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THE UK CODE OF CORPORATE GOVERNANCE:
LINK BETWEEN COMPLIANCE
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THE UK CODE OF CORPORATE GOVERNANCE: LINK BETWEEN COMPLIANCE AND FIRM PERFORMANCE

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Abstract

We investigate the relation between a detailed index of non-compliance with the UK corporate governance code, and firm performance for a panel of FTSE 350 companies from 2000 to 2003. The inverse relation between the Index and total shareholder returns (TSR) implies more compliant firms enjoy higher TSR in our sample. We also find the Index to be exogenous, implying that causality runs from the Index to performance. Our economically significant results suggest that compliance matters- not just as a box ticking exercise, but as a real change in the governance of large listed companies in the UK.

1. Introduction

In recent years, more and more countries have introduced corporate governance codes to guide the establishment of good governance practices in public companies. The UK has taken the lead in this respect. As early as 1993 public companies were required to comply or explain the reasons for non-compliance with the Cadbury Committee recommendations. These recommendations were later incorporated into the Code of Corporate Governance (henceforth called the Code). Though the Code does not have the force of law behind it, (with companies still required to comply or, give reasons for non-compliance), it does form part of the listing requirements of the London Stock Exchange. In theory, compliance with the Code should reduce agency costs and improve corporate performance.

Earlier empirical work attempting to establish a link between individual Code recommendations and firm performance have met with little success (e.g. Vafeas and Theodorou, 1998; Weir *et al*., 2002). Here we measure the extent to which companies choose to comply with the Code by developing an index of non-compliance for a panel of FTSE 350 companies over the years 2000 to 2003. The value of the Index ranges from 0, indicating perfect compliance to 12, indicating complete disregard. Using this approach we investigate whether or not the degree of compliance affects performance.

We find a negative relationship between the Index and performance, when performance is measured by a market driven measure namely, the total shareholder return (TSR). This finding supports the view that other things equal, the market values compliant firms more than the less compliant ones.

There is an ongoing debate in the literature about the possible endogeneity of the governance –performance link, but often this endogeneity has been assumed rather than explicitly tested (e.g. Agrawal and Knoeber, 1996; Weir *et al*., 2002). We directly test for the exogeneity of the non-compliance index and find that the Index is exogenous. Hence, our findings suggest that the causality most likely runs from compliance to performance rather than the other way round.

Our findings have important implications for regulators, companies as well as their investors. For regulators, there is clear indication that the Code approach and its inherent flexibility is working. Large public companies in the UK are choosing to become more compliant (as revealed by the falling value of the Index over the years 2000-2003) and, as more information about compliance is becoming available, (via detailed compliance statements in companies' annual reports), investors in turn, are using this information to

make informed evaluations of companies. Our finding of the inverse relation between the index of non-compliance and total shareholder return supports these implications.

The rest of the paper is organized as follows: section 2 reviews the literature; section 3 discusses the data, the sample and the development of the index of non-compliance; section 4 describes the Index and the sample, and develops the empirical model to be tested; empirical results are presented in section 5; and section 6 checks the robustness of these results. Section 7 concludes the paper.

2. Review of the Literature

The UK has taken the lead in establishing 'best practice' in the area of corporate governance, with emphasis on reforming the corporate board. Two important Code recommendations in this regard are the separation of the position of the chair and the CEO; and the introduction of board sub-committees composed entirely or largely of non-executives especially independent non-executives. Following the introduction of the Code, many studies have aimed to measure compliance in these areas. The findings of these studies reveal that an increasing number of UK companies are separating the roles of the CEO and the chair and are inducting more non-executives on corporate boards (see Conyon, 1994; Dedman, 2000 & 2002) as well as on the sub-committees including the audit committee (see Collier, 1991; Vafeas and Theodoru, 1998).

As compliance has increased over the years, a logical question that follows is whether it has improved firm performance. Vafeas and Theodorou (1998) investigate this question using data on the performance and board characteristics of 250 large UK firms in 1994. They find that performance, measured by the Q ratio, is not affected by the proportion of non-executives on either the main board or its sub-committees; by the shareholdings of the board or by the separation of the roles of chair and CEO. Weir *et al.* (2002) conduct a similar analysis for 311 companies in 1996 with an extended set of governance variables. They too find no link between governance and performance. Dahya *et al.* (2002) are unusual in finding a significant relationship between governance and performance. However, in their work accounting performance is used to explain CEO turnover, so their results are not directly comparable with those of Vafeas and Theodorou (1998) and Weir *et al.* (2002).

Given that we are interested in the relationship (if any) between the Code and corporate performance, we need a way of summarising the impact of the Code on governance. In recent years indices of governance have become a popular tool for measuring how well (or badly) firms are governed.

A notable study by Gompers *et al*. (2003) uses a large set of governance provisions to construct a firm-level governance Index (G-score) to proxy the strength of shareholder rights in the US. The higher the G-score received by a firm, the lower are the rights of its shareholders. They find evidence that firms in the lowest decile of the Index, denoting the strongest shareholder rights enjoy significantly higher stock returns, an average of 8.5% more per year than those in the highest decile of the Index.

Klapper and Love (2002) investigate the relation between governance and firm performance in 25 emerging markets. They find that good governance is positively correlated with market valuations (Tobin's Q) and operating performance (ROA) especially in countries with weaker legal systems.

Black, Jang and Kim (2005), develop a comprehensive corporate governance Index for 515 firms listed on the Korean Stock Exchange. Using the instrumental variables approach and testing directly for the endogeneity of their Index, they do not find evidence of endogeneity in their governance Index, which is found to be significantly positively correlated with higher firm value as measured by Tobin's Q.

While empirical work based on individual governance variables implies that corporate performance is not dependent on governance, a relationship emerges when indices are used to measure governance. This suggests that what matters is not the adoption of individual initiatives but the change in attitude that accompanies the use of a collection of governance measures. This motivates our use of an index of non-compliance with the recommendations contained in section 1 of the Code, which relates to the Board. We describe the development of the Index below.

3. Data, Sample and the Development of the Index of Non-Compliance

Our Index is calculated using data from the annual reports of firms that were part of the FTSE 350 Index in each of the four years covered in this study i.e. 2000 to 2003. We acknowledge that this creates a survivorship bias, but at the same time, it allows us to track changes in the compliance practices of firms over time while also making the sample more comparable across years, as it includes the same firms over the four years. We exclude financial companies and utilities as these companies need to follow additional regulations and have therefore also been excluded from previous work. As these companies together make up about one-third of the FTSE 350 Index for any given year, this left only about two-thirds of the FTSE 350 Index constituents for inclusion in the sample in any given year. Of these a further one-third were dropped because they were not a part of the FTSE 350 for all of the four years. This left a final sample of about

120 companies which were part of the FTSE for each of the four years. Of these, governance and/or financial data were still not available for some, mainly for 2000. Hence based on the availability of complete data for all variables, we were left with a final sample of 478 firm-years over the period 2000-2003, 114 for 2000, 121 for 2001, 121 for 2002 and 122 for 2003.

The Index is based on the 1998 version of the Code. This version recommends that one third of the directors should be non-executives, the majority of whom should be independent. These directors should sit on the remuneration, audit and nomination committees. Furthermore, while the letter of the Code states simply that the chairman of the board should not also be the company's CEO, the spirit implies that a non-executive should take the role. We can see this because the chair of the nomination committee is required to be the chairman of the board or a non-executive. This makes it clear that the chairman of the board should be able to act with the same independence as a non-executive. Therefore in constructing the Index, we consider compliant firms as those whose chairman is an independent non-executive. A new version of the Code was introduced in 2003. This version provides a more precise and detailed definition of non-executive director independence. Like the provision regarding the chairman, it reflects the spirit of the 1998 Code. Hence, we have chosen this Code's criterion of independence in the construction of the Index.

The Index is constructed by assigning one point for each aspect of non-compliance with either the letter or the spirit of the Code. Thus, the board should be chaired by an independent non-executive director (0 if so, 1 if not); the board should consist of one-third non-executives (0 if so, 1 if not), the majority of whom should be independent (0 if so, 1 if not); the board should have a senior independent member other than the chair, (0 if so, 1 if not); board should have a remuneration, audit and nomination committee (0 for each, 1 for each added if not present); the committees should be headed by independent non-executives, (0 if so for each, 1 for each, if not); the remuneration committee should be composed entirely of independent non-executives (0 if so, 1 if not); the audit committee should be composed of non-executives only, have majority independent non-executives, (0 if so, 1 if not); nomination committee be present (0 if so, 1 if not) and finally, the nomination committee should be chaired by an independent non-executive, who could be the chairman (0 if so, 1 if not). With this scoring system, a firm's Index score can vary between 0 and 12, with 0 indicating perfect compliance and 12 indicating complete non-compliance. It is important to note here that in line with the work of previous researchers (Gompers *et al.,* 2003) we have chosen to assign equal weighting to each aspect of non-compliance with the Code. This avoids value judgements over the importance of compliance with different Code recommendations.

4. Descriptive Statistics and Model Development

Table 1 presents the descriptive statistics for the Index over the whole sample. It shows that 2000 was the worst year for compliance in that it produced the largest range (8) and mean Index score (2.09). The falling means for 2001 and 2002 indicate that compliance improved on average, but in 2003 things took a turn for the worse with the mean rising to 1.47 and the range increasing once again. A detailed frequency distribution of the values of the non-compliance index for each of the four years of analysis is given in Table 2.

Table 1: Descriptive Statistics for the Index †

Index	2000	2001	2002	2003
Mean	2.09	1.69	1.09	1.47
Median	2	1	1	1
Mode	1	1	0	0
Range	8	5	6	7
Minimum	0	0	0	0
Maximum	8	5	6	7
Count	114	121	121	122

† Descriptive statistics for the Index of non-compliance with the Code. The Index is constructed by assigning one point for each aspect of non-compliance with the Code, giving it a maximum score of 12 and a minimum of 0. Data on non-compliance are taken from firms' annual reports. All firms are constituents of the FTSE350 Index.

Table 2: Frequency Distribution of the Index over the Period 2000-2003

Index Values*	Frequency Distribution, No. Of Firms, (%) **			
	2000	2001	2002	2003
	21 (18)	28 (23)	50 (41)	41 (34)
1	28 (25)	34 (28)	39 (32)	33 (27)
2	19 (17)	24 (20)	16 (13)	22 (18)
3	21 (18)	17 (14)	9 (7)	12 (9)
4	12 (11)	12 (10)	3 (3)	6 (5)
5	7 (6)	5 (4)	2 (2)	5 (4)
6	3 (3)	1 (1)	2 (2)	1 (1)
7	1 (1)	0	0	2 (2)
8	2 (2)	0	0	0
Total firms	114	121	121	122

* limited to 8 as no firm in any year had a higher value for the Index.
** Rounded to nearest whole of the total for the year.

It shows that the proportion of fully compliant firms rose between 2000 and 2002, when it reached 41%, but fell again in 2003. The same pattern can be seen with respect to non-compliance with one or two areas of the Code.

Table 3: Descriptive statistics – Governance-related and other characteristics of the sample over 2000-2003

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Firm Age	45.81	33	36.37	1	164
Total Sales (£m)	3497.84	1864.5	5191.64	20	49039
Debt to Asset (Ratio)	0.23	0.22	0.16	0	0.91
Board size	10.27	10	2.48	5	19
Block Holdings %	26.85	24.49	16.67	0	95.94
Director Holdings %	3.01	0	10.50	0	79.65
Market to Book(Equity)	2.90	2.24	25.47	-502.54	151.67

Table 3 presents the profile of the sample. The average age of the firm in our sample is about 46 years, with average sales of £3.5 billion over the period, and average leverage, i.e. debt to asset ratio of 23%. In terms of governance related variables, average board size is about 10 members (greater than the average of 8 members in Peasnell *et al*. 2005's sample covering a wider cross section of firms, not only the largest), with on average, about 3% of the firms' shares held by the directors (the median in this case being zero though, suggests that shareholdings of directors are skewed towards the right). External blockholders' on average hold about 27% of the firms' shares. The average firm's market value of equity is about three times the book value.

In the current analysis, our hypothesis is that improved compliance leads to better performance. In order to test this we estimate equation (1), our initial model, in which performance depends on the Index and a number of control variables both, governance related as well as firm characteristics that may affect performance. These are: the board size, measured by the number of directors; firm size, measured in terms of total sales; leverage, measured by the total book debt to total book assets ratio; total external block holdings of shares (cumulative 3% and above); total director shareholdings (cumulative 3% and above) and four year dummies. In further analysis for robustness check we also include; firm age, measured from the date of initial incorporation or date established whichever is earlier; and the ratio of market to book value of equity. Data on these

variables have been obtained from different sources, including the Waterlow Stock Exchange Yearbooks (for data on director and other block shareholdings as well as firm age); from Datastream (for all financial data on the firms) and the company annual reports for the data on board size.

The model we estimate is:

$$Firm\ performance = \beta_1\ Index + \beta_2\ board\ size + \beta_3\ firm\ size + \beta_4\ leverage$$

$$+ \beta_5\ block\ holdings + \beta_6\ director\ holdings$$

$$+ \beta_7 y_1 + \beta_8 y_2 + \beta_9 y_3 + \beta_{10} y_4 + \varepsilon$$

$$(1)$$

Corporate performance can be measured in many ways. We estimate equation (1) using four measures of performance. Two are market-based: the Q ratio (measured as the book value of total assets minus the book value of equity plus the market value of equity, all divided by the book value of total assets); and the total shareholder return, TSR, which is the sum of capital gain and dividend yield. Two are accounting based: i.e. return on assets (ROA), measured as EBIT divided by the book value of total assets, and return on book equity (ROE) which is net income divided by book value of equity. We hypothesise that performance should be negatively related to the Index, since high Index values indicate low levels of compliance. We however expect this effect to be larger in the case of market-based performance measures as compliance acts to reassure shareholders, thus leading to higher market values.

Previous evidence on individual governance variables suggests that performance and board size are negatively related (Yermack, 1996 and Eisenberg et. al. 1998), so we expect to see the same result here; higher director shareholdings should lead to better performance, as managers start to think like shareholders, but prior UK evidence is inconclusive (see Short and Keasey, 1999; Faccio and Lasfer, 1999). However, based on theory, we hypothesise a positive relationship. External block holders could perform a beneficial monitoring role but prior evidence indicates that the cost of monitoring by block holders tends to outweigh the benefits (Agrawal and Knoeber, 1996. Gillan *et al.*, 2003, Bohren and Odegaard, 2003) leading us to hypothesise a negative relationship between outside block holdings and performance. We expect size to have a positive impact on accounting performance given that it is measured by sales, but based on existing evidence (Fama and French, 1992, Vafeas and Theodorou,, 1998, Weir *et al.*, 2002) we expect a negative relationship between market performance and size. The theory on the relationship between value and capital structure is inconclusive. Debt issues create valuable tax shields but can also hasten the onset of financial distress costs.

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Evidence suggests that a negative relationship between both market and accounting-based performance measures and leverage (Agrawal and Knoeber, 1996, Short and Keasey, 1999, Booth et. al., 2001, Weir et; al. 2002). We have no prior expectations of the year dummies that are included to capture time-related effects.

5. Link Between Corporate Governance and Firm Performance: Empirical Analysis

Table 4 shows the pooled OLS results of estimating (1) with each of the 4 measures of performance. These results are based on White's heteroscedasticity-robust standard errors. The anticipated negative relationship between performance and the Index is found with one of the market measures – TSR and one of the accounting measures – ROA. However, the Index is statistically significant only in the TSR regression. Interestingly, this equation has far higher explanatory power than any of the others.

In many ways it is not surprising to find a stronger relationship between market performance and the Index than between accounting performance and the Index. However it is perhaps surprising that this impact is seen only in TSR, given that both it and Q include the market value of the firm's shares. TSR, of course, also includes dividend payments. Perhaps more compliant companies also use dividends as a form of bonding exercise, indicating their desire to serve shareholders.

In terms of the other explanatory variables, the results are broadly consistent with a priori expectations. In line with the findings of Yermack (1996), board size is inversely related to the accounting measures of firm performance, but is significant only in the ROA regression. This is quite consistent with the notion that generally UK boards are larger than their optimal size, with subsequent operational inefficiencies setting in such as difficulties with communication, control and accountability, factors that would in turn affect the operational efficiency of the firm.

Size in terms of total sales, is positively and significantly related to only ROA. This is expected given that the higher the sales, the higher the level of book returns, keeping other factors constant.

Table 4: Pooled OLS regression estimates of the full model for all dependent variables. †

Explanatory	Dependent TSR	Dependent Q ratio	Dependent ROA	Dependent ROE
Index	-2.09**	0.04	-0.32	0.71
	(-2.02)	(0.58)	(-0.82)	(0.47)
Board size	-0.37	-0.03	-1.15***	-1.95
	(-0.52)	(-0.76)	(-2.56)	(-1.73)
Size	-0.33E-4	0.32E-5	0.14E-3*	0.23E-3
	(-1.43)	(0.47)	(1.84)	(1.11)
Leverage	-4.51	-2.66**	-10.23***	-67.85
	(-0.32)	(-2.23)	(-3.26)	(-1.70)
Block Holdings	-0.06	-0.01**	-0.02	-0.03
	(-0.62)	(-2.17)	(-0.78)	(-0.19)
Director Holdings	-0.11	0.005	-0.02	0.20
	(-0.65)	(0.87)	(-0.44)	(1.40)
Year1/2003	45.42***	2.27***	24.44***	38.85***
	(5.62)	(2.74)	(5.08)	(3.06)
Year2/2002	-11.39	2.87***	22.10***	50.86***
	(-1.50)	(3.98)	(5.11)	(3.06)
Year3/2001	12.75	3.21	20.84***	51.61***
	(1.66)	(4.26)	(3.90)	(3.92)
Year4/2000	18.23**	3.51	23.08***	53.53***
	(2.30)	(3.55)	(4.50)	(3.64)
R-Squared	0.25	0.06	0.06	0.04
R-Bar Squared	0.24	0.05	0.04	0.03
No. of Observations	478	478	478	478

† Index stands for the Index of non-compliance. Size is measured in terms of sales (£m). Board size is in number of board members. Leverage is measured as ratio of total debt to total assets. Block holdings are external holdings of shares 3% and above. Director holdings are aggregate board holdings of 3% and above.

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels. *t*-statistics are in parenthesis.

The negative relation of leverage with both the Q ratio and the ROA is consistent with previous empirical findings (Weir, Laing and McKnight, 2002; Vafeas and Theodorou, 1998; Agrawal and Knoeber, 1996), suggesting that more profitable firms tend to use less debt or in other words prefer financial slack rather than using more debt which may restrict their financial flexibility.

An interesting result of our analysis is the significant and negative relation of block shareholdings with the Q ratio. This finding is consistent with previous US findings (Agarwal and Knoeber, 1996; Dlugosz et. al., 2006), suggesting that the costs of external block holdings tend to outweigh the benefits. This finding also supports the notion of the existence of conflicts of interest between minority shareholders and large block holders proposed by Thomson, Pederson and Kvist (2006) in support of their finding of a

negative relationship between block holdings and firm value in companies in continental Europe. The insignificant relation of director shareholdings with TSR as well as with ROA is consistent with a priori expectations and also previous empirical findings (Faccio and Lasfer, 1999; Short and Keasey, 1999).

Given the overall lack of significance of the relation between the Index and the Q ratio as well as the accounting measures of firm performance, and the low overall explanatory power of these regressions, all subsequent analysis relates specifically to the relation between the TSR and the Index. Furthermore, since board size, leverage, director holdings and block holdings are found to be insignificant in the original model related to the TSR, we drop each of these variables one at a time from the subsequent regressions, following the Hendry general to specific approach[1] and see how this affects the results. We retain size from the original model because although insignificant, its t-ratio is much higher than that for all the other variables. The results from these subsequent regressions are reported in Table 5. These are also based on White's robust standard errors. It is worth noting that we also tested for non-linearity of the relationship between director holdings and TSR, by adding the squared value of director holdings as an explanatory variable, but it was also found to be insignificant, and so it is not reported here.

As can be seen from these results, the dropping of insignificant variables, board size in model 1, board size and leverage in model 2, board size, leverage and director holdings in model 3 and additionally block holdings in model 4, does not materially change the results with the coefficients, signs and the significance of the remaining explanatory variables, namely Index, size and the year dummies remaining stable over each model. Hence, the overall explanatory power of model 4, even with all insignificant variables omitted, does not change. This indicates the stability of the relation between the Index and TSR.

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[1] Based on Hendry, D. and Richards, J.F. 1982. On the formulation of empirical models in dynamic econometrics, Journal of Econometrics, 20, 3-33

Table 5: Additional models. †

Explanatory	Model 1	Model 2	Model 3	Model 4
Index	-2.13**	-2.12**	-2.12**	-2.29**
	(-2.08)	(-2.09)	(-2.18)	(-2.28)
Board size	-	-	-	-
	-	-	-	-
Size	-0.37E-3*	-.37E-3*	-.36E-3*	-.34E-3
	(-1.75)	(-1.73)	(-1.70)	(-1.68)
Leverage	-4.79	-	-	-
	(-0.34)	-	-	-
Block Holdings	-0.05	-0.06	-0.06	-
	(-0.60)	(-0.71)	(-0.75)	-
Dir. Holdings	-0.11	-0.10	-	-
	(-0.63)	(-0.62)	-	-
Y1/2003	41.89***	40.87***	40.73***	38.80***
	((8.42)	(8.60)	(8.58)	(9.09)
Y2/2002	-15.12***	-16.17***	-16.34***	-18.29***
	(-3.40)	(-4.61)	(-4.66)	(-6.86)
Y3/2001	9.09*	8.14**	7.96**	6.35*
	(1.91)	(2.14)	(2.09)	(1.76)
Y4/2000	14.47***	13.62***	13.56***	12.00***
	(2.74)	(3.01)	(3.00)	(3.00)
R-Squared	0.25	0.25	0.25	0.25
R-Bar-Squared	0.24	0.24	0.24	0.24
No. of Observations.	478	478	478	478

† Pooled OLS regression estimates relating TSR to the Index and other explanatory variables. Each model drops one explanatory variable found to be insignificant in table 2. Model 1 drops board size; model 2 drops additionally leverage, director holdings and block holdings are dropped additionally in models 3 and 4 respectively.

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels. *t*-statistics are in parentheses.

6. Checks for the Robustness of the Results

6.1. Additional control variables

To check for the robustness of the reported results, i.e. to further check that the relation between TSR and the Index is not spurious, with the Index substituting for some other factor affecting performance, we add a number of variables to model 4 in Table 5 to see if any of these change the results significantly.

First, in line with the controls used by Vafeas and Theodorou (1998), Klapper and Love (2002), and Adams and Mehran (2004) to account for the impact of accounting measures of firm performance on market measures, we add accounting return on assets as a control

in the base model. As expected, it turns out to be positively and highly significantly correlated with TSR. Second, following Yermack (1996), we add firm age as a control. Market to book value of equity is another measure that partly reflects the growth opportunities available to a firm. So we also test the relation of this variable with firm performance. Finally, following Vafeas and Theodorou (1998), Gillan *et al*. (2003) and a number of other researchers, 2-digit industry dummies are added to control for any industry-related factors affecting performance. The results in Table 6 show only those industry dummies found to be significant.

Table 6: Robustness check: results from models incorporating additional controls †

Explanatory	Model 1	Model 2	Model 3	Model 4
Index	-2.05**	-2.05**	-1.97**	-1.85*
	(-2.04)	(-2.04)	(1.96)	(-1.81)
Size	-0.37E-4*	-0.37E-4*	-0.39E-4**	-0.22E-4
	(-1.92)	(-1.91)	(-2.04)	(-0.90)
Y1/2003	33.69***	33.59***	32.02***	28.31***
	(9.00)	(8.94)	(7.78)	(2.74)
Y2/2002	-21.90***	-21.85***	-23.50***	-27.71***
	(-6.35)	(-6.32)	(-6.15)	(-2.81)
Y3/2001	3.06	2.99	1.33	-1.92
	(0.82)	(0.80)	(0.32)	(-0.19)
Y4/2000	7.61*	7.52*	0.88	1.44
	(1.86)	(1.84)	(1.32)	(0.14)
ROA	0.49***	0.49***	0.49***	0.42***
	(4.66)	(4.64)	(4.61)	(3.78)
MB (equity)		0.01	-	-
		(0.31)	-	-
Age			0.03	-
			(0.97)	-
IN1				35.60**
				(2.31)
IN 16				-40.82**
				(-2.12)
IN17				20.28**
				(1.93)
R-Squared	0.29	0.29	0.29	0.29
R-Bar-Squared	0.28	0.28	0.28	0.28
No. Of Observations.	478	478	478	478

† Dependent variable is the TSR. MB (equity) stands for the ratio of market to book value of equity as measure of growth opportunities, age is the age of firm from initial incorporation, or date established whichever is earlier, IN1 stands for IT hardware industry, IN16 for electronic and electrical equipment industry, and IN17 for construction and building materials industry.

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels. *t*-statistics are in parentheses.

Table 6 shows the results from adding the different controls starting with the ROA. We test the significance of each additional control and retain it in the subsequent models only if the variable is found to be significant. Hence, in model 1 in Table 6, we only add ROA to the base model that we retain in model 2, as it is significant at 1% level. (Addition of ROA also removes the problem of heteroscedasticity observed in earlier regressions. Accordingly these results are not adjusted for heteroscedasticity). We then add market to book value of equity in model 2, but drop it in model 3 because of its insignificance, while adding age as another control. Finally, in model 4, we add industry dummies for the 25 sectors represented in the sample. As can be seen the Index is statistically significant in all specifications.

In terms of the other controls added, apart from the ROA, which one would expect to have a positive and significant relation with market returns, only a few industry effects are found to be significant, namely those of IT hardware industry (IN1), electronic and electrical equipment industry (IN16) and construction and building materials industry (IN17). Neither the market to book value of equity nor the age of the firm is found to have any significant relation with our measure of firm performance.

The consistent and stable statistical significance of the Index in all model specifications, suggests that the Index is likely to be exogenous. Moreover the high value of the coefficient (around 2%) in all models suggests that the relation is also highly economically significant. For example, given that the mean market capitalization of a constituent of FTSE 350 as of end 2000 was £ 4767 million[2], a fall in the Index by one point in that period would have led to a 2% increase in the TSR for the average firm, which if we consider as a capital gain only, would mean an increase in total market capitalization for the average firm by £ 95 million - by no means a small amount.

Thus far in our analysis, we have assumed that the causality runs from the Index to firm performance, we now directly test for the exogeneity of the Index in the following section.

6.2. Test for determining the exogeneity of the Index

As pointed out earlier, most extant research assumes away the endogeneity of governance variables and offers it as a possible explanation for the absence of a significant relation between governance and firm performance measures (Weir, Laing and McKnight, 2002). Alternatively, the lack of significance in a carefully specified system of equations is assumed to support the optimal choice hypothesis, with the underlying assumption that lack of statistical significance indicates that governance measures are being optimally chosen by a firm (Agrawal and Knoeber, 1996).

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[2] based on calculations from data obtained from the website, info@ftse.com

Such an approach suffers from a number of methodological weaknesses. First, the a priori assumption of endogeneity is questionable, without any specific testing of whether any particular variable is actually endogenous. Second, even if endogeneity is found, dealing with it requires the choice of appropriate instruments that need to be correlated (preferably highly) with the variable suspected to be endogenous, but not with the dependent variable. To the best of our knowledge, no study in this field until very recently (Black et. al., 2005) has addressed these issues in a methodologically sound manner. None have done so, in the context of the UK and the US (Black et.al.'s study uses Korean data).

Given that the main relation of interest in this study is that between the Index and firm performance, and that we are using panel data, we perform a Wu-Hausman exogeneity test on our main explanatory variable: the non-compliance Index, to determine its exogeneity. In the presence of endogeneity, the OLS estimates would be biased and inconsistent.

Table 7: Test for determining the exogeneity of the Index.

Step 1: OLS Regression of the Index on its Explanatory Variables

Explanatory Variables	Coefficients and *t*-ratios
Board Size	0.04
	(1.46)
Block Holdings	0.01**
	(2.03)
Director Holdings	0.02***
	(2.99)
Y1/2003	0.75**
	(2.16)
Y2/2002	0.34
	(0.95)
Y3/2001	1.03***
	(2.95)
Y4/2000	1.50**
	(4.20)
R-Squared	0.09
R-Bar-Squared	0.08
No. Of Observations	478

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels. *t*-statistics are in parenthesis.

To perform the Wu-Hausman exogeneity test, we first run an OLS regression modelling the Index. The residuals from this regression are then used as an additional explanatory variable in the OLS regression of the TSR on the Index and other explanatory variables. If the second equation's F-statistic is low, the Index is accepted as exogenous. Based on prior empirical findings, it is expected that the Index could be influenced by the size of

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the board and directors' shareholdings, since these are a measure of the power of the directors (mainly executive, who are usually the main shareholders) over the board, and hence their ability to control its structure, composition and functioning. The Index may also be related to external block holdings, as Short and Keasey (1999) suggest, large block holders mainly institutions in UK, can exert significant influence over the board structure and composition. We therefore first run a regression of the Index on board size, director shareholdings and block holdings. Year dummies are included to capture the effect of variation in time. As can be seen from Table 7, the Index is significantly positively correlated with the block holdings and director holdings suggesting that significant shareholders, that is, those holding 3% or above stock in the company, whether outsiders or insiders, have a negative influence on compliance. The negative relation of director shareholdings with compliance also lends support to the entrenchment hypothesis, considering that most significant shareholders among directors are generally the insiders.

Table 8: Test for determining exogeneity of the Index (continued).

Step 2A: OLS regression modelling TSR
Step 2B: Variable Addition Test (Wu-Hausman Test for Determining the Exogeneity of the Index).
Model 1 is a pooled regression, with TSR as the dependent variable. Model 2 incorporates residuals from the regression modelling the Index (RIndex) as an additional explanatory variable to model 1.

Explanatory	Model 1 (OLS)	Model 2 (Variable Addition Test: OLS Case)
Index	-2.26**	-8.12
	(-2.20)	(-1.32)
Board Size	-0.34	-0.12
	(-0.49)	(-0.170)
Size	-0.31E-4	-0.33
	(-1.50)	(-1.58)
Leverage	-5.07	-4.65
	(0.50)	(-0.46)
Y1/2003	43.27***	49.82
	(5.59)	(4.85)
Y2/2002	-13.61	-9.51
	(-1.71)	(-1.05)
Y3/2001	10.84	18.84
	(1.37)	(1.65)
Y4/2000	16.46**	27.14
	(2.01)	(1.98)
RIndex		6.02
		(0.33)
R-Squared	.25	
R-Bar-Squared	.24	
F-Statistic (p-value)		0.94 (0.33)
No. of Observations.	478	478

*, **, *** denote significance at the 0.10, 0.05, and 0.01 levels. *t*-statistics are in parentheses.

Table 8 presents the results of the second step of the exogeneity test. The low value of the F-statistic (0.94) of this regression and its high p-value (0.332) in model 2 in Table 8 allows us to accept the null hypothesis of the exogeneity of the Index.

7. Conclusion

The novelty of our research lies in the measurement of non-compliance using a detailed and comprehensive Index and then examining its relationship with firm performance. In one way our novel approach simply reinforces previous findings, that is, performance as measured by Q is not related to compliance. However our finding of a statistically as well as economically significant relationship between the index of non-compliance and total shareholder return, suggests that the more closely a company adheres to the code, the higher is its total shareholder return. Moreover, the results of our exogeneity test on the Index suggests the causal relationship runs in only one direction from compliance to Index, rather than the other way round. These findings are consistent with the results of a number of recent studies, in different contexts and using different governance and performance measures (e.g. Gompers *et al*. 2002; Klapper and Love, 2003; and Black *et al*. 2005) all of whom find a clear positive link between various governance-related arrangements and various market driven measures of firm performance. It appears then that investors around the world are becoming conscious of the importance of sound governance principles and practices, incorporating these in their firm valuations.

It is important to point out here the limitation of our analysis as well as suggest some future direction for research. Our analysis is limited to the larger companies which are constituents of the FTSE 350 Index. Moreover the Index distribution in Table 2 suggests that increasing number of firms in our sample is becoming fully compliant. This indicates that our results are driven by those firms that fail to comply. It would be interesting then to expand the sample to see first, if smaller companies comply, and second, if they do, to get a feel for the characteristics of those that choose not to comply.

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