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The UK Code of Corporate Governance: Link between Compliance and Firm Performance

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Abstract

Listed companies in the UK are required to comply or give reasons for non-compliance with the recommendations of the UK code of corporate governance called 'The Combined Code'. Prior studies investigating the relationship between compliance and firm performance have found the link to be either non-existent or at best weak. This study, taking a more holistic view of compliance develops an index of non-compliance for a panel of FTSE 350 companies for four years (2000 -2003 inclusive). Using total shareholder return (TSR) i.e. the sum of capital gain and dividend yield, as the main measure of firm performance, we find that the Index is inversely related to the TSR, implying that more compliant firms enjoy higher TSR in our sample of companies. Contrary to the widely held assumption in the literature that governance variables are generally endogenous, our direct test for the endogeneity of the Index, finds no evidence of endogeneity. This implies that the causality most likely runs from the Index to performance, rather than the other way round. One reason for the clear contrast of our findings with previous work could be our choice of performance measure. Assuming that compliance with the Code is essentially a means of signalling to the investors that firms are well governed and by implication working in the interest of the shareholders, the effects of such positive perception can be argued to fall more on market driven measures of firm performance than on measures which rely more on accounting based values, such as the various proxies for Tobin's Q. Another reason could be the emphasis on constructing a finely tuned, comprehensive Index, incorporating elements of compliance with both the letter as well as the *spirit* of the Code. Overall, our results suggest that for today's informed and discerning investors, compliance matters not just as a box ticking exercise but as a real change in the governance of large listed companies, for which they are willing to pay a premium.

Key Words: The Combined Code, corporate governance, compliance index and firm performance

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

1.0 Introduction

The aim of all governance mechanisms is to reduce the agency costs that exist due to the separation of ownership and control especially in large public corporations (Jensen and Meckling, 1976). A net reduction in agency costs should, in theory, help increase corporate value and/or improve corporate performance. This is the main argument guiding the bulk of the research conducted on the subject in the UK, US and other countries.

In the UK, the reports issued by the various committees (Cadbury, 1992; Greenbury; 1995; Hampel, 1998; Turnbull, 1999; Smith, 2003; and Higgs, 2003), set up to investigate and recommend sound corporate governance principles and practices, have formed the basis of the Combined Code, henceforth called the Code, which is the main document guiding UK listed companies in establishing their corporate governance structures and practices. The Code forms part of the listing requirements for the London Stock Exchange, so listed companies are required to comment on compliance or non-compliance in their annual reports.

Earlier studies in the UK investigating the compliance-performance link have generally attempted to establish the link between specific Code recommendations and firm performance/value (Vafeas and Theodorou, 1998; Weir, Laing and McKnight, 2002). This paper takes a more holistic approach towards compliance, asking whether those companies which are more compliant with the Code perform better than those that are less compliant. It does so by developing a non-compliance index for a panel of companies which are constituents of the FTSE 350 from 2000 to 2003. The approach used is similar to that of Gompers, Ishii and Metrick (2003), and Klapper and Love (2002) in the US, who use sets of governance structures rather than single measures in their research on the governance/performance link.

Researchers increasingly suggest that the governance/performance link is endogenous, but often the endogeneity is assumed rather than explicitly tested (e.g. Agrawal and Knoeber, 1996; Weir, Laing and Mcknight, 2002). We find that the non-compliance index is exogenous, and that greater non-compliance with the Code implies lower total shareholder returns in our sample of companies.

The rest of the paper is organized as follows: section 2 reviews the literature on governance and performance, section 3 discusses the data, the sample and the development of the non-compliance index, henceforth called the Index, section 4 presents the Index and sample analysis, section 5 presents the empirical results, whereas section 6 checks the robustness of these results. This is followed by a discussion in section 7 and section 8 concludes the paper.

2.0 Governance and performance: the elusive link

Following the implications of agency theory, researchers in both the US and the UK have attempted to establish the link between various measures of governance and firm performance/value.

One important theme of this research has been the study of the link between ownership structure and firm performance. Morck *et. al.* (1988) and McConnell and Serveas (1990) using Tobin's Q as a measure of firm performance, find an overall non-linear relationship between ownership structure and firm performance in listed companies in the US, with management being aligned with shareholder interests at relatively low and high equity levels with signs of entrenchment at the intermediate levels (although the levels of equity ownership leading to alignment and entrenchment differ in the two papers: Morck *et. al.* finding alignment below 5% and above 25% levels of ownership and McConnell and Serveas reporting alignment up to 40%-50%). Both studies use Tobin's Q measured as the estimated market value of the firm (total assets) divided by its estimated replacement cost, to measure performance.

Results from studies in the UK however are inconclusive, as some researchers, for example Short and Keasey (1999) find results similar to those of Morck *et. al.* in the US, that is a non-linear relationship with alignment occuring at above 12% as against Morck et. al.'s 5%. On the other hand, Faccio and Lasfer (1999) and Weir, Laing and McKnight (2002) do not find any association between ownership structure and firm performance. The results however seem to be sensitive to the measure of firm performance chosen. The non-linear relationship between ownership and performance is found when performance is measured by the market to book value of equity; while no such relationship is found when performance is measured by the market to book value of assets.

Another central topic of research on the governance/performance link has been the relationship between board characteristics and firm performance. According to agency theory, the board plays the pivotal role in mitigating the agency problems that exist in public corporations, by exercising its monitoring and decision control activities over the functioning of the top management (Jensen and Meckling 1976; Fama, 1980)

These functions of the board have, over the last decade or so, become more systematised through the institutionalisation of various board committees, namely the audit, remuneration and nomination committees. To perform their monitoring and decision control roles effectively, these committees are expected to be composed mainly of directors "independent" of the company, called simply independent/outside directors in the US, and non-executives in the UK; their actual 'independence' being a separate matter.

Consequently most research in this area, both in the US as well as in the UK, has attempted to establish the link between various board characteristics and firm performance. Studies on the subject, however, have so far produced inconclusive results.

Hermalin and Weisbach (1991) and Bhagat and Black (1999) in the US, for example, find no significant relationship between board characteristics and firm performance. Some studies however, for example Rosenstien and Wyatt (1990) find a favourable stock market response to the announcement of the appointment of outside directors on the board as evidenced by a positive excess return around the announcement time.

Following the focal attention given by the Cadbury Report of 1992 to the board's role in improving the governance of companies in the UK, a number of researchers have attempted to establish the link between 'improved' governance in companies following compliance with the Cadbury recommendations and firm performance. The results are largely inconclusive. Vafeas and Theodorou (1998), for example, conduct a cross sectional regression analysis of firm value on certain aspects of the boards in UK, namely, the proportion of non-executive directors on the board, board stockholdings, chairman/CEO role split, and proportion of non-executive directors on board sub-committees for 250 large publicly traded firms in the UK for 1994. They find no significant relationship between any of these variables and firm value as measured by the market to book value of total assets, which they use as a proxy for Tobin's Q. Similar results are also found by Weir, Laing and McKnight (2002), who conduct a cross-sectional analysis of 311 UK companies for 1996, to investigate the relationship between company performance and a set of corporate governance mechanisms including board structure variables. Specifically, the researchers investigate the relationship between the Q ratio (measured as market capitalisation plus total debt divided by total assets) used as a measure of firm performance, and six governance mechanisms, namely, board structure variables (duality, presence of audit committee, percentage of non-executives, and percentage of independent non-executives), incentive (managerial) shareholdings, takeover probability by sector, quality of audit committee, audit committee structure, and leverage. They control for the size of the firm, which they expect to be negatively related to performance based on Fama and French (1992) and for capital expenditure, which according to them is a measure of potential future returns. They do not find any significant cross-sectional relationship between their measure of performance and their governance variables including board variables. However, they do point out a number of caveats in their study, including their imprecise measures of certain board variables including the independence of the non-executive directors.

One important reason hypothesised by some researchers for the apparently insignificant relationship between various governance-related variables and firm performance, is the potentially endogenous nature of the relationship between the two, with the implication that if the governance mechanisms are optimally chosen, a lack of significant relationship between governance variables and firm performance in a carefully specified regression simply denotes that the system is in equilibrium.

Early proponents of such potential endogeneity are Agrawal and Knoeber (1996) in the US, who in their study have hypothesised that the link between various governance mechanisms such as insider shareholdings and firm performance measured by Tobin's Q may be endogenous with causality running both ways, i.e. higher insider shareholdings may lead to better firm performance; conversely better firm performance, may lead to

insiders holding a larger number of the company's shares (perhaps as a consequence of the reward for better performance). Hence, finding no significant relationship between various governance mechanisms and firm performance in a carefully specified cross-sectional regression would simply signify that the companies are in equilibrium with respect to their governance choices.

A notable caveat of Agrawal and Knoeber's (1996) study, however, is that they *a priori* assume endogeneity, without specifically testing for whether any particular governance variable is actually endogenous. Furthermore, even if their assumed variables are endogenous, Bohren and Odegaard (2003) question the validity of their choice of instruments, in the absence of any sound theoretical or methodological basis guiding such choice. These criticisms are supported by the fact that the relationship between the number of outside directors on the boards and firm performance remains significant in their sample of 400 large US firms, in both a carefully specified cross-sectional regression as well as within a simultaneous framework.

Subsequent to the work of Agrawal and Knoeber (1996), researchers in the UK have also tested for the potential endogeneity of the relationship between governance mechanisms and firm performance. Again, a major problem with these studies is that the endogeneity of the variables of interest is *a priori* assumed, without testing whether a particular variable is actually endogenous. Hence, Vafeas and Theodorou (1998) simply assume the variables they suspect to be endogenous and proceed using techniques suitable for handling endogenous variables. Assuming that the lack of significance of the relationship between firm value and their two important explanatory variables, namely director ownership and percentage of non-executive directors on the board in an OLS regression, could be driven by endogeneity, the researchers further test the relationship between these variables and firm value using 2SLS technique. While still being insignificant, the fact that the signs on both of the explanatory variables change under the 2SLS technique points to the instability of their results. This also casts doubt on their endogeneity assumption as well as on the validity of their testing methodology. The direct testing for endogeneity and the use of appropriate instruments if endogeneity is present, thus becomes crucial in research in the field of corporate governance.

Weir, Laing and Mcknight (2002) also test for the potential endogeneity between their governance variables and performance measure, by using a lag of the dependent variable in their model. However, they themselves point out the inadequacy of their testing methodology which they attribute to data constraints, and they too like others before assume endogeneity without specifically testing for it. The issue of potential endogeneity between governance related variables and firm performance, thus remains an open question especially in the context of industrialised countries including the UK.

2.1 Do companies choose governance mechanisms as a set?

Following Danielson and Karpoff (1998) in the US, who found that firms tend to use certain governance provisions such as supermajority vote requirements, classified boards and shareholder meeting requirements in concert, researchers have recognized that firms

tend to choose governance mechanisms as a set. Consequently, a number of the most recent studies have constructed indices incorporating the firms' governance choices and then attempted to study the link between these indices and firm performance.

One notable study is by Gompers, Ishii and Metrick (2003) who use a large set of governance provisions to construct a firm-level governance index to proxy for the strength of shareholder rights. Using the data derived from the publications of the Investor Responsibility Research Centre, the researchers develop the governance index (G), which signifies the presence of provisions that reduce shareholder rights. There being 24 such unique provisions, the higher the points received by a firm, the lower the shareholder rights in that firm.

The researchers 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% per year than those in the highest decile of the index signifying firms with the weakest shareholder rights.

In the search for industry and firm specific factors influencing the choice of governance mechanisms, Gillan, Hartzell and Starks (2003) develop four indices: one each for board characteristics, corporate charter provisions, state of incorporation, and an overall index. Their results suggest some correlation between industry and firm characteristics and board structures. Overall, their results support a positive relationship between higher board monitoring and greater industry growth opportunities and a negative relationship between board index and product uniqueness, implying that industries with unique products are less likely to have high board monitoring. They also find that industries with greater financial leverage have less restrictive governance structures. In terms of firm specific factors, although these generally lack significance in explaining governance choices, the researchers find that older firms appear to have stronger board structures, implying that firm age may also matter in terms of the choice of governance mechanisms adopted by a firm.

A recent study using the index approach in an emerging markets context, is by Klapper and Love (2002) who, using the data set developed by Credit Lyonnaise Securities Asia (CLSA) on corporate governance rankings for 495 firms across 25 countries and 18 sectors, investigate the relationship between governance and firm performance. The researchers find that good governance is positively correlated with market valuations (Tobin's Q) and operating performance (ROA) especially in countries with weaker legal systems.

A more recent study adopting an approach quite similar to the one undertaken in this work is by Black, Jang and Kim (2005), who develop a comprehensive corporate governance index for a cross section of 515 firms listed on the Korean Stock Exchange. Using the instrumental variables approach and testing directly for the endogeneity of their index, the researchers do not find evidence of endogeneity in their governance index, which is found to be significantly positively correlated with higher firm value. No such relationship is however, found for the accounting measures of performance. In line with

the approach of this study, the researchers attribute the strength of their work to their use of a comprehensive set of governance provisions including those related to the board in the development of their governance index.

In sum, the use of indices in evaluating a firm's choice of governance structures has become a popular methodological approach as increasingly companies around the world are required to comply with a comprehensive set of governance-related recommendations put forward by their respective regulatory bodies. The relationship between 'improved governance' as reflected by higher compliance and firm performance, thus, becomes an important topic of research. This is the central issue examined in this study.

With the introduction of compliance with the Code in the UK as one of the requirements for the listing of companies, it makes sense to look at the relationship between firms' sets of governance choices as reflected by their compliance with different elements of the Code and firm performance rather than studying these relationships in terms of isolated elements of compliance. This study therefore adopts the index approach to studying compliance, with the focus on compliance in respect of the recommendations related to the board, the main internal governance mechanism in public companies. To account for the impact of other governance-related variables which may affect firm performance, the study also incorporates board size, internal and external block shareholdings, firm size and leverage as additional explanatory variables.

The foregoing review of the literature also suggests a number of other issues that remain unresolved by current research on the link between governance measures and firm performance. First, previous research findings suggest that the link between various governance measures and firm performance may be sensitive to the choice of performance measure used. One could hypothesize that a possible reason for not finding a significant relationship between governance variables and firm performance could be that most extant research on the subject uses performance measures which are more historical/cost based - Tobin's Q or its various proxies use measures of book value/replacement cost of assets as the base in firm value measures. These measures may not be able to capture adequately the impact of improvement in governance on performance, which is likely to be reflected more in current, market based measures of performance such as total shareholder return (TSR). This study accordingly uses TSR as the main measure of firm performance, while also testing for the link between accounting measures namely return on assets (ROA) and return on equity (ROE) and compliance.

Second, whereas theoretically many of the firm's governance choices are assumed to be endogenous, many empirical studies assume away the endogeneity, without specifically testing whether any particular governance mechanism is actually endogenous. This study addresses this issue directly, by specifically testing whether the Index is endogenous.

The study is also the first to employ a comprehensive, reliable and detailed set of panel data in the UK context. Researchers have pointed to the lack of adequate and comprehensive data set as one of the important factors constraining meaningful research in the field of corporate governance (Bohren and Odegaard, 2003).

3.0 Data, sample and the development of the index of non-compliance

Data on corporate governance variables are readily available in the US, thanks to data bases such as those of Institutional Shareholder Services (ISS) and Disclosure Incorporated. No comparable datasets however, are available for UK companies. Consequently, all of the data used in the development of the index of non-compliance comes from the annual reports of the individual companies.

The Index has been developed for those companies which have been constituents of the FTSE 350 index for each of the four years (2000-2003 inclusive) of the study. Financial companies and utilities have been excluded as these companies need to follow additional regulations and have therefore also been excluded from previous work. Moreover, to make the panel balanced, only those companies which have been part of the FTSE 350 index for all of the four consecutive financial years have been included in the panel. This obviously does create a survivorship bias in the data set, but at the same time allows us to observe the changes in compliance for different firms over time. Based on the availability of complete data for all the variables used in the study, the final sample consists of 478 companies: 122 for 2003; 121 for 2002; 121 for 2001; and 114 for 2000. Although an attempt has been made to make the panel as balanced as possible, slight variation occurs in the number of companies within each year as well as within each industrial sector due to missing data for some companies in some years, mainly 2000.

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 required by the Code. Furthermore, while the letter of the Code states simply that the chairman of the board should not also be the company's CEO, it 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. In constructing the index, compliant firms are those whose chairman is an independent non-executive.

A new version of the Code was introduced in 2003. This version defines non-executive director independence more elaborately than the earlier version. According to the new version, directors are considered to be independent, if: they have not previously been an employee of the company; have no family or business link with it; do not hold any cross directorships; do not represent any significant shareholder; and have not been on the board for more than nine years. We have chosen to use this criterion in the construction of the Index because, like the provision regarding the chairman, it reflects the spirit of the 1998 Code.

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, to whom concerns can be conveyed, (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 i.e. 1 point for non-compliance with each aspect of the Code, avoiding making value distinctions in compliance with different recommendations. An added benefit of this approach is that it avoids any sample-specific bias in the development of the Index, which may render the results of this study incomparable with the results of any future work using different samples and different weights for different elements of compliance.

4.0 Index and sample analysis

Table 1 below presents the descriptive statistics on the Index for each of the four years of the study.

Table 1
Descriptive statistics for the Index

Index	**2003**	**2002**	**2001**	**2000**
Mean	1.479339	1.090909	1.690265	2.094737
Standard Error	0.146163	0.120261	0.130689	0.171335
Median	1	1	1	2
Mode	0	0	1	1
Standard Deviation	1.607789	1.322876	1.389242	1.669971
Sample Variance	2.584986	1.75	1.929994	2.788802
Kurtosis	1.570356	2.772638	-0.63326	0.960563
Skewness	1.322358	1.60914	0.532959	0.868986
Range	7	6	5	8
Minimum	0	0	0	0
Maximum	7	6	5	8
Sum	179	132	191	199
Count	122	121	121	114

In terms of the pattern in the distribution of the Index means over the four years, it can be seen that the Index has the highest mean (2.09) in the year 2000, and has gradually fallen over the next two years, suggesting that the firms were becoming more compliant over

this period. This trend is further supported by the value of the mode going from 1 to 0 in the years 2002 and 2003. The Index mean however rises again in the year 2003, a trend which warrants further investigation as carried out below.

Table 2 below sheds light on how the Index has varied for the different firms in the sample for different years. These trends ignore missing values for any firm for any given year, taking into account only the overall trend for the firm.

Table 2
Trends in the behaviour of the Index over time (2000 to 2003)

Trend	Number of Firms	% of the Total
Increasing	11	8.8
Decreasing	22	17.6
Stable	15	12.0
Variable	77	61.6
Total	125	100

As the above table indicates, twice as many firms have become more compliant than less compliant over the period 2000 to 2003, but the largest share is of the firms whose ratings have varied over the four year period. Table 3 below, therefore, presents a closer look at the trend in the variation of the Index for different firms for different years.

Table 3
Year-on-year change in the Index for different firms for different years

Change in the Value of the Index in Any Year	Number of Firms	% of the Total*
Increase by 1 point	110	88.0
Increase by 2 or more points	73	58.4
Increase by 3 or more points	38	30.4
Increase by 4 or more points	13	10.4

* The percentages do not add up to 100, due to overlaps in the firm numbers in different categories. The total number of firms is 125.

As the above table indicates, of the total 125 firms, 110 that is, 88% of the firms have experienced a change in their Index value by 1 point in any given year, which suggests that such changes are common and probably reflect routine adjustments to the board. However, a sizeable portion of the firms, 51 out of 125 that is about 41%, have experienced a year-on-year change in their Index value of 3 or more points. Given that the number of firms having stable values over the four years (15) is quite similar to the number of firms experiencing significant variation in their values, four points or more (13), it was considered worthwhile to examine more closely if there were any significant differences in the characteristics/circumstances of the two sub-sample of firms.

A more detailed analysis of the firms having stable ratings revealed that although the firms belonged to diverse industrial sectors, most had enjoyed positive stable growth in their profitability over the years with relatively low levels of acquisition and/or sale activity, concentrating more on internal expansion and organic growth.

Contrary to this group, firms having significant jumps in their Index values (4 points or more) were characterised by significant changes in the company's circumstances around the period of the jump. Of the 13 companies in this group, 2 had undergone mergers, 6 had engaged in major acquisitions and disposal of assets including major internal restructuring, with 5 of these experiencing declining profitability around these periods. 3 others had a change in the CEO, while 2 had a change of chairman around the period of the jump. For 1 firm nothing significant appeared to have happened except that the firm experienced declining profitability in the year preceding the jump (increase) in the Index value. It is important to note however, that in general the jump was likely to be in either direction, with Index value increasing or decreasing after a significant change in the firm's circumstances, as 7 of the 13 firms experienced a decline while 6 experienced an increase in the Index values. It is worth noting though that in the case of CEO change, for two companies the Index value declined substantially after the change, suggesting that newer CEOs may tend to move towards compliance (support for entrenchment hypothesis). Industry concentration also appears to be a relevant factor in explaining jumps, as 3 of the 13 firms belonged to the media and entertainment business, 4 to the category of general retailers and 2 belonged to the category of mining and mineral extractors.

The above findings suggest that the behaviour of the Index appears to correlate to some extent with the industrial sector to which a firm belongs. It would be interesting then to observe the sectoral trend in the Index, as presented below, based on the industries being classified according to the 2-digit FTSE Global Industrial Classification System. As can be seen from table 4, the Index means while showing a declining trend for most industrial sectors over the period 2000 to 2002, have registered a substantial increase in 2003 over the previous year, particularly for certain sectors including the food and drug retailers (101.5%), media and entertainment (47.6%), pharmaceutical and biotechnology firms (278%), and construction and building materials (432%).

Table 4

Sectoral trend in the Index

Industry Classification	Index Mean Values			
	2003	2002	2001	2000
Software and Computer Services	2.7(4)	2.5(4)	3.5(6)	3.5(2)
Information Technology Hardware	3.0(2)	3.0(2)	1.0(2)	2.0(2)
Oil Integrated	2.0(3)	0.0(0)	1.5(2)	3.0(1)
Telecommunication Services	1.0(2)	0.5(2)	1.0(2)	1.5(2)
Food &Drug Retailers	1.3(3)	0.6(3)	1.0(3)	1.6(3)
Transport	0.7(13)	1.1(13)	2.1(12)	2.1(13)
Support Services	1.3(8)	1.2(8)	1.8(8)	2.2(10)
Media & Entertainment	2.7(8)	1.8(14)	2.1(15)	2.9(16)
Leisure & Hotels	0.7(9)	1.3(9)	1.9(9)	2.2(8)
General Retailers	1.6(13)	1.0(13)	1.4(13)	1.9(13)
Tobacco	0.0(0)	2.0(1)	2.0(1)	0.0(0)
Pharmaceuticals & Biotechnology	2.5(6)	0.6(6)	1.6(6)	1.6(6)
Personal Care & Household	0.0(1)	1.0(1)	1.0(1)	2.0(1)
Health	0.0(2)	0.0(2)	0.0(2)	1(2)
Food Producers & Processors	0.7(4)	1.5(4)	2.6(4)	1.2(4)
Beverages	0.3(3)	0.3(3)	1.0(4)	1.3(3)
Automobiles and Parts	1.0(1)	0.0(1)	2.0(1)	3(1)
Engineering & Machinery	0.7(7)	0.1(7)	1.3(6)	1.6(8)
Electronic & Electrical Equipment	1.0(1)	0.0(1)	1.0(1)	1.0(1)
Aerospace & Defence	1.8(5)	1.0(5)	1.7(4)	2.1(6)
Steel & Other Metals	1.0(1)	0.0(1)	2.0(1)	1.0(1)
Forestry & Paper	0.0(0)	1.0(1)	1.0(1)	1.0(1)
Construction & Bldg. Materials	1.7(14)	0.8(13)	2.2(14)	2.6(17)
Chemicals	1.3(3)	0.2(4)	1.5(4)	1.5(4)
Mineral Extractors & Mines	1.2(4)	0.5(4)	1.5(4)	4.1 (6)

The figures in the brackets indicate the number of firms in that sector in that year.

A closer examination of the firms in two of these sectors, the first being the pharmaceuticals and biotechnology sector, where the number of firms has remained the same over the four years and the second being the media and entertainment sector, where the number has almost halved in 2003, reveals that firms in both these sectors have been characterised by significant acquisition and/or restructuring activities in the year 2002, a time when the stock market was at its lowest point for the period covered. Based on this finding and the evidence relating to the jumps in Index values in general, one can draw a tentative conclusion that acquisition and/or restructuring activities in 2002 may be a potential reason why firms' index means have risen in 2003. These changes however, may represent a temporary disequilibrium and the firms may revert to their lower Index values as they return to stability.

Another interesting observation from table 4 is the systematically high Index means for some industries for all four years, such as the IT-related industries and those in the media

and entertainment industries. The study by Demsetz and Lehn (1985) on the distribution of corporate ownership in the US, finds that ownership of the firms in the media and entertainment industries tends to be more concentrated. A finding which these researchers consider to be consistent with the hypothesis that the "amenity potential", by which they mean the ability to draw utility from the ownership of the firm simply by being able to control it and run it according to one's own preferences and taste, is higher, in such firms.

Hence in firms having higher 'amenity potential,' ownership may be more concentrated in the hands of families and individuals, since the greater is their control, the higher is the amenity potential/utility to be drawn from such firms. IT firms such as Microsoft (owned by Bill Gates), and media companies, Daily Telegraph and Hollinger International (Lord Black, former owner) are classic examples of such firms. The systematically high means of the Index for firms in the IT-related industries coupled with the high incidence of significant director shareholdings in these firms (2 out of 5 firms in this sector had director shareholdings above 3%) provide some support for the entrenchment hypothesis, that is firms having high director shareholdings may be less compliant. Whether less compliant firms also experience lower firm performance, is the key question which we address later.

Table 5

Descriptive statistics for all variables used in the analysis

Variable	Mean 2003	Std. Dev. 2003	Mean 2002	Std. Dev. 2002	Mean 2001	Std. Dev. 2001	Mean 2000	Std. Dev. 2000
Dependent								
TSR %	33.68	44.91	-21.91	25.61	1.09	33.9	5.76	33.44
ROA %	9.78	8.73	6.88	14.59	5.93	21.57	7.92	10.45
ROE %	4.50	98.9	14.71	34.67	18.18	42.36	21.37	58.41
Explanatory								
Index	1.49	1.6	1.09	1.32	1.75	1.48	2.21	1.84
Board size	10.01	2.3	10.32	2.46	10.23	2.57	10.52	2.61
Total Sales	4909.1	13929.6	3236.9	4236.6	3561.3	5074.3	3313	4948.5
Debt to Asset (Ratio)	0.24	0.17	0.25	0.16	0.22	0.15	0.20	0.14
Debt to Equity %	40.33	1356.80	125.23	289.49	101.37	224.74	21.37	58.41
Block Holdings %	28.89	16.4	29.09	17.25	24.81	16.32	24.45	16.31
Director Holdings %	2.82	9.89	2.95	10.79	3.41	11.27	2.84	10.10
Firm Age	47.98	36.90	45.27	36.59	47.61	58.78	46.53	36.31
Market to Book(Equity)	5.29	14.64	-2.13	46.78	5.93	21.57	4.64	9.60

In addition to the Index a number of other variables which may affect firm performance have been used in establishing the relationship between firm performance and the Index. Data on these variables has been obtained from different sources, including the Waterlow

Stock Exchange Yearbooks (for data on director and other block shareholdings); from Datastream (for all financial data on the firms) and the company annual reports for the data on board size. Table 5 above presents the descriptive statistics for all the variables used in the following analysis.

As can be seen from table 5, TSR has been the highest in the year 2003. This appears to be because the market has been falling during the years 2000, 2001 and 2002, leading to a declining TSR over these years, with the TSR actually becoming negative in 2002. The market appears to have made a substantial recovery in the year 2003, leading to a substantial rise in the TSR for the year. Consistent with the explanation for the trend in the TSR, the ROE has continued to fall over the four years. ROA has also been low in the years 2001 and 2002, but has risen considerably in the year 2003, consistent with substantial rise in total sales for the year, as the market recovered.

In terms of governance related variables, average board size is more or less the same over the years (about 10 members), as are the average block holdings of shares. Director holdings of shares are also similar over the years, except for 2001 when they have shown a significant increase, rising from 2.84 to 3.41 percent of total shares outstanding, registering a 20% increase in total director holdings over the previous year. The rise in director shareholdings in 2001 over 2000 could have been motivated by the higher average return on equity in 2000 (21.37%), encouraging directors to invest more in the shares of the company or simply because as the market was falling over the period, it may have been a good time to buy the shares.

5.0 Link between corporate governance and firm performance: empirical analysis

We now investigate the link between compliance with the Code and measures of firm performance. Prior evidence in the UK (Vafeas and Theodorou, 1998; Weir, Laing and McKnight, 2002) suggests the link to be either non-existent or at best weak. However, most of the earlier studies have used a proxy of Tobin's Q (most commonly, market value of equity plus book value of debt to book value of total assets) as the main measure of firm performance.

Given that one of the most important reasons for introducing the Code in the UK was to help restore investor confidence following the shake up of the 1980s, one could argue that the main impact of the perceived improved governance in the firms following the adoption of the Code's best practice would be on the market value of the firms. Hence the link between improved governance and firm performance would be best captured by a measure of firm performance which provides a good reflection of market value.

Total shareholder return (TSR) defined as the sum of capital gain and dividend yield, is a good candidate for measuring current market performance of the firm, as contrary to Tobin's Q or its oft used proxy, market to book value of assets, it better incorporates elements of current market value (both capital gain as well as dividend yield use market price of the share as the base in the calculations). The often used proxy of Tobin's Q that

is, the market value of equity plus the book value of debt divided by the book value of assets is more a historical accounting based measure of performance. TSR is also the main measure used by firms themselves to gauge their own performance and for setting management compensation. Hence, the main variable of interest in measuring performance in this study is the total shareholder return (TSR). However, the relationship between the Index and two accounting measures of performance, namely Return on Assets (ROA) that is, 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, is also explored in order to investigate whether improved governance as reflected by higher compliance also translates into better operating performance.

Accordingly, the full model we test is the following:

$$\textit{Firm performance} = \beta_1\ \textit{index} + \beta_2\ \textit{board size} + \beta_3\ \textit{size} + \beta_4\ \textit{leverage} + \beta_5\ \textit{block holdings} + \beta_6\ \textit{director holdings} + \textit{year dummies}\ (\beta_7 y1 + \beta_8 y2 + \beta_9 y3 + \beta_{10} y4) + \varepsilon$$

In the above model, firm performance stands for all the measures of performance, namely the TSR, ROA and ROE. Given the nature of the Index, being a measure of non-compliance, one would expect to find a negative relationship between the Index and each measure of firm performance.

The model includes other potential governance-related variables namely board size, block holdings and director shareholdings, while controlling for leverage and the size of the firm - other variables which may affect firm performance.

Starting with Yermack (1996), a number of researchers including Eisenberg *et. al.* (1998) have investigated the relationship between board size and various measures of firm performance. The negative relationship between performance and board size has become one of the few empirical regularities observed in the research in the field of corporate governance. Consequently we expect a negative relationship between board size and all measures of firm performance in our analysis.

According to agency theory managerial ownership is an important governance-related variable, whose relationship with firm performance/value has been extensively investigated in the US as well as in the UK. As mentioned earlier, prior evidence in the UK has been inconclusive. The current study further explores this relationship by including director share ownership above 3% (cumulative), as a control. Given the nature of the previous UK evidence the relationship between director shareholdings and firm performance remains an open question.

Block holders other than directors include the institutional shareholders who make up between 65%-75% of ownership of large listed companies in the UK (Dedman, 2002), as well as other block holders holding stakes above 3%. Although the Code in the UK calls for institutional shareholders to play an active role in corporate governance, prior evidence on the impact of institutional shareholdings on firm performance in the UK is found to be generally insignificant, but mixed. Whereas Short and Keasey (1999) find a

statistically insignificant but positive relationship between institutional shareholdings and firm performance, Weir, Laing and McKnight (2002) report an insignificant negative relationship between the two. The two studies however use different measures of firm performance. The American and other international evidence generally suggests that the costs of monitoring by institutional shareholders exceed the benefits (Agrawal and Knoeber, 1996; Gillan et. al. 2003; Bohren and Odegaard, 2003). If one is to go by most of the prior UK and US evidence, one would expect to find a generally insignificant but negative relationship between block holdings including institutional shareholdings and the market measures of firm performance, although the relationship with accounting measures, if any, remains an open question.

Size and leverage are two other measures often related to firm performance. We use total sales as a measure of size, and the ratio of total book value of debt to total book value of assets as a measure of leverage. Based on prior US as well as UK evidence, (Fama and French, 1992; Vafeas and Theodorou, 1998; Weir, Laing and McKnight, 2002) size is expected to be negatively related to the market measure of performance namely TSR, whereas it is expected to be positively related to the accounting measures, as controlling for other factors, the higher the firm's sales, the higher the return on assets and also the return on equity.

Theoretically speaking, the relationship between leverage and firm performance could be either negative or positive depending on the type of firm, particularly in terms of its investment opportunities. Jensen (1986) argues that for firms with high free cash flows and low investment opportunities, debt can help limit the "overinvestment problem" by forcing companies to pay out the higher free cash flows in the form of higher interest payments, thus suggesting a positive relationship between debt and firm value. Contrary to this, Jensen and Meckling (1976) and Myers (1977) argue that highly leveraged firms may forego good investment opportunities due to the debt overhang problem, creating the agency cost of debt and thus implying lower firm value. Moreover, Jung, Kim and Stulz (1996) suggest that firms with good investment opportunities (and by implication higher values) may prefer to use more outside equity than debt. Most international empirical evidence supports the latter two propositions in terms of the relationship between debt and various measures of firm performance, both market based as well as accounting, (Agrawal and Knoeber, 1996; Short and Keasey, 1999; Booth *et. al.* 2001; and Weir, Laing and McKnight, 2002). Consistent with prior evidence, we expect a negative relationship between leverage and all measures of firm performance.

As the study uses pooled cross section time series data, year dummies are included in all specifications to capture the effect of variation in time.

Table 6 below shows the results of the initial analysis. The Index is significantly negatively associated with TSR, although no significant relationship is found for the accounting measures of firm performance. In the case of ROA, the relationship although insignificant is still negative. These results are generally consistent with our earlier stated argument that compliance with the Code is essentially a means of signalling to the investors that companies are following good governance practices and by implication,

working in the interests of the shareholders. The impact of such favourable perception by the investors is likely to fall more on the market valuation of the companies than on accounting returns.

TABLE 6

Regression estimates of the full model for all dependent variables

Explanatory	**Dependent**	**Dependent**	**Dependent**
	TSR	ROA	ROE
Index	-2.09**	-0.32	0.71
	(-2.01)	(-0.75)	(0.38)
Board size	-0.37	-1.15***	-1.95
	(-.54)	(-4.05)	(-1.57)
Size	-0.33E-4	0.14E-4	0.23E-4
	(-1.58)	(1.69)	(0.61)
Leverage	-4.51	-10.23***	-67.85***
	(-0.44)	(-2.45)	(-3.73)
Block Holdings	-0.06	-0.02	-0.03
	(-0.60)	(-0.65)	(-0.18)
Director Holdings	-0.11	-0.02	0.20
	(-0.73)	(-0.40)	(0.72)
Y1/2003	45.42***	24.44***	38.85***
	(5.52)	(7.22)	(2.63)
Y2/2002	-11.39	22.10***	50.86***
	(-1.35)	(6.36)	(3.35)
Y3/2001	12.75	20.84***	51.61***
	(1.54)	(6.13)	(3.48)
Y4/2000	18.23**	23.08***	53.53***
	(2.14)	(6.61)	(3.51)
R-Squared	0.25	0.06	0.04
R-Bar Squared	0.24	0.04	0.03
No. of Observations	478	478	478

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

In terms of the other explanatory variables in the above regressions, the results are broadly consistent with *a priori* expectations. In line with the findings of Yermack (1996) and many subsequent studies, board size is found to be inversely related to accounting measures of firm performance, with high level of significance with the ROA, but not significantly related to market returns. 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 which would in turn affect operational efficiency of the firm.

Size in terms of total sales, although insignificant in all of the above models, is positively related to accounting measures of return. This is expected given that the higher are the sales, the higher is the level of book returns, keeping other factors constant. The insignificant but negative relationship of size with TSR suggests that managers are perhaps over investing in their firms, letting them grow in size and sales above the optimal level as viewed by investors.

The negative relationship of leverage with all measures of firm performance is consistent with previous empirical findings (Weir, Laing and McKnight, 2002; Vafeas and Theodorou, 1998; Agrawal and Knoeber, 1996). The relationship however is found to be

significant only with respect to the accounting measures of profitability, 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.

Although lacking overall significance, the negative relationship of both block shareholdings and director shareholdings with TSR as well as ROA, is consistent with *a priori* expectations and previous empirical findings. It appears that if at all, higher institutional shareholdings as well as higher director shareholdings lead to greater agency costs than benefits for the firm. In terms of the relationship with ROE, although insignificant, director shareholdings are positively related. This is consistent with the earlier analysis of table 5, wherein we suggest that rising director shareholdings in the years 2002 and 2003 could be motivated by rising ROE for these years.

Given the overall lack of significance of the relationship between the Index and both the accounting measures of firm performance, and the low overall explanatory power of these regressions, all subsequent analysis relates specifically to the relationship 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 (LSE) general to specific approach and see how the dropping of insignificant variables affects the results.

TABLE 7

Additional models. Dependent variable is the TSR.

Explanatory	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Index	-2.13**	-2.12**	-2.12**	-2.29**
	(-2.05)	(-2.05)	(-2.05)	(-2.24)
Board size	-	-	-	-
	-	-	-	-
Size	-.37E-4*	-.37E-4*	-.36E-4*	-.34E-4
	(-1.88)	(-1.86)	(-1.82)	(-1.76)
Leverage	-4.79	-	-	-
	(-0.47)	-	-	-
Block Holdings	-0.05	-0.06	-0.06	-
	(-0.59)	(-0.67)	(0.69)	-
Dir. Holdings	-0.11	-0.10	-	-
	(-0.71)	(-0.69)	-	-
Y1/2003	41.89***	40.87***	40.73***	38.80***
	((8.23)	(8.87)	(8.85)	(10.62)
Y2/2002	-15.12***	-16.17***	-16.34***	-18.29***
	(-3.04)	(-3.63)	(-3.68)	(-5.32)
Y3/2001	9.09*	0.14*	7.96*	6.35*
	(1.87)	(1.84)	(1.81)	(1.70)
Y4/2000	14.47***	13.62***	13.56***	12.00***
	(2.91)	(2.94)	(2.92)	(2.96)
R-Squared	0.25	0.25	0.25	0.25
R-Bar-Squared	0.24	0.24	0.24	0.24
No. of Obs.	478	478	478	478

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

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 7.

As can be seen from the above 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 relationship between the Index and firm performance. However, the dropping of insignificant variables does create the problem of heteroscedasticity in the regressions, due to the omission of relevant variables, which we address in the section below.

6.0 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 relationship 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 7 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. Addition of this variable also corrects for the problem of heteroscedasticity observed due to the omission of significant explanatory variables. Second, following Yermack (1996), we add firm age as a control. Market to book value of equity is another measure which partly reflects the growth opportunities available to a firm. So we also test the relationship of this variable with firm performance. Finally, following Vafeas and Thoedorou (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 8 show only those industry dummies found to be significant.

Table 8 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 7, we only add ROA to the base model which we retain in model 2 as it is significant at 1% level. Addition of ROA also corrects for the problem of heteroscedasticity created due to omission of significant explanatory variables. 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 stays 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 relationship 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 relationship with our measure of firm performance.

TABLE 8

Results from models incorporating additional controls

Dependent variable is the TSR.

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 Obsv.	478	478	478	478

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

The persistent significance of the Index in all model specifications, lends support to our *a priori* expectations, which are also consistent with the assertion of Bohren and Odegaard (2003) that most governance mechanisms tend to be independent (exogenous) and can be analyzed individually in terms of their relationship with firm performance measures. In other words, the relationship of one mechanism with firm performance may not depend on that of the other. In the following section we directly test for the exogeneity of our Index, in order to confirm or otherwise, our *a priori* expectations.

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 relationship between governance and firm performance measures (Weir, Laing and McKnight, 2002. Alternatively, the lack of significance in a carefully specified system of equations supports the optimal choice hypothesis, with governance measures being optimally chosen by a firm (Agrawal and Knoeber, 1996).

Such an approach suffers from a number of methodological weaknesses. First, the *a priori* assumption of endogeneity is not valid, without any specific testing of whether any particular variable is actually endogenous. Second, even if endogeneity is found, dealing with it requires choice of appropriate instruments which 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, Jang and Kim, 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 relationship of interest in this study is that between the Index and firm performance, and given 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, as reflected by the difference in standard errors under the OLS approach and the instrumental variables approach used to control for endogeneity. In the absence of endogeneity, that is if the Index is exogenous, which one *a priori* assumes to be so, in view of the prescriptive nature of the Code, the standard errors under both approaches would be the same.

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 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 block holdings, since large block holders (mainly institutions) can also exert influence over the board structure and composition. Actions of CalPERS in the US, as well as recent news on the role of the institutional shareholders over appointments in the board, recently the Sainsbury PLC Case in the UK, are a few examples of the influence of block holders on board composition and structure. 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.

TABLE 9

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 Obsv.	478

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

As can be seen from the above table, 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 relationship of director shareholdings with compliance also lends support to the entrenchment hypothesis, considering that most significant shareholders among directors are generally the insiders.

TABLE 10

Step 2A: OLS regression of the TSR on its explanatory variables &
Step2B: Variable Addition Test (Wu-Hausman Test for Determining the Exogeneity of the Index)

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 (.332)
No. of Observations.	478	478

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

The low value of the F-statistic and its high p-value in model 2 in table 10 allow us to accept exogeneity of the Index. To further confirm the above result, we carry out an instrumental variables estimation of the relationship between the TSR and the Index. To carry out this estimation we use model 4 of table 7 as the base model. Since there are six explanatory variables in the model, we use six instruments, even though there is only one explanatory variable which is suspected to be endogenous: the Index. This would be a case of over-identification, which is acceptable. The instruments used need to be correlated with the Index. Since we have already found the Index to be significantly correlated with director share holdings as well as block holdings, we will use these along with four other variables as instruments. These being: board size; leverage; ROA; and a slope dummy on the Index for year 1.

Comparison of the results of the OLS and Instrumental Variables (IV) Estimation are presented in Table 11. Coefficients and standard errors are presented on the same line. T-ratios are in parentheses.

TABLE 11

Comparison of results from OLS and IV estimation. Dependent variable is the TSR.

Explanatory	**OLS**	**Instrumental Variables**
Index	-2.29**/1.02	-2.29**/1.02
	(-2.24)	(-2.24)
Size	-0.34E-4*/.19E-4	-0.34E-4*/.19E-4
	(-1.76)	(-1.76)
Y1/2003	38.80***/3.65	38.80***/3.65
	(10.62)	(10.62)
Y2/2002	-18.29***/3.43	-18.29***/3.43
	(-5.32)	(-5.32)
Y3/2001	6.35*/3.72	6.35*/3.72
	(1.70)	(1.70)
Y4/2000	12.00***/4.04	12.00***/4.04
	(2.96)	(2.96)
R-Squared	0.25	
R-Bar-Squared	0.24	
GR-Squared		0.25
GR-Bar-Squared		0.24
No. of Observations	478	478

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

As can be seen from the above table, the coefficients, their signs as well as their standard errors under both the OLS as well as the IV estimation technique are identical. This result not only further strengthens the exogeneity of the Index, but also implies that causality runs from the Index to firm performance rather than the other way round.

7.0 Discussion

One clear result that emerges from the preceding analysis is that compliance with the Code of corporate governance does matter for investors in the stock of large listed companies in the UK. This result contrasts sharply with previous research. There are however a number of reasons why the earlier research may not have been able to detect such a relationship. One possibility could be the choice of performance measure used. Earlier findings suggest that the governance-performance link tends to be sensitive to the choice of performance measure. Whereas certain governance mechanisms may have more of an impact on accounting based measures, others may be more relevant for market based measures (board size vs. managerial equity ownership, the former being more relevant for accounting returns, while the latter more so for market-sensitive measures). Previous relevant studies in the UK (Vafeas and Theodorou, 1998: Weir, Laing and Mcknight, 2002) have used a proxy for Tobin's Q (given by the market value of equity plus book value of debt divided by the book value of total assets) as a measure of firm performance. This measure using historical accounting based values in the denominator, may not be able to capture adequately the investors' perceptions of companies' governance structures. Total shareholder return (TSR) in contrast uses the market value of equity as the base in calculating both dividend yield as well as capital

gain and hence, is arguably better able to reflect the investors' perceptions of 'improved governance' in line with higher compliance.

Additionally, although the Index is not significantly correlated with the accounting measures of return, it is worth noting the correlation between the Index and the ROA and that between the TSR and the ROA. In line with the relationship with the TSR, the Index is insignificantly but still *negatively* correlated with the ROA, which in turn is significantly positively correlated with the TSR. This suggests that firms which are more compliant and tend to enjoy higher market returns also tend to be more profitable.

Another possible reason for the contrast with the findings of previous studies is the emphasis in this work on constructing a finely tuned and comprehensive measure of compliance with the board-related provisions of the Code. The Index developed in this study incorporates elements of compliance not only in terms of the letter but also in terms of the *spirit* of the Code, which aims to encourage a significant 'independent' presence on the board that can perform the monitoring function effectively. The Index developed in this study incorporates elements of board independence not captured by any of the previous studies in either the UK or the US. In the UK, Buckland (2001) and Weir, Laing and McKnight (2002) have pointed to the inadequate attention given to measuring board independence which constitutes a significant weakness in their work. Although directly comparable studies are not currently available for the US, studies such as those of Weisbach (1988) and Rosenstein and Wyatt (1990) suggest that outside directors can play a potentially positive role in the monitoring of the board of directors, and by implication in enhancing firm performance/value. Evidence of such a positive impact of the outside directors has also recently been reported by Black, Jang and Kim (2005), who find that listed Korean companies with 50% or more outside directors are valued more highly by the market as reflected by their Tobin's q.

The argument related to the importance of the independent element on the board in influencing investor perceptions is further strengthened by another interesting relationship that emerges from the preceding analysis - that between the Index and director shareholdings. The Index is found to be highly significantly positively correlated with the director shareholdings, suggesting that firms having significant director share holdings tend to be less compliant. However the Index is significantly negatively correlated with the TSR. Taken together, these findings support the entrenchment hypothesis, that is, firms having higher director shareholdings (which most often tend to be insiders) also tend to be non-compliant and perhaps suffer from greater agency costs, leading to lower total shareholder returns.

Finally, the study is the first in the UK context to test, in a methodologically sound manner, the potentially endogenous nature of the relationship between the Index and firm performance. Our results find no evidence of endogeneity of the Index. This finding raises concerns about the validity of studies which *a priori* assume the governance variables to be endogenous, with the ensuing implication that the lack of a significant relationship between various measures of governance and firm performance simply signify that the companies are in equilibrium with respect to their governance choices.

Our findings suggest that the Index is exogenous and the causality most likely runs from the Index to firm performance rather than the other way round.

8.0 Conclusion

In this paper we have developed an Index based on the level of non-compliance with the UK code of corporate governance by large industrial companies that are constituents of the FTSE 350 index. We have then investigated whether compliance matters for firm performance, including both market-based as well as accounting measures of performance. We find that there is a clear link between compliance and the market driven measure of firm performance, i.e., the total shareholder return (TSR), with increasing compliance leading to increasing total shareholder return in our sample of companies. No evidence of such a relationship is found, however, between compliance and the accounting measures of firm performance, return on assets (ROA) and return on equity (ROE). The results suggest that although compliance may not improve a firm's operating performance, it does improve investors' perceptions of the governance of companies, with the resultant impact on firm value. Given the nature of the Index, these findings also suggest, that for investors compliance matters not only with respect to the letter but also the spirit of the Code, who want to see it not just as a box ticking exercise but as a real change in the governance of large listed companies in the UK.

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