguments put forward by Chan and Li (2008) and Yeh *et al.* (2011) regarding the importance of committee composition in performing its oversight function. Consistent with the approach in the prior literature (e.g. Brown and Caylor, 2006; Gompers *et al.*, 2003; Renders *et al.*, 2010), we consider the index components to be complementary and thus additive (cf. Bhagat *et al.*, 2008), as different elements of the index pertain to different aspects of board monitoring capacity. For

instance, CEO/chair separation deals with division of role and power at the top, so that no one individual dominates the board; independence of remuneration committee is meant to facilitate better tying of executive pay with performance, while audit committee related recommendations deal with improving the quality of audit and financial reporting, etc. Hence, the Code's board recommendations can be seen as complementary aspects of strong governance arrangements at the board level. Moreover, we follow a large body of literature employing the index approach (introduced in the context of governance studies by Gompers *et al.*, 2003) and construct the index by weighting different provisions equally.

Table 2 provides the descriptive statistics over the entire period for the provisions we take into account for constructing the board 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%).[1] 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

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[1] 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. 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.

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 an NED (33.15%) and the majority of its members should be NEDs (59.39%).

Insert Table 2 about here

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 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 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. However, Table 2 shows that there is some variation in this respect over the years. While adherence is increasing over the period 1999 to 2002, it starts declining from 2003 onwards, picking up again in 2008. One plausible explanation for this pattern might be that during stock market boom years, i.e. when stock performance is strong (as was the case between 2003 and 2007), investors care relatively less about compliance with the Code and let the companies get away with lower quality of governance arrangements (MacNeil and Li, 2006).

Importantly, the upward trend in adherence to the Code's board related recommendations documented by some earlier studies for the periods immediately following the Cadbury Report (e.g. Dahya and McConnell, 2007; Guest, 2008; Hillier and McColgan, 2006) does not appear to be sustained in the early years of the 21st century. Also, the trends illustrated here are unlikely to be caused by the sample composition effects, as discussed in the robustness check section.

Panel B of Table 2 illustrates the size of a typical board tends to decrease over time (consistent with the prior evidence, e.g. Guest, 2008): while in 1999 the average board size is almost 9, the corresponding numbers for 2006-2008 are below 6.5. About half of the board members are NEDs, majority of whom could be classified as independent. Interestingly, despite the growing pressure from the regulators to strengthen the role of independent NEDs, their actual share of the board seats tends to decrease slightly over time.[2]

In untabulated analyses, we also find that a typical audit committee consists of 3 non-executive members, most of whom can be classified as independent NEDs. Similar patterns can be observed for remuneration committees. About 2/3 of the companies have a nomination committee in place (although this number tends to decrease over time). A typical nomination committee has 4 members, 3 of whom are NEDs. The nomination committee is usually chaired by the Board Chair (unlike audit or remuneration committees).

4. ANALYSIS

(i) Governance, Operating Performance, and Firm Value

In this section we examine if higher board monitoring capacity is associated with superior operating performance and higher firm valuation, as postulated by Hypothesis 1. Specifically, we examine whether average and median values of performance indicators differ between firms belonging to a portfolio of companies with the strongest board governance

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[2] Maintaining the essence of the definition of NED non-independence, the 2003 version of the Code re-phrased it and made the criteria more explicit (see Footnote 1 above). While it is plausible that this formal change explains part of the decrease in the proportion of independent NEDs between 2003 and 2004 (and the corresponding drop in the values of the index then), it is unlikely to provide an explanation for the persistent trend of decreasing proportion of independent NEDs observed throughout most of the sample, i.e. from 1999 until 2006. Hence, we do not believe that the 2003 non-independence definition change is a driving factor for our remaining findings. Yet, we acknowledge that it could be considered a limitation of our study.

arrangements (as indicated by the Code adherence) and those belonging to a portfolio of companies with the weakest board governance standards. The methodology applied in this portfolio performance test is similar to that followed by Gompers *et al.* (2003). Since governance provisions are recorded annually in the database, for each of the sample years, we examine the distribution of the board governance index every year. Each year, we then 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 index equals 13 (i.e. the top quintile) are classified as belonging to the strong governance portfolio.

Table 3 provides support for Hypothesis 1 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 (see above) are highly significant both contemporaneously and in the subsequent year. However, the average (and median) contemporaneous Tobin's Q of the best governed firms is not significantly different from that of the worst governed ones. Taken together, these findings suggest that while strong governance arrangements at the board level are associated with lower agency problems and higher firm operating performance, investors do not seem to immediately recognize their value.

Insert Table 3 about here

(ii) 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 investors value it. Specifically, we verify whether there are significant differences in stock performance of the weak and the strong governance portfolios defined above. In

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

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 analyze total shareholder returns on these portfolios over the year following the year on which the classification is based, i.e. we use governance provisions in year t to construct portfolios and then analyze 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 interpret the estimated intercept coefficient as the abnormal return in excess of what could have been achieved by passive investment in the factor portfolios.

Insert Table 4 about here

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. This result holds consistently in every year between 2000 and 2009. 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 tend to consistently underperform 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 182bp over the sample period.

Consistent with preceding analysis, the results suggest that in the UK investors fail to recognize the value of strong governance arrangements even more substantially than in the US market (as estimated by Gompers *et al.*, 2003). The earlier results pertaining to Tobin's Q in Table 3 are also consistent with this claim: contemporaneous valuations of the best governed firms are not significantly different from those for the worst governed ones.

Moreover, contrary to the findings of Bebchuk *et al.* (2013) who document convergence of returns on strong and weak governance firm portfolios in the US in the beginning of the 21st century, here we show that the corresponding wedge in the UK is still present and very sizeable even in recent years.

(iii) When and How Are Governance Arrangements Adjusted?

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 immediately appreciate the implications of such arrangements for firm value. However, as discussed earlier, adherence to the Code recommendations is a considered choice. Thus, firms that expect weak performance may choose to adopt weaker governance arrangements in the wake of it. As discussed earlier, there are competing reasons why this might be the case. First, non-compliance with the Code may be a step in the right direction when the firm expects difficult times ahead and needs to enhance the directing capacity of the board in line with the predictions of Hypothesis 2a. Alternatively, the reason for non-compliance in the wake of poor performance may be to weaken the monitoring capacity of the board, consistent with Hypothesis 2b.

Insert Table 5 about here

If decreasing values of the governance index are indeed a response to expected low performance, one would expect performance of firms where the index decreases to be lower

(subsequent to the decrease) compared to otherwise similar firms. Therefore, we compare performance indicators for a company weakening its governance arrangements with performance of a matched firm with the same governance score kept unchanged from the previous year. A focal firm is a firm that reduced its board governance index between year (t-1) and t. For a focal firm, the matching firm is a firm from the same industry for which the index in both year (t-1) and t is the same as that for the focal firm in year t. If more than one match exists, the firm closest in size is chosen as the matching firm. Both the focal firm and the matched firm have the same governance score in year t (and, thus, they are likely to have similar monitoring capacity), while only the focal firm experienced recent deterioration of it. Table 5 illustrates that both operating performance and subsequent valuation of firms weakening their governance are worse than those for the matched sample of firms.

The results of Table 5 indicate that the weakening of governance arrangements precedes weak firm performance. Below, we provide more direct evidence consistent with the claim that governance change is a considered action of managers anticipating weak firm performance. In Table 6, we examine firms' decisions to lower, maintain, or increase the values of their board governance index. In particular, we investigate whether CEO power (proxied by the percentage of equity outstanding owned by the CEO, cf. Boone *et al.*, 2007) and management information advantage vis-à-vis outsiders (as reflected by measures of information asymmetry, namely standard deviation of stock returns or dispersion of analyst earnings forecasts, cf. Core *et al.*, 1999; Dittmar and Thakor, 2007; Guest, 2008; Lang and Lundholm, 1996) are positively associated with the likelihood of weakening board governance arrangements. Controlling for a number of firm characteristics (i.e. starting value of the governance index, firm performance, firm size, board size, as well as year and industry fixed effects), we find that this is indeed the case: the coefficients for all three of the aforementioned variables are significant and negative as expected.

While the results reported in Tables 5 and 6 are consistent with the claim that governance arrangements are weakened in anticipation of expected weak performance, they do not distinguish between competing rationales for such behavior (i.e. Hypotheses 2a and 2b). Table 7 reports our test of Hypothesis 2a against 2b 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%). Taken together the results of this section suggest that it is likely to be managerial opportunism rather than efficiency considerations which drive firms to become less compliant in the face of weak performance. In other words, the evidence appears consistent with Hypothesis 2b rather than 2a: firms attempt to weaken the monitoring capacity of the board, in situations where such capacity can be detrimental to the interests of the management. While about a sixth of the companies decreasing compliance bring in the duality of the CEO and the chair, in the light of the other results discussed, it is plausible that such a step serves the purpose of increasing entrenchment rather than speeding up board decision making and focusing accountability.

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. 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 *et al.*, 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. Finally, as we find no sudden drop in the proportion of NEDs on the board, our results provide little support for the claim that NEDs may 'jump the ship' for reputational reasons in anticipation of poor performance.

5. ADDITIONAL ANALYSES AND ROBUSTNESS CHECKS

(i) 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 to the position. 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. 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 new board governance index can also take values ranging from 0 to 13 with higher values corresponding to stronger governance arrangements. The results pertaining to the new board governance index are not reported, but available upon request. Strikingly, the trends observed here are mirroring those for the board governance index (discussed earlier, see Table 2) 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. Furthermore, the declining trend in average values of the new board governance index over the post-2003 period suggests that UK companies appear not to pay much heed to the set of recommendations issued in the 2003 version of the Code. Finally, the conclusions of the analysis employing the new board governance index are fully in line with those reported earlier.

(ii) Index Changes v. Sample Composition Effects

The analysis of within-firm index changes suggests that the overall trends in adherence to the Code are not due to the sample composition effects. By construction, this approach requires tracking the same firms over two consecutive years. Therefore, it highlights the changes in index stemming from firms changing their adherence to the Code rather than the changes in sample composition. We find that the 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 adherence to the Code is 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.

(iii) Board Governance v. Other Governance Mechanisms

Some prior studies (e.g. Agrawal and Knoeber, 1996; Conyon and Peck, 1998; Hillier and 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 such as managerial ownership, incentive pay for executives, leverage, etc. Thus, we examine whether monitoring capacity of the board can help to mitigate agency problems even after controlling for the presence of other governance mechanisms. In order to do so 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). We employ Petersen (2009) two-way clustering of standard errors procedure to account for the panel structure of the dataset.

Table 8 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 5 (explaining ROE). In line with the results of Section 4, we do not find the effects of board monitoring capacity on firm value in Model 7 here. 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 managed by longer-tenured CEOs, having smaller boards and less intangible asset base tend to outperform their industry peers.

Insert Tables 8 and 9 about here

Section 4.iii above suggests that companies might opportunistically change their board arrangements in anticipation of future weak performance and therefore the regressions reported in Table 8 above might be affected by endogeneity problems. We address this issue in Table 9 where we estimate instrumental-variable random-effect panel regression model counterparts of Models 4-7 from Table 8.

In 2003 the UK Corporate Governance Code has been revised (see Section 5.i above) and this provides us with an exogenous shock allowing us to examine the effects of board monitoring capacity on firm performance. Therefore, we use the post-2003 dummy as an instrument for the index in Models 4A-7A in Table 9. Moreover, prior empirical evidence for the UK (e.g. Arcot and Bruno, 2007; Dedman, 2000; Hillier and McColgan, 2006; Young, 2000) as well as our analyses suggest that adherence to board-related recommendations is strongly related to firm size. Thus, in Models 4B-7B, we use firm size as an alternative instrument for the index.

Overall, Table 9 documents that, after controlling for the strength of other governance mechanisms and potential endogeneity of the board governance index, board monitoring

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capacity is strongly and significantly associated with better operating performance (for all performance indicators used). Consistent with the earlier results, we find no statistically significant association between board monitoring capacity and firm value. While in Table 9 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 there are in line with those reported in Table 8 earlier.

(iv) TSR and Firm Characteristics

We also 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 Petersen (2009) two-way clustering of standard errors, we model annualized 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) 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 (from the Code point of view) tend to deliver higher returns.

(v) Other Robustness Checks

Instead of defining weak and strong governance portfolios using absolute thresholds (as explained in Section 4.i), 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.

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 link between board monitoring capacity and firm performance for a panel of UK companies. We not only refine the methodological approach followed by a number of prior UK studies (e.g. MacNeil and Li, 2006; Vafeas and Theodorou, 1998; Weir *et al.*, 2002), but also 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 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.

We report a number of novel results. First, consistent with prior related evidence we find adherence with board-related recommendations rises from 1999 to 2002, but in the period following that covered by prior related studies, i.e. between 2003 and 2007, we find that adherence declines despite the Code's call for increased independence of the boards, post 2003. This finding is in contrast with the picture of steadily improving governance standards in the UK painted by studies focusing on the earlier period (e.g. Dahya and McConnell, 2007; Guest, 2008; Hillier and McColgan, 2006; Peasnell *et al.*, 2003; Renders *et al.*, 2010; Young, 2000).

Second, consistent with Hypothesis 1, we find a statistically as well as economically significant positive link between the board index and different measures of a firm's operating performance. This finding suggests that following best practice guidelines can strengthen a board's monitoring capacity, helping mitigate agency costs and enhancing firm operating performance. However, our analyses also indicate that investors do not factor in the value of strong governance arrangements into share prices. Not only is there no statistical difference between contemporaneous Tobin's Q of strong and weak board index based portfolios, but stock returns of better-governed firms are also consistently higher than those of companies with weaker board governance arrangements. Moreover, this pattern cannot be explained by differing characteristics of the constituents of the two portfolios. Thus, UK investors in the first decade of the 21st 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).

As discussed at length in the paper, the flexibility offered by the voluntary nature of the Code is based on the expectation that firms will choose the governance structures efficiently. For instance, when expecting difficult times ahead, firms may decrease compliance to strengthen the directing capacity of the board (Hypothesis 2a). Alternatively, driven by managerial self-interest, firms may attempt to weaken the board's monitoring capacity (Hypothesis 2b). We provide evidence in support of the latter explanation. Specifically, we find that in the wake of looming weak performance, firms in which managers have greater power (as captured by their equity holdings) or informational advantage (as proxied by different measures of information asymmetry) tend to decrease adherence to the Code. Moreover, this decrease is aimed at weakening the monitoring capacity of the board (rather than strengthening its directing capacity): we find that it is the independence of key board committees (particularly, the remuneration committee), which is sacrificed in the wake of weakening firm performance. 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 to some extent.

Our findings also complement the evidence on the absence of effective monitoring by investors, in particular, large institutional block holders in the UK (e.g. Arcot *et al.*, 2010; Dedman, 2000; Renneboog and Trojanowski, 2012). This issue has been recognized by the regulators as well and has led to the introduction of the UK Stewardship Code in 2010. This code aims to *"enhance the quality of engagement between institutional investors and companies to help improve long-term returns to shareholders and the efficient exercise of governance responsibilities"* (Financial Reporting Council, 2010). While the document is still relatively recent, future research could examine whether this new regulatory effort translated into subsequent increase in shareholders' engagement and monitoring, largely deficient in the period covered by the current study.

Our study is not without limitations. First, our empirical analyses are based on a single country setting. Testing our conjectures regarding opportunistic use of soft regulation in a multi-country context would test whether our findings can be generalized beyond the UK and whether they could guide regulatory policy internationally.

Second, we focus only on the associations between a firm's board monitoring capacity and its financial performance. However, we believe that in the light of the general consensus in both academic and policy circles about the centrality of the board and its desirable characteristics in delivering good governance (Adams *et al.*, 2009, Bhagat *et al.*, 2008; Fama and Jensen, 1983; Financial Reporting Council, 2014; Hermalin and Weisbach, 2003), our focus on the board is both timely and relevant. Moreover, large body of prior empirical

evidence for the UK (e.g. Arcot and Bruno, 2007; Dedman, 2000; Hillier and McColgan, 2006; Young, 2000) suggests that adherence to board-related recommendations is not significantly related to the presence and strength of other internal governance mechanisms.

Finally, it is also worth noting here that we focus mainly on one of boards' many roles, namely oversight. While we briefly touch upon the stewardship role of the managers (cf. Donaldson and Davis, 1991) in our analysis on the use of Code flexibility, we are silent on the important 'service' role of the non-executives directors (as per resource dependency theory, Pfeffer and 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.

Our study 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 and Weisbach, 1998, p. 111). Our theoretical discussion and related findings are therefore, likely to provide a more realistic picture of the dynamics of board governance role than that provided by many prior studies. Future work can explore these dynamics in different institutional settings.

Second, if companies indeed opportunistically choose not to adhere to the Code recommendations when poor performance looms, the voluntary approach to governance regulation adopted in the UK, as in many other jurisdictions, appears not to be effective (given that investors also do not penalize weak governance arrangements). 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. Instead, our conclusions are more consistent with the conjecture of MacNeil and Li (2006) who document that non-compliance

by some companies is at least tolerated by investors. Hence, 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 and 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 likely target of such an action.

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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)	4.42	4.15	2.27	0.35	11.02
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 incentive pay	0.58	0.59	0.24	0.00	1.00

Note: All financial variables are winsorized at both ends of the distribution at 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 a 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 Worldscope database (i.e. (Net Income before Preferred Dividends + ((Interest Expense on Debt - Interest Capitalized) * (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. P/E ratio denotes price-earnings ratio corresponding to the end of the year t. Market capitalization and total assets are expressed in millions of pounds. 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 capitalization 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 capitalization of the firm and is expressed in percentage terms. CEO tenure is 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.

Table 2

Board governance index components and key board characteristics

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Pooled
Panel A: Board governance index components											
No CEO/chair duality	84.94%	84.12%	84.46%	85.65%	85.26%	82.50%	82.86%	84.30%	85.21%	85.71%	**84.44%**
Percentage of NEDs on the board (at least 33%)	89.45%	91.69%	91.58%	92.53%	91.79%	91.03%	90.39%	90.50%	91.97%	92.22%	**91.36%**
Majority of NEDs independent	85.78%	84.77%	85.93%	85.73%	80.29%	75.46%	70.53%	67.73%	67.45%	68.07%	**74.43%**
Presence of deputy chair and/or senior NED	65.60%	67.54%	66.33%	67.89%	62.96%	59.19%	54.61%	48.90%	48.02%	50.13%	**56.50%**
Presence of remuneration committee	85.61%	89.89%	91.72%	93.16%	92.23%	89.42%	88.36%	87.11%	88.09%	86.63%	**89.00%**
Independent NED chairing remuneration committee	72.18%	77.21%	79.89%	81.81%	78.64%	72.75%	69.05%	65.09%	63.76%	63.57%	**70.69%**
Remuneration committee composed entirely of independent NEDs	54.92%	57.62%	61.24%	62.46%	59.13%	55.50%	53.72%	49.94%	46.35%	47.37%	**53.48%**
Presence of audit committee	98.80%	99.04%	98.82%	98.84%	98.93%	98.58%	98.60%	98.51%	99.04%	99.03%	**98.81%**
Independent NED chairing audit committee	74.58%	79.61%	81.21%	82.50%	77.77%	73.58%	70.52%	67.42%	64.53%	65.24%	**71.93%**
At least half of audit committee members are independent	87.77%	87.32%	88.17%	88.30%	84.85%	80.83%	76.93%	73.25%	70.10%	71.40%	**78.59%**
Presence of nomination committee	70.02%	64.21%	63.47%	63.85%	63.01%	61.83%	60.57%	56.87%	56.21%	58.66%	**60.57%**
NED or board chair is chairing nomination committee	33.09%	36.28%	37.98%	39.63%	36.31%	33.25%	31.76%	29.47%	29.39%	32.41%	**33.15%**
Majority of nomination committee members are NEDs	68.11%	63.08%	62.55%	63.04%	62.04%	60.83%	59.32%	55.38%	55.06%	57.41%	**59.39%**
Board governance index	**9.77**	**9.89**	**10.02**	**10.15**	**9.91**	**9.54**	**9.32**	**8.97**	**8.79**	**8.88**	**9.38**

Table 2 (continued)

Panel B: Key board characteristics

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	Pooled
Board size (N)	8.75	8.22	7.96	7.73	7.31	6.94	6.65	6.47	6.37	6.46	**6.99**
Number of NEDs	4.34	4.12	4.00	3.95	3.77	3.62	3.49	3.43	3.45	3.56	**3.66**
Number of independent NEDs	3.27	3.14	3.12	3.07	2.79	2.56	2.37	2.26	2.25	2.37	**2.58**

Note: For each of the index provisions, 1 corresponds to the case when the statement is true and 0 otherwise. Board 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 as per the UK Code.

Table 3

Board governance, operating performance, and firm value

Panel A: Contemporaneous performance indicators

Performance measure	Subsample means		Subsample medians		T-test for equality of means
	Weak governance portfolio	Strong governance portfolio	Weak governance portfolio	Strong governance portfolio	
Industry-year median-adjusted ROA_t	-17.68	0.15	-3.40	1.39	19.01***
Industry-year median-adjusted ROE_t	-23.01	-3.97	-3.83	2.69	5.30***
Industry-year median-adjusted $ROIC_t$	-26.34	1.30	-5.20	2.30	17.50***
Industry-year median-adjusted Tobin's Q_t	0.71	0.98	-0.15	0.09	1.59

Panel B: Lead performance indicators

Performance measure	Subsample means		Subsample medians		T-test for equality of means
	Weak governance portfolio	Strong governance portfolio	Weak governance portfolio	Strong governance portfolio	
Industry-year median-adjusted ROA_{t+1}	-17.35	-0.28	-2.84	1.20	18.23***
Industry-year median-adjusted ROE_{t+1}	-24.08	-8.71	-2.90	2.34	3.86***
Industry-year median-adjusted $ROIC_{t+1}$	-25.30	0.56	-4.18	1.98	16.92***
Industry-year median-adjusted Tobin's Q_{t+1}	0.52	0.79	-0.18	0.11	1.83†

Note: †, *, **, and *** denote significance at 10%, 5%, 1%, and 0.1% level, 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†

Note: †, *, **, and *** denote significance at 10%, 5%, 1%, and 0.1% level, 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 analyzed in year (t+1).

Table 5

Operating performance and firm value of index-decreasing firms vis-à-vis matched firms

Performance measure	Subsample means		Subsample medians		Equality tests	
	Index-decreasing firms	Matching firms	Index-decreasing firms	Matching firms	T-test statistic	Wilcoxon test z-statistic
Industry-year median-adjusted ROA_{t+1}	-9.30	-4.35	-0.73	0.54	4.33***	4.39***
Industry-year median-adjusted ROE_{t+1}	-14.51	-6.24	0.00	0.41	1.52	1.71†
Industry-year median-adjusted $ROIC_{t+1}$	-17.13	-6.45	-0.93	0.90	4.39***	4.42***
Industry-year median-adjusted Tobin's Q_{t+1}	0.35	0.51	-0.08	-0.01	0.79	2.10*

Note: †, *, **, and *** denote significance at 10%, 5%, 1%, and 0.1% level, respectively. Index-decreasing firms are companies for which the board governance index (defined in Table 2) decreases between years (t-1) and t. For matched firms the value of the index remains the same in both year (t-1) and t. Matching is based on year, industry, and size, measured as LN(1 + Sales) as detailed in Section 4.iii. Performance indicators are based on the measures defined in Table 1. The analysis is based on the pooled sample of 10 years.

Table 6

Ordered logit models explaining the likelihood of index changes between years t and $t+1$

Regressors	Model 1		Model 2		Model 3	
	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat
Board governance index$_t$	-0.16	-14.49***	-0.19	-12.71***	-0.42	-11.39***
Industry-year median-adjusted ROA$_t$	0.00	3.02**	0.00	1.87†	0.00	0.50
LN(1 + Total assets$_t$)	0.04	1.67†	0.04	1.46	-0.06	-1.24
LN(Board size$_t$)	0.13	1.12	0.17	1.12	-0.04	-0.16
CEO equity ownership$_t$	-0.01	-3.23***	-0.01	-2.52*	-0.02	-2.08*
Std. dev. TSR$_t$			-0.60	-1.80†	-2.07	-2.69**
EPS analyst forecast dispersion$_t$					-3.74	-1.99*
Industry fixed effects	Yes		Yes		Yes	
Year fixed effects	Yes		Yes		Yes	
Cutoff-1	-4.21	N/A	-4.44	N/A	-8.25	N/A
Cutoff-2	-0.33	N/A	-0.46	N/A	-3.83	N/A
Pseudo-R^2	0.03		0.04		0.11	
Log-likelihood	-4667.47		-2850.07		-1008.16	
LR test statistic	$\chi^2(30) = 334.25^{***}$		$\chi^2(31) = 255.43^{***}$		$\chi^2(32) = 246.37^{***}$	
No. of observations	6205		3886		1521	
No. of firms	1409		643		334	

Note: †, *, **, and *** denote significance at 10%, 5%, 1%, and 0.1% level, 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 and $t + 1$, 0 in cases of firm-years where the board governance index remained unchanged between years t and $t + 1$, and 1 in cases of firm-years where the board governance index increased between years t and $t + 1$. All the regressors are measured in year t. All the other variables above are defined as in Table 1. The analysis is based on the pooled sample of 10 years.

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.

Table 8

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

Dependent variable	Model 4 Industry-year median-adjusted ROA_{t+1}		Model 5 Industry-year median-adjusted ROE_{t+1}		Model 6 Industry-year median-adjusted $ROIC_{t+1}$		Model 7 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% level, respectively. The variables above are defined as in Table 1. The models are estimated using the entire panel of 10 years with standard errors calculated by two-way clustering procedure (Petersen, 2009). All the regressors are lagged one year, i.e. performance and firm value in year t + 1 are modeled as a function of independent variables as measured in year t.

Table 9

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

(controlling for potential endogeneity of the board governance index)

	Model 4A		Model 5A		Model 6A		Model 7A		Model 4B		Model 5B		Model 6B		Model 7B	
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}		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}	
Instrument for board gov. index$_t$	Post-2003 dummy								$LN(1 + Sales_t)$							
Regressors	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat	Coeff.	z-stat	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	6.29	12.12***	8.20	4.50***	10.25	11.95***	-0.02	-0.30
CEO equity-linked wealth$_t$	0.15	2.08*	0.08	0.16	0.09	0.66	0.03	1.50	0.31	3.92***	-0.10	-0.29	0.47	3.44***	0.01	0.97
CEO incentive pay$_t$	6.08	5.13***	7.27	0.97	12.34	5.86***	1.23	3.85***	5.77	4.30***	13.60	2.04*	12.54	5.20***	1.11	3.77***
Leverage$_t$	0.00	0.41	0.05	0.70	-0.03	-1.36	-0.00	-1.59	-0.00	-0.31	0.05	0.80	-0.05	-1.95†	-0.00	-1.50
CEO tenure$_t$	0.23	3.31***	-0.30	-0.67	0.33	2.65**	0.02	1.27	0.27	3.37***	0.23	0.63	0.46	3.19**	0.02	1.45
LN(Board size$_t$)	-9.02	-6.12***	-36.32	-3.86***	-11.66	-4.45***	0.68	1.77†	-11.35	-6.51***	-17.53	-2.34*	-15.70	-5.04***	0.95	2.86**
LN(1 + Sales$_t$)	0.50	1.56	0.27	0.12	1.11	2.00*	-0.12	-1.00								
Intangibles/Total assets$_t$	-23.46	-11.10***	-66.99	-5.27***	-32.72	-8.35***	-0.41	-1.09	-18.26	-8.54***	-28.93	-3.57***	-21.75	-5.92***	-0.48	-1.33
Intercept	-26.93	-5.20***	-12.65	-0.39	-35.01	-3.63***	-3.15	-1.86†	-47.36	-10.58***	-61.56	-3.95***	-84.17	-11.45***	-1.47	-2.12*
R²-overall	0.09		0.00		0.08		0.00		0.07		0.00		0.06		0.01	
Wald test statistic	$\chi^2(8) = 240.99$***		$\chi^2(8) = 47.30$***		$\chi^2(8) = 155.92$***		$\chi^2(8) = 34.21$***		$\chi^2(7) = 246.44$***		$\chi^2(7) = 54.86$***		$\chi^2(7) = 226.35$***		$\chi^2(7) = 34.22$***	
No. of observations	4405		4414		4399		4417		4405		4414		4399		4417	
No. of firms	1186		1188		1182		1188		1186		1188		1182		1188	

Note: †, *, **, and *** denote significance at 10%, 5%, 1%, and 0.1% level, respectively. Post-2003 dummy equals 0 for observations corresponding to years up to and including 2002, and 1 for those from year 2003 onwards. 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 modeled as a function of independent variables as measured in year t.