Internal and external governance mechanisms: their impact on the performance of large UK public companies

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ABSTRACT

This paper analyses the relationship between internal and external corporate governance mechanisms and the performance of UK companies within the context of the Cadbury Committee's Code of Best Practice. The results show, first, that the market for corporate control is an effective governance mechanism that may be regarded as a substitute for the other mechanisms. Second, there is a weak relationship between the internal governance mechanisms and performance. Third, there is also little evidence that with firms in the top and bottom performance deciles have different internal governance characteristics. The results therefore raise questions about the efficacy of imposing prescriptive internal governance mechanisms on companies, particularly given that the market for corporate control has been shown to be an effective means of reducing agency costs.

Keywords: corporate governance, internal and external mechanisms.

1. INTRODUCTION

The agency model proposes a number of corporate governance mechanisms that are designed to reduce the agency costs associated with the separation of ownership and control (Jensen and Meckling 1976, Fama 1980 and Fama and Jensen 1983). Their purpose is to align shareholder and manager interests. Governance mechanisms can be split into two categories, internal and external. Internal mechanisms include board structure variables such as duality and the proportion of non-executive directors, debt financing and executive director shareholdings. The key external mechanism is the market for corporate control, which acts as a mechanism of last resort, Jensen (1986a). The probability of replacement following acquisition provides a direct incentive for top management to perform well, (Martin and McConnell 1991 and Kennedy and Limmack 1996).

A number of recent reports into the governance of UK companies have focused attention on the importance of the internal governance mechanisms, particularly those relating to board structures and board subcommittees, (Cadbury 1992, Greenbury 1995 and Hampel 1998). The key report, Cadbury, recommended that publicly quoted firms should adopt the specified internal governance structures contained within a Code of Best Practice.[1] Although it was voluntary, firms were expected to comply with the governance structures recommended in the Code. Further, the London Stock Exchange required all quoted companies to include in their annual report the extent to which they had complied with the Code of Best Practice. If the recommended structures were not in place, a clear rationale had to be given to shareholders. UK

board-related governance mechanisms are therefore, to a large degree, prescriptive.

In terms of board structures, Cadbury recommended that the same person should not fill the board's two most powerful posts, those of chief executive officer and chairman. Cadbury identified two other structural mechanisms as being of particular importance. First, that the number of non-executive directors[2] should be sufficient to have a significant impact on board decisions and second, that board sub-committees were important. Cadbury also stressed the importance of the independence and calibre of non-executive directors.

There has been widespread acceptance of the Committee's recommendations, particularly in relation to the appointment of board sub-committees, (Conyon and Mallin 1997). Further, compliance has resulted in significant changes to board-related mechanisms, (Weir and Laing 1999 and Young 2000). They show that since the Cadbury Report was published, UK quoted companies have increased non-executive director representation, reduced the incidence of duality and that the presence of board subcommittees, such as the audit and remuneration committees, is now much more frequently reported.

UK governance therefore places emphasis on the internal, structural governance mechanisms. However, there is evidence to suggest that governance mechanisms are not independent of each other but are

substitutes, Rediker and Seth (1995) and Kini et al (1995). Therefore, emphasising the importance of a particular governance mechanism, or a small group of governance mechanisms, ignores such interdependence, Agrawal and Knoeber (1996). This problem is reflected in previous studies of corporate governance that have tended to concentrate too much on the influence of internal mechanisms at the expense of external mechanisms such as the market for corporate control.

The paper therefore contributes to the governance literature in a number of ways. First, it recognises the substitutability of internal and external governance mechanisms. The key external mechanism, the market for corporate control, has been the subject of much analysis. However, studies have tended to look at the situation at the time of acquisition and then attempted to identify ineffective internal mechanisms in place at that time. As a result, little is known about the way in which the market for corporate control acts as a substitute mechanism for firms that are not actually taken-over. For example, given the increased chance of job loss post-acquisition, the management of firms faced with the threat of acquisition has an incentive to improve performance and so reduce that threat.

Using a sample of UK quoted companies, we find that the market for corporate control is an effective mechanism and may therefore be regarded as a substitute for other governance mechanisms. Our results suggest that the omission of a market for corporate control variable may help to explain the mixed results reported in earlier studies into the performance-governance

relationship. We find only weak evidence that board structural mechanisms affect performance, which is consistent with the hypothesis of substitutability between mechanisms. An awareness of the interrelationship between internal and external mechanisms is likely to become more important as companies move towards prescribed internal governance structures in line with the Code of Best Practice. By including a market for corporate control variable, the paper also addresses the methodological issue of omitted variable bias, which may be present in studies that ignore the potential interrelationships between the governance mechanisms.

Second, the paper contributes to the debate concerning the form of governance in the UK. The UK system, which incorporates a Code of Best Practice, is based on recommended internal governance mechanisms. An alternative approach would be to give individual firms greater freedom to choose the mechanisms that suit their specific circumstances, a situation that applies in the US. For example, Agrawal and Knoeber (1996) argue that, given the opportunity, firms will make optimal choices in relation to their internal governance structures. However, with less freedom to choose, internal governance mechanisms will become increasingly homogeneous and this will make it more difficult to ascertain which of them are effective. This raises important public policy questions about the usefulness of having prescribed internal governance mechanisms. Thus, if firms comply with Cadbury and adopt similar internal mechanisms, it will not be possible to identify the internal governance failings that may explain poor performance. We find little evidence that board structure affects performance which

suggests that compliance, or otherwise, provides the shareholder with limited information.

Third, the paper addresses the fact that relatively little has been done to assess the impact of subcommittee structure on performance, (Bhagat and Black 1998, Dalton et al 1998). This lack of empirical evidence is important in the UK context given the importance attached to board subcommittees in the Code of Best Practice. Our results indicate that the structure and quality of board subcommittees have little impact on performance.

The paper is organised as follows. The next section discusses the relevant literature and issues relating to internal and external corporate governance mechanisms. It also sets out the hypotheses to be tested. The third section describes the data and variables used in the analysis. The fourth section discusses the results. Finally, the main issues brought out in the analysis are discussed and some conclusions drawn.

2 GOVERNANCE CONTROL MECHANISMS AND TESTABLE HYPOTHESES

Agency costs are incurred when, in the face of information asymmetry, principals introduce monitoring mechanisms designed to align management and shareholder interests. There are a variety of reasons why managers may prefer to pursue their own objectives to the detriment of shareholders. For example, status, remuneration and job security tend to be linked to company size rather than to company performance. This section considers the

mechanisms available to reduce agency costs and to provide incentives to managers to pursue shareholder interests. Specifically, the mechanisms to be considered are board structure, board monitoring committee structure and director quality, director shareholdings, debt financing, institutional shareholdings, and the market for corporate control. This approach takes account of the fact that a company's performance is likely to be influenced by a number of agency mechanisms rather than just one. It is therefore important to allow for possible substitutability between the internal and external control mechanisms. For example, the threat of take-over may compensate for the presence of duality or a relatively small proportion of non-executive directors.

The composition of board structure is an important mechanism because the presence of non-executive directors represents a means of monitoring the actions of the executive directors and of ensuring that the executive directors are pursuing policies consistent with shareholders' interests, (Fama 1980). Peasnell et al (1998) report that 44% of UK boards are non-executive directors with 31% of the board being defined as independent. Vafeas and Theodorou (1998) find that UK boards have an average of 39% non-executive directors with 33% of the board being defined as independent. UK boards, therefore, have a clear majority of executive directors. In contrast, US boards are dominated by outside directors, for example Bhagat and Black (1998) find an average of 76% outside directors on US boards and Klein (1998) reports a figure of 77%. These differences suggest that we should be cautious about generalising the results of US studies to the UK, for it appears that US outside

directors may be in a better position to monitor executive director actions than their UK counterparts.

Non-executive directors possess two characteristics that enable them to fulfil their monitoring function. First, their independence (Cadbury 1992) and second, they are concerned to maintain their reputation in the external labour market (Fama and Jensen 1983).

Although non-executive directors may possess certain characteristics such as independence and experience, the evidence relating to their impact on performance tends not to support this positive perspective. A number of studies find that the presence of independent directors may actually harm performance suggesting that they do not bring the requisite skills to the job. Thus if there is pressure to increase outside director representation, it may be that there are insufficient directors of the necessary quality available to do the job effectively. Yermack (1996) and Agrawal and Knoeber (1996) find a negative relationship between the proportion of independent directors and performance. However, their results do not hold across performance measures. Bhagat and Black (1998) report a similar negative relationship, but show that it holds for a variety of performance measures over a period of years. In the UK, Weir and Laing (1999) also found a negative relationship between non-executive director representation and performance. However, given the possible simultaneous nature of the relationship, it may be that poor performance resulted in an increase in the number of non-executive directors rather than being the cause of the poor performance.

In contrast, Baysinger and Hoskisson (1990) and Hermalin and Weisbach (1991) find no relationship between board composition and performance when both relate to the same year. Evidence that the existence of a time lag may be present, is suggested by Baysinger and Butler (1985) who report a ten-year lagged relationship. However, the practical implications of such a long time lag are not clear. Stronger support for the positive impact of non-executive directors comes from event study analysis. This has tended to show that the appointment of non-executive directors increases company value, Rosenstein and Wyatt (1990 and 1997) and Shivdasani and Yermack (1999).

Given that the Code of Best Practice recommends that there should be a significant representation of non-executive directors and that they should be independent, the following two-part hypothesis is proposed:

H1a: There will be a positive relationship between the proportion of non-executive directors and performance.

H1b: There will be a positive relationship between the proportion of independent non-executive directors and performance.

A further board structure control mechanism relates to duality, which occurs when the same person undertakes the combined roles of chief executive officer and chairman of the board. The agency model argues that boards dominated by executive directors are more difficult to control, a situation that would clearly apply to duality (Fama and Jensen 1983). The potential advantage of having the same person occupy both positions is that they

should exhibit a greater understanding and knowledge of the company's operating environment. The Cadbury Committee supported the former view and regarded the practice as undesirable because it gave one person too much power within the decision-making process (Cadbury 1992). The Code of Best Practice therefore recommended that there should be a clear division of responsibilities and if that duality did occur, there had to be sufficient independence on the board to counterbalance the situation.

However, there is little evidence to support Cadbury's stance that duality is undesirable. In the US, Boyd (1995) found that duality actually led to better performance. In contrast, Baliga et al (1996), Brickley et al (1997) and Dalton et al (1998) all found that it had no effect on performance. UK studies tend to support this with Vafeas and Theodorou (1998) and Weir and Laing (1999) finding that duality did not harm performance, although neither did it improve it. Given the recommendation within the Code of Best Practice, the second hypothesis is:

H2: There is a negative relationship between the presence of duality and company performance.

Not only did the Cadbury Report identify specific preferred board structures, it also recommended that all quoted companies should establish internal board sub-committees. Consistent with the agency model, the Report argued that audit committees were an additional control mechanism that ensured that shareholder interests were being safeguarded. This was achieved by promoting the effective financial management of the company and increasing

accountability, (Cadbury 1992). An effective audit committee should bring a number of potential benefits. These include helping the board to meet its statutory and fiduciary responsibilities by improving links between the board and the external and internal auditors. Audit committees should therefore improve the credibility of financial statements, something that benefits shareholders and other users of the information, Collier (1997).

In addition to recommending that an audit committee should be established, Cadbury also proposed that the committee should have a minimum of three members and should consist only of non-executive directors, the majority of whom should be independent. Thus audit committees represent another internal governance mechanism, the impact of which should be to improve the quality of the financial management of the company and hence its performance.

Relatively little has been reported about the impact of audit committees on performance. Vafeas (1999) finds that board subcommittee structure and quality provide insights into those responsible for undertaking the monitoring roles within companies. Wild (1994) shows that the market reacted more favourably to earnings reports after an audit committee had been established. Klein (1998) reported that neither the presence of an audit committee nor its structure had an effect on a range of accounting and market performance measures. Vafeas and Theodorou (1998) also found no evidence to support the view that the structure of board subcommittees significantly affected

performance. However, given the recommendation in the Code, the third hypothesis is:

H3a: There is a positive relationship between the presence of an audit committee and company performance.

H3b: There is a positive relationship between the independence of the members of an audit committee and company performance.

The external labour market provides a measure of the returns earned by directors. One way of measuring these returns is by the number of additional directorships held by a director. The greater the number of additional boards a director is asked to serve on, the greater the reputation and standing of that director. Additional directorships may therefore be regarded as a proxy for director quality. Assuming the market for directors is efficient, higher quality directors should be more closely associated with the promotion of shareholder interests and better company performance.

There is some evidence that director quality, as measured by the average number of additional directorships held by board members, has a positive effect on performance, Dowen (1995). The relationship was stronger using accounting, rather than market, performance. In another US study, Klein (1998) found a weak relationship between performance and director quality if Jensen's Productivity was used to measure performance. However, she found no relationship between the proportion of directors with additional directorships if alternative accounting and market measures of performance were used.

Cadbury argued that the effectiveness of an audit committee depended in part on the quality of the non-executive members. It is therefore important that non-executive directors should be of a sufficient calibre to lend weight to their opinions. Hence given the recommendations in the Code of Best Practice, the fourth hypothesis states:

H4: There is a positive relationship between the quality of non-executive directors on the audit committee and company performance.

Another possible solution to the agency problem is to provide senior management with incentives to pursue wealth maximising policies. These incentives may take the form of shares in the company. The greater the financial stake, the greater the costs incurred by not maximising shareholder wealth, Jensen and Meckling (1976). This convergence-of-interest model argues that there is a linear relationship between director shareholding and performance. However, beyond a certain shareholding, directors may prefer to pursue non-wealth maximising goals to gain, for example, tax advantages associated with consuming perquisites. This leads to managerial entrenchment whereby other shareholders are unable to influence the actions of the directors, Morck et al (1988). A number of studies have found a non-linear relationship between director shareholding and performance, McConnell and Servaes (1990), Hermalin and Weisbach (1991), Griffith (1999) and Short and Keasey (1999). Given the weight of evidence, the fifth hypothesis is:

H5: There is a negative non-linear relationship between director shareholdings and performance.

Debt financing is another internal governance mechanism whereby increased debt reduces free cash flow and so limits managerial discretion, Jensen (1986b). Rather than spending any excess funds on projects that have negative net present values, debt requires managers to use these funds to service the company's debt. This gives the sixth hypothesis:

H6: There is a positive relationship between leverage and company performance.

External shareholdings are those held by institutions, blockholders and individuals outside the company. The greater the shareholding, the greater the potential agency costs incurred by poor performance. Therefore, as externally held shareholdings increase, there is a greater incentive to undertake more effective monitoring. The evidence tends to support the hypothesis that increased institutional shareholdings leads to better performance. For example, Shleifer and Vishny (1986) for the US and Leech and Leahy (1991) for the UK find a positive relationship between external shareholdings and performance. Therefore the seventh hypothesis is:

H7: There is a positive relationship between external shareholdings and performance.

If a company's internal mechanisms fail, the market for corporate control acts as a disciplining mechanism of last resort, Jensen (1986a). Inappropriate internal mechanisms will manifest themselves in poor company performance. This will result in a tender offer being made as other management teams

attempt to gain control of the company. There is a large literature dealing with the relationship between performance and take-overs with Powell (1997) providing a useful overview. He finds that the characteristics of hostile and friendly bids are different and that the impacts of the characteristics change over time. In relation to governance characteristics, Weir (1997) found that governance mechanisms such as the percentage of non-executive directors and duality affected the probability of acquisition by means of a hostile bid. There is also evidence that the quality of non-executive directors significantly affects the likelihood of acquisition, Shivdasani (1993) and O'Sullivan and Wong (1999). In addition, it has been shown that CEOs are more likely to lose their jobs following hostile take-overs, Martin and McConnell (1991) and Kennedy and Limmack (1996). Hence, if the threat of take-over provides incentives to improve performance, we hypothesise that:

H8: There is a positive relationship between the threat of take-over and company performance

We also include a number of control variables. Company size is expected to be negatively related to performance, Fama and French (1992). Capital expenditure is a measure of potential future returns, Lang et al (1989), and there should be a positive relationship between capital expenditure and performance.

3. MODELS, METHODOLOGY AND VARIABLES

Given the discussion above, the following general model is specified:

$$QRATIO_i = \beta_0 + \beta_1 BOARD + \beta_2 INCENTIVE + \beta_3 QUALITY + \beta_4 COMMITTEE + \beta_5 TAKEOVER + \beta_6 LEVERAGE + \beta 7 CONTROL + \varepsilon_i \quad (1)$$

where

QRATIO - is defined as market capitalisation plus total debt divided by total assets. It is a proxy for Tobin's Q which measures performance in terms of company valuation, (Agrawal and Knoeber 1996,McConnell and Servaes 1995, Short and Keasey 1999). It is maintained that Q is a proxy for how closely shareholder and manager interests have been aligned. The higher the value of Q, the more effective the governance mechanisms and the better the market's perception of the company's performance. In contrast, lower values of Q suggest less effective governance mechanisms and greater managerial discretion.

BOARD - represents the board structure variables: NX, INDNX, AUD and DUAL.

INCENTIVE - includes the incentive shareholding variables: CEOSHR1, CEOSHRSQ and EXT.

TAKEOVER - measures take-over probability by sector: PROBTO

QUALITY - is a measure of audit committee quality: AUDADD.

COMMITTEE - measures audit committee structure: AUDNX, AUDINDNX and AUDKEY.

LEVERAGE - represents the availability of free cash flow.

CONTROL - represents the control variables: SALES and CAPEX.

The independent variables are defined as follows:

NX - is the percentage of non-executive directors on the board of each company.

NXIND - is the percentage of independent non-executive directors on the board. A director is defined as independent if he/she had not previously been an executive director with the company or does not have a senior post with a firm's advisors. The definition excludes auditors, lawyers and other advisors such as management consultants but includes non-executive directors who are employed in senior positions in the companies' banks (Gilson 1990).

AUD - is a dummy variable that has a value of one if a company has an audit committee and zero if it does not.

DUAL - is a dummy variable that equals one if a company combines the posts of chief executive officer and chairman and zero if it does not.

CEOSHR - is the total percentage shareholdings of the chief executive officer or executive chairman.

CEOSHRSQ - is the square of the shareholdings of the CEO.

EXT - measures the largest shareholding held by an institution, blockholder or individual outside the company. Quoted UK companies must publish information on all externally held shareholdings in excess of 3%.

AUDADD - the average number of additional directorships of other UK plcs held by the non-executive members of the audit committee. It is a proxy for director calibre in the external labour market.

AUDNX - is the percentage of non-executive directors on the audit committee.

AUDINDNX - is the percentage of independent non-executive directors on the audit committee.

AUDKEY - is a binary variable that has a value of one if a key director is on the audit committee and zero if there is not. A key director is defined as either

the CEO, executive chairman or finance director. Such a presence may inhibit the ability of the committee to monitor effectively the board.

PROBTO - measures take-over probability and is a proxy for the market for corporate control. It is defined as the number of firms in a specific industrial classification that were acquired during 1994 and 1995 as a proportion of the total number of firms in that group. The industrial classification is the two digit London Stock Exchange Industrial Classification with the initial population being the firms present in the 1994 list. The use of an industry-based measure of take-over intensity is consistent with Agrawal and Knoeber (1996), who also uses a two-digit industry definition, and Palepu (1986).[3]

LEVERAGE - is the percentage of total debt to total assets.

SALES -is the natural log of sales.

CAPEX - is the ratio of net capital expenditure to total assets expressed as a percentage.

The sample is constructed from the 1996 Times1000, which lists the largest companies operating in the UK. The sample consists of all quoted, non-financial UK firms for which full information could be obtained covering the period 1994 and 1996. We therefore exclude companies that were not registered in the UK, had their shares suspended, were demerged, divested, acquired or were newly listed during the period. Financial companies were also excluded because they are subject to externally imposed scrutiny from organisations such as the Financial Securities Agency. The relationship between governance mechanisms and performance is therefore likely to be less clear cut for companies in that sector. Initially we obtained data on 321

companies but three were excluded because of extreme values and another seven were lost as a result of being acquired prior to the publication of their 1996 results. This left a final sample of 311 companies.

All performance data refer to the end of the 1996 financial year as reported in the companies' financial statements. The governance data refer to the position at the end of the 1995 financial year as reported in the annual accounts. We chose this approach because it identifies the governance structures that are in place at the beginning of the relevant financial year and which were therefore responsible for overseeing company performance during that year.

Financial data were taken from Primark Extel Company Analysis. This also provided details on sales, net capital expenditure and leverage. Merger information was taken from Acquisitions Monthly, which lists all mergers and acquisitions involving UK quoted companies. Industry definitions were measured by means of the London Stock Exchange Industrial Classification

Data covering director calibre and independence were taken from the Price Waterhouse Corporate Register. It details the board structure of each company, including the name and number of executive and non-executive directors. The Register includes data covering the presence and structure of the audit committee. It also provides information on the current, and previous, posts held by directors. From this we calculated the average number of directorships held by the non-executive members of the audit committee. It

also allows us to identify non-executive directors who had previously been an executive director of the firm or who had held a senior post with a company's advisors or auditors. Other biographical information includes the length of time a director has served on the board. The Register also provides information on the shareholdings of executive and non-executive directors. In addition it shows externally held shareholdings in excess of 3%.

The general model, equation 1, was analysed using OLS. Given the prescriptive nature of the Code of Best Practice, it could be argued that the internal governance mechanisms are exogenous rather than endogenous. Using OLS would therefore be appropriate. However, two further models were also tested in an attempt to gain further insights into the relationships. First, equation 2 adds a lagged dependent variable to the model.

$$QRATIO_i = \beta_0 + \beta_1 BOARD + \beta_2 INCENTIVE + \beta_3 QUALITY + \beta_4 COMMITTEE + \beta_5 TAKEOVER + \beta_6 LEVERAGE + \beta_7 CONTROL + \beta_8 LAG + \varepsilon_i \quad (2)$$

where:

LAG - is the Q ratio lagged one year

This tests the more commonly held view that the relationship between structural governance mechanisms and performance is endogenous. In the UK context, this approach takes account of the fact compliance with the Code of Best Practice is not compulsory, which gives companies a degree of autonomy in selecting an appropriate mix of internal mechanisms. If the relationship between board structure and performance is endogenous rather

than exogenous, ordinary least squares will yield biased and inconsistent results, Pindyck and Rubinfeld (1991). Baysinger and Butler (1985) find a lagged relationship between board structure and performance. Hermalin and Weisbach (1988) show that poor firm performance is more likely to result in outside directors joining the board and inside directors leaving the board. In contrast, Klein (1998) and Vafeas and Theodorou (1998) find no relationship between board composition and prior performance. There is therefore mixed evidence relating to the simultaneous nature of the governance-performance relationship.

There are a number of techniques available to deal with the issue of simultaneously determined relationships. One method is to use two-stage least squares. However, because our model is constructed such that year t's performance is dependent on year t-1's governance structures, two-stage least squares cannot be used.[4] We therefore introduce a lagged dependent variable into the model, as Klein (1998).

The analysis was further developed by splitting the sample into performance deciles. A dummy variable, which had a value of one if a company was in the top performance decile and zero if it was in the bottom performance decile, was regressed against the governance control variables using logistic regression. If the internal and external governance control mechanisms are substitutes, different combinations of the mechanisms would be expected to be present in such extremes of performance. If there were no impact, the initial hypothesised relationships would be called into question.

The model tested is:

$$Pr\ (DECILE) = \beta_0 + \beta_1 BOARD + \beta_2 INCENTIVE + \beta_3 QUALITY + \beta_4 COMMITTEE + \beta_5 TAKEOVER + \beta_6 LEVERAGE + \beta_7 CONTROL \quad (3)$$

where:

Pr(DECILE) - is the probability that a company will be in the top or bottom performance decile.

4. RESULTS

Table 1 presents an overview of the data.

Insert Table 1

Non-executive directors remain in the minority on UK boards with the average representation being 47%. These figures are consistent with Peasnell et al (1998) who find that non-executive directors make up 44% of UK boards. When the definition is altered to take account of director independence, we find that the figure falls to 42%. The vast majority of firms, some 96%, have an official audit committee, a finding in line with Conyon and Mallin (1997). This shows a substantial increase from the pre-Cadbury position when only 55% of large quoted firms reported having an audit committee, Collier (1992). The incidence of duality is relatively low with only 16% of the sample having the same person undertaking the combined roles of CEO and chairman. There is therefore evidence that UK firms exhibit structural governance mechanisms consistent with those recommended in the Code of Best Practice.

Audit committee quality shows that the average number of additional directorships held by the committee's non-executive directors is 1.4. We also found that 8.7% of companies had audit committees, the members of which

had no additional directorships. Audit committees consist predominantly of non-executive directors. On average the composition of the committee was 93% non-executive director, with 85% of the firms having a committee membership consisting wholly of non-executive directors. Thus the vast majority of companies comply with the Code of Best Practice in relation to audit committee membership. When independence is taken into account, the average non-executive director membership falls to 79%. This remains in excess of the recommendation that two-thirds of the non-executive directors should be independent. Furthermore, 52% of firms have committees that can be defined as completely independent. Contrary to Cadbury's recommendations, we find that 15% of firms have a key director as a member of the audit committee.

The take-over probability variable went from 0% to 50% indicating that take-over activity differed across the different industrial classifications. Mean CEO shareholding is 2.54% but the median of 0.24% shows this to be skewed to the right. The average largest external shareholding is 10.85% with a median of 8%. The mean turnover is just over £2.2 billion. Net capital expenditure averaged 9.29% and the average leverage ratio was 20.02%.

Insert Table 2

The correlation matrix in Table 2 shows that there is evidence of multicollinearity between two groups of structural governance mechanisms. They are, first, between the two non-executive director variables, NX and INDNX and second, between the audit committee variables AUD and AUDNX;

and AUDIND AUDNX and AUDKEY. The variables are therefore included in separate equations throughout the following analysis.

Insert Table 3

The OLS regression results reported in Table 3 show that the proportion of non-executive directors has an insignificant effect on performance. However, as equation 2 shows, non-executive director independence is positive and significant at the 5% level. This supports the Cadbury view that independence is a desirable characteristic of non-executive directors. However, contrary to expectations, in neither of the equations does the presence of an audit committee or the absence of duality have a significant effect on performance.

The take-over variable is insignificant in both equations. In addition, neither CEO shareholdings nor external shareholdings are significant in either of the equations. Contrary to the free cash flow hypothesis, leverage is negative and significant, a result also found by Dowen (1995), McConnell and Servaes (1995) and Short and Keasey (1999).[5] The control variables sales and capital expenditure are significant in both models at 5% and 1% respectively. Both models have significant F values.

Insert Table 4

Given the very high adoption rate of audit committees shown in Table 1, its insignificance in explaining performance is not altogether unexpected because so few firms do not have this particular mechanism.[6] If, as Cadbury claims, audit committees help to provide more effective financial monitoring and to

align shareholder and manager interests, the characteristics of audit committees would be expected to influence performance. As Table 4 shows, the analysis was extended to investigate the impact of the structure and quality of the audit committee on company performance. For companies without an audit committee, the structure and quality of the whole board is used instead because the board as a whole would have had to undertake the audit committee's duties.

Director quality is insignificant in all three equations in Table 4. The high correlation between the other three audit committee structure variables identified in Table 2, is dealt with by entering them separately in different equations. Audit committee structure, whether measured by the proportion of non-executive directors, the proportion of independent non-executive directors or the presence of a key director on the committee, has no significant impact on performance.

Take-over probability is also insignificant in all three equations. Shareholdings, both internally and externally held, remain insignificant. Leverage remains significant and negative and the control variables sales and capital expenditure are again significant. All three equations are significant at the 1% level.

So far, the analysis has shown little evidence that the governance mechanisms identified by Cadbury, and included in the Code of Best Practice, are associated with superior performance. A number of further analyses were

therefore carried out to assess the robustness of the initial results. First, given that the Code is not compulsory, the simultaneous nature of the governance-performance relationship was then investigated by including a lagged dependent variable.

Insert Table 5

As Table 5 shows, neither the proportion of non-executive directors nor the proportion of independent non-executive directors is significant in equations 6 or 7 respectively. The same applies to the duality and audit committee variables in those equations. The other audit committee variables in equations 8, 9 and 10 are also insignificant. The only exception is the average number of additional directorships held by audit committee members in equation 10, which is significant at 10%. These results support Vafeas and Theodorou (1998) who found little evidence that the structural mechanisms recommended by Cadbury affected performance and Weir and Laing (1999) who found that the nature of the governance-performance relationship did not appear to change with the implementation of Code of Best Practice.

However, the take-over variable was found to be positive and significant at the 5% level in all five equations. The positive coefficient means that increased merger activity within an industrial is perceived as increasing the probability of acquisition of the remaining firms in that sector. This puts pressure on the boards of other firms to improve performance or run the risk of being acquired, with the consequent possibility of job loss. Using an event study approach, Song and Walkling (2000), found that the rivals of acquisition

targets earned abnormal returns because of the new, increased probability that the rivals themselves will become take-over targets. Our results show that there is evidence of sustained improved performance over a longer period, at least up to two years, which is consistent with management reacting positively to the threat of take-over with a resulting improvement in performance.

External shareholdings remain insignificant although there is now evidence of director entrenchment with CEOSQ being negative and significant at 5%. Although leverage remains negative, it now becomes either insignificant or only just significant at the 10% level. This is consistent with Agrawal and Knoeber (1996) and Vafeas and Theodorou (1998) who also found a weakening of the impact of debt when simultaneity was taken into account. All models are significant at the 1% level.

The second analytical development involved splitting the sample into performance deciles. This enabled us to identify differences in the governance characteristics of the top and bottom 10% of performers. The logistic regression results are given in Table 6.

Insert Table 6

Equations 11-15 show, at best, a weak relationship between the internal governance relationships and performance. The board characteristics of firms in the two deciles appear to be similar. Thus duality has no adverse effect on performance, the presence of an audit committee is not significant and neither is there evidence that committee director quality has an effect on

performance, even when comparing the best and worst performers. It is also shown that the presence of a key director on the audit committee does not have an adverse effect on performance. The only differences relate to the proportion of independent non-executive directors in equation 12, and the proportion of independent non-executive directors on the audit committee in equation 14. Both show that firms in the top performance decile are more likely to have a greater proportion of independent non-executive directors and a greater proportion of independent members of the audit committee. Take-over probability is insignificant in all equations suggesting that, at the extremes of performance, director independence and the market for corporate control may be substitute mechanisms. There are no differences in terms of shareholdings whether internally or externally held. Leverage remains negative.

5. SENSITIVITY ANALYSIS

A number of additional analyses were carried out to test the robustness of the results and to determine the extent to which they were sensitive to variable definition. First, to assess the sensitivity of the choice of dependent variable, the equations were re-estimated using an accounting performance measure, the return on assets, (Bhagat and Black 1998 and Klein 1998). The only difference occurred in the simultaneous equation model where external shareholdings became negative and significant at the 5% level. The choice of dependent variable therefore has little effect on the relationship between governance mechanisms and performance.

Second, the median of 0.24% shows that CEO shareholdings are skewed to the right. Regressions using the log of CEO shareholdings rather than just CEO shareholdings were therefore run. With the exception that the new variable became significant at the 5% level, none of the other governance variables were affected by the change. Third, CEO shareholdings were replaced by the total shareholdings of the board of directors, a measure that gives a more general indication of the impact of shareholdings on performance, Dowen (1995). The new variable did not affect the results.

Fourth, the proportion of non-executive directors with fewer than four years on the board was used as an alternative measure of non-executive director independence, O'Sullivan and Wong (1999). Recently appointed non-executive directors may be regarded as more independent because they are less likely to suffer from CEO capture (Cadbury 1992). This occurs because the longer a non-executive director sits on a board, the less likely they are to be independent. Informal relationships are likely to develop over time and greater familiarity may reduce objectivity. The new measure of independence did not affect the results. It was found to be insignificant in the OLS equations but significant when in the logistic equation. Thus overall, there is some evidence to suggest that non-executive director independence has an impact on performance and may therefore be regarded as a substitute for other governance mechanisms.

Fifth, the same principle was applied to audit committee independence. The new variable measured the proportion of non-executive members of the audit

committee with less than four years on the board. The new definition was not statistically significant.

Sixth, we analysed the impact of another measure of director quality - the proportion of non-executive directors on the audit committee who have additional directorships. Dowen (1995) found a weak relationship between this measure of quality and performance. The greater the proportion of committee members with additional directorships, the higher the quality of the committee and the better the company's performance. However, this measure of director quality was also insignificant. Thus, with the exception of the weak result in equation 10, neither of the measures of director quality was found to play a part in determining company performance.

Seventh, the analysis was extended to find out if they were sensitive to the definition of leverage. Two other definitions were included. The first defined leverage as long-term debt divided by market capitalisation and the second defined it as total liabilities divided by market capitalisation. The results were unaffected by the different measures with leverage remaining significant and negative as before.

Eighth, an alternative approach is to measure take-over probability at the firm level rather than at the industry level. Using an event study, Pound and Zeckhauser (1990) found that the average target experienced significant positive returns in the period prior to the publication of the take-over rumour. Lehn and Poulsen (1989) and Kieschnick (1998) found that firms that go

private were more likely to have been the subject of a take-over bid or take-over speculation than firms that remained public. Both studies used a dummy variable that took the value of one if a firm was either the subject of a take-over bid or the subject of take-over speculation. We constructed four dummy variables to take account of take-over speculation. The first had a value of one if the company had been the subject of take-over rumours during 1995 and zero if not. The second had a value of one if the company had been the subject of take-over speculation in 1996 and zero if not. The third had a value of one if there had been speculation in either 1995 or 1996 and zero if not. The fourth had a value of one if a company had been the subject of take-over rumours in both 1995 and 1996 and zero if not. Information regarding take-over speculation was taken from the Financial Times.

All of the variables were insignificant in all equations. The only exceptions were in the logistic regressions if the rumours had taken place in 1996, in which case the take-over variable was positive and significant at 1%. However, this is likely to be a consequence of the increase in the target's share price that coincides with take-over rumours rather than being indicative of good performance. This is borne out by the fact that if the rumours occurred the year before, in 1995, the variable was insignificant.

Gibbs (1993), however, argues that rumours and perceived threats should be discounted because they may result in measurement error. He proposes an alternative footsteps measure that only included failed tender offers. However, only four failed hostile bids were made for firms in the sample during the

period under investigation and so this particular measure could not be meaningfully tested.

6. CONCLUSIONS

This paper has employed UK data to investigate the relationship between company performance and corporate governance control mechanisms. Although the findings are mixed, a number of interesting results have emerged from the study. First, it has been shown that there is little relationship between performance and board structure, a finding consistent with Klein (1998), Vafeas and Theodorou (1998) and Dalton et al (1998). Second, it was found that audit committee structure had no effect on performance but there was a weak relationship between committee director quality and performance. Third, a negative relationship between leverage and performance was found. This is consistent with McConnell and Servaes (1995) who characterised the situation as one where firms forego projects with positive net present values because they have excessive debt. Fourth, CEO shareholdings show some evidence of entrenchment but external shareholdings were not found to have a significant monitoring effect. Fifth, there is evidence that the market for corporate control acts as an effective disciplinary mechanism, which is consistent with Fama (1980). Sixth, companies in the top performance decile have a greater proportion of independent directors both on their boards and on their audit committees. The results are robust across a number of variable definitions.

The results show that the relationship between governance mechanisms and performance is a complex one. They illustrate the importance of the influence of the market for corporate control in the UK and the extent to which governance mechanisms appear to be substitutes. They therefore raise questions about the efficiency of a policy that imposes prescribed internal governance structures on firms because such an approach creates difficulties when trying to assess the effectiveness of those mechanisms. Given our results, it is not clear how far compliance with the Code of Best Practice benefits shareholders' interests, particularly as the market for corporate control is found to be an effective governance mechanism.

It may be, however, that the board governance structures recommended in the Code are appropriate but, because of a lack of information about the non-executive directors regarding their expertise and independence, inappropriate appointments are being made. The US system provides for greater disclosure of governance information and following this lead is one option. However, there is no consistency in US studies which suggests that merely providing further information may not be sufficient. It is therefore problematic as to whether or not additional information will necessarily be the best way to strengthen the link between internal corporate governance structures and shareholder interests.

If general rules are inappropriate, it may be that a system that reflects the company-specific situation should be adopted. In other words, a particular governance structure may be appropriate for one firm but not for another. For

example, duality may have a positive impact on a company if the person is dynamic and talented but a negative one if the person is autocratic. How shareholders are supposed to differentiate between the two situations is not clear. Nevertheless an alternative more flexible approach, based on a recognition that governance mechanisms may vary according to specific circumstances may be appropriate, Short et al (1999). Although Cadbury recognises that flexibility should be a part of the governance system, the prescriptive nature of the Code does little to encourage such an approach. Our results lend weight to the need for greater flexibility in understanding how governance control mechanisms impact in particular circumstances.

The study has a number of limitations that may point the way to further research. We use a single period time lag. However, it is possible that board actions will take longer than one year to have an effect. Therefore further analysis could be undertaken into the nature of any time lag involved. In addition, more refined measures of independence, for example looking at interlocking directorships, may shed further light on the impact of non-executive directors. Further analysis of the nature of the interrelationships between governance mechanisms is another aspect of the research that should prove fruitful.

The results have added to the policy debate concerning the appropriateness of different governance mechanisms and the extent of their substitutability. We have found that the widespread compliance with the Code of Best Practice makes it difficult to assess the effectiveness of the Code's

governance mechanisms. Greater flexibility and a recognition that the mix of governance mechanisms may vary according to a firm's specific circumstances offer a possible solution. It may be that a greater understanding of the process of the governance mechanisms is one way forward. What is clear is that much work needs to be done to understand how governance mechanisms actually work and the extent to which they are interdependent.

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NOTES

1. The Code of Best Practice was updated to take account of the other governance reports, Greenbury (1995) and Hampel (1998). It became the Combined Code in 1998. We refer to the original Code because our data relate to the time when it was in operation.

2. In the US, non-executive directors are referred to an outside directors and executive directors as inside directors.

3. The take-over intensity variable takes account of industry effects. However, we also replaced the variable with one and two-digit industry dummies and reran the regressions. Although a small number of industries had a significant impact on performance, there was no evidence of widespread industry effects and the results did not affect the significance of the governance variables.

4. This is because one of the equations in the system would be specified such that the governance structure in t-1 would be dependent on performance in period t.

5. McConnell and Servaes (1995) explain the negative relationship in terms of the conflicting impact of debt. Companies with high debt burdens must forego expenditure on projects that have positive net present values. This underinvestment means that firms with growth opportunities will exhibit a negative relationship between debt and firm value.

6. Using a dummy variable that has a value of one for 96% of the sample may introduce bias in the model. The equations were estimated without the audit committee variable. The omission did not affect the significance of any of the variables.

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Table 1

Sample Profile: Governance and Control Characteristics

	Minimum	Maximum	Mean	Standard deviation
NX (%)	0	83	47	13.3
INDNX (%)	0	75	42	14.9
AUD	0	1	0.96	0.20
DUAL	0	1	0.16	0.37
AUDADD	0	4.5	1.4	0.97
AUDNX (%)	0	100.0	93	19.7
AUDIND (%)	0	100.0	79	26.6
AUDKEY	0	1	0.15	0.36
CEOSHR (%)	0	56.19	2.54	7.34
EXTSH (%)	0	88.0	10.85	11.17
SALES (£m)	8	80097	2209.80	5889.56
LEVERAGE (%)	0	92.7	20.02	13.16
CAPEX (%)	-41.1	73.5	9.29	11.49
PROBTO (%)	0.0	50.0	8.3	7.3

Table 2
Correlation Matrix

	NX	INDNX	AUD	DUAL	AUDADD	AUDNX	AUDIND	AUDKEY	CEOSH	EXT	LNSAL	LEVERAGE	CAPEX	PROBTO
NX		0.83	0.30	-0.13	0.04	0.39	0.25	-0.28	-0.27	0.13	0.08	0.14	-0.05	0.08
INDNX	0.83		0.24	-0.11	0.09	0.32	0.59	-0.22	-0.20	0.15	0.11	0.18	-0.01	0.07
AUD	0.30	0.24		-0.08	0.18	0.68	0.42	-0.48	-0.21	-0.08	0.22	0.08	-0.04	0.06
DUAL	-0.13	-0.11	0.08		0.04	-0.04	-0.04	-0.02	0.26	-0.02	0.01	-0.15	-0.03	-0.07
AUDADD	0.04	0.09	0.18	-0.04		0.25	0.25	-0.24	-0.14	-0.04	0.06	0.05	0.05	-0.00
AUDNX	0.39	0.32	0.68	-0.02	0.04		0.60	-0.85	-0.28	-0.06	0.26	0.09	-0.03	-0.04
AUDIND	0.25	0.59	0.42	-0.04	0.25	0.60		0.50	-0.16	0.01	0.21	0.14	-0.04	0.04
AUDKEY	-0.28	-0.22	-0.48	-0.02	-0.24	-0.85	-0.50		0.18	0.05	-0.22	0.04	-0.01	-0.03
CEOSH	-0.27	-0.20	-0.21	0.26	-0.14	-0.28	-0.16	0.18		-0.10	-0.24	-0.09	0.07	-0.08
EXT	0.13	0.15	-0.08	-0.02	-0.04	-0.06	0.00	0.05	0.10		-0.19	-0.06	0.00	-0.04
LNSAL	0.08	0.11	0.22	0.01	0.06	0.26	0.21	-0.22	-0.24	-0.19		0.18	-0.07	-0.01
LEVERAGE	0.14	0.18	0.08	-0.15	0.05	0.09	0.14	-0.04	-0.09	-0.06	0.18		0.26	0.03
CAPEX	-0.05	-0.01	-0.04	-0.03	-0.05	-0.03	-0.04	-0.01	0.07	-0.00	0.07	0.21		0.08
PROBTO	0.08	0.07	0.06	-0.07	-0.00	0.07	0.04	-0.03	-0.08	-0.04	-0.01	0.03	0.08	

Table 3
Ordinary Least Squares Regression of Governance Mechanisms on Performance

	Equation (1)	*Equation (2)*
NX	0.0032	
	(0.54)	
INDNX		0.0095
		(1.98)**
AUD	-0.8854	-0.7359
	(1.33)	(1.07)
DUAL	0.1331	0.1455
	(0.66)	(0.72)
PROBTO	0.7115	0.6472
	(1.01)	(0.92)
CEOSHR	0.0006	0.0033
	(0.01)	(0.11)
CEOSHRSQ	0.0006	-0.0006
	(0.66)	(0.66)
EXTSH	-0.0018	-0.0037
	(0.22)	(0.45)
LNSAL	-0.1712	-0.1764
	(2.31)**	(2.36)**
CAPEX	0.0305	0.0307
	(3.88)***	(3.41)***
LEVERAGE	-0.0118	-0.0132
	(2.00)**	(2.20)**
CONSTANT	3.3154	3.2370
	(4.01)***	(4.09)***
R^2	22	23
F Value	8.66***	9.12***

***- significant at the 1% level: ** - significant at the 5% level.

t values in parentheses calculated from heteroscedastic corrected standard errors (White 1980)

Table 4
Ordinary Least Squares Regressions of Governance Mechanisms, Including Board Committee Structure and Quality, on Performance

	Equation (3)	*Equation (4)*	*Equation (5)*
AUDADD	0.1227	0.0839	0.1085
	(1.48)	(1.02)	(1.35)
AUDNX	-0.0050		
	(0.84)		
AUDINDNX		0.0025	
		(0.71)	
AUDKEY			0.1003
			(0.41)
PROBTO	0.6968	0.5672	0.6260
	(1.00)	(0.14)	(0.89)
CEOSHR	0.0020	0.0068	0.0056
	(0.06)	(0.18)	(0.15)
CEOSHRSQ	0.0007	0.0006	0.0007
	(0.07)	(0.60)	(0.70)
EXT	-0.0001	-0.0007	-0.0002
	(0.00)	(0.09)	(0.02)
LNSAL	-0.1749	-0.1970	-0.1833
	(2.25)**	(2.55)**	(2.35)**
CAPEX	0.0302	0.0307	0.0304
	(3.31)***	(3.37)***	(3.34)***
LEVERAGE	-0.0125	-0.0133	-0.0128
	(2.08)**	(2.14)**	(2.16)**
CONSTANT	4.2634	2.4961	2.5432
	(4.28)***	(4.31)***	(3.79)***
R^2	21	21	21
F value	9.28***	9.15***	9.06***

***- significant at the 1% level: ** - significant at the 5% level.

t values in parentheses calculated from heteroscedastic corrected standard errors (White 1980)

Table 5

Ordinary Least Squares Regression, Including Lagged Dependent Variable, of Governance Mechanisms on Performance

	Equation (6)	*Equation (7)*	*Equation (8)*	*Equation (9)*	*Equation (10)*
NX	-0.0006				
	(0.20)				
INDNX		0.0021			
		(0.70)			
AUD	0.4213	0.3725			
	(1.23)	(1.11)			
DUAL	0.0883	0.0932			
	(0.67)	(0.71)			
AUDADD			0.0813	0.0778	0.0830
			(1.60)	(1.56)	(1.69)*
AUDNX			0.0022		
			(0.66)		
AUDINDNX				0.0020	
				(1.00)	
AUDKEY					-.01002
					(0.76)
PROBTO	1.0242	0.9977	1.0403	1.3037	1.0620
	(2.05)**	(2.00)**	(2.08)**	(2.56)**	(2.09)**
CEOSHR	0.0703	0.0719	0.0731	0.0712	0.0717
	(2.20)**	(2.26)**	(2.38)**	(2.30)**	(2.33)**
CEOSHRSQ	-0.0023	-0.0023	-0.0023	-0.0020	-0.0023
	(2.09)**	(2.09)**	(2.09)**	(2.00)**	(2.09)**
EXT	0.0018	0.0012	0.0018	0.0014	0.0018
	(0.41)	(0.27)	(0.39)	(0.29)	(0.39)
LNSAL	-0.0493	-0.0505	-0.0463	-0.0486	-0.0458
	(1.29)	(1.53)	(1.40)	(1.45)	(1.35)
CAPEX	0.0095	0.0097	0.0093	0.0097	0.0092
	(1.63)	(1.64)*	(1.63)	(1.73)*	(1.61)
LEVERAGE	-0.0057	-0.0061	-0.0062	-0.0066	-0.0066
	(1.62)	(1.65)*	(1.72)*	(1.73)*	(1.66)*
LAG	0.7226	0.7196	0.7110	0.7060	0.7086
	(4.91)***	(4.85)***	(4.82)***	(4.77)***	(4.78)***
CONSTANT	0.3755	0.3313	0.4439	0.5265	0.6630
	(0.96)	(0.95)	(1.46)	(2.01)**	(2.06)**
R^2	70	68	69	69	69
F value	60.32***	60.46***	67.04***	67.23***	66.92***

***- significant at the 1% level: ** - significant at the 5% level: * - significant at the 10% level.

t values in parentheses calculated from heteroscedastic corrected standard errors (White 1980)

Table 6

Logistic Regression Analysis of the Influence of Governance Mechanisms on the Probability of a Company being in the Top or Bottom Performance Deciles

	Equation (11)	*Equation (12)*	*Equation (13)*	*Equation (14)*	*Equation (15)*
NX	0.0141				
	(0.33)				
INDNX		0.0502			
		(3.66)*			
AUD	1.0722	0.5089			
	(0.64)	(0.14)			
DUAL	-0.1072	-0.3137			
	(0.05)	(0.11)			
AUDADD			0.3324	0.2008	0.3183
			(0.89)	(0.30)	(0.84)
AUDNX			0.0047		
			(0.009)		
AUDINDNX				0.0235	
				(2.85)*	
AUDKEY					-0.4951
					(0.60)
PROBTO	4.6356	3.8930	5.8387	5.0713	5.6722
	(0.96)	(0.71)	(1.42)	(1.09)	(1.35)
CEOSHR	-0.0995	-0.0560	-0.1184	-0.1434	-0.1100
	(0.49)	(0.16)	(0.79)	(1.15)	(0.81)
CEOSHRSQ	0.0031	0.0019	0.0034	0.0035	0.0033
	(0.38)	(0.17)	(0.49)	(0.60)	(0.49)
EXT	-0.-291	-0.0384	-0.0200	-0.0203	-0.0206
	(0.83)	(1.37)	(0.48)	(0.51)	(0.48)
LNSAL	-0.5505	-0.6553	-0.5350	-0.7125	-0.5503
	(3.84)**	(5.07)**	(3.19)*	(4.96)**	(3.39)*
CAPEX	0.1276	0.1297	0.1230	0.1263	0.1239
	(12.40)***	(12.20)***	(11.39)***	(12.03)***	(11.51)***
LEVERAGE	-0.0811	-0.0897	-0.0716	-0.0729	-0.0721
	(4.55)***	(4.65)***	(4.46)***	(4.13)***	(4.47)***
CONSTANT	2.1546	2.2581	2.4453	2.5085	3.1088
	(0.95)	(1.10)	(1.26)	(1.41)	(1.79)
Nagelkerke R^2					
	54	59	55	58	55
Model Chi square	35.36***	39.19***	35.35***	38.10***	35.53***
Classification (%)					
Top	77	81	74	77	74
Bottom	86	77	89	92	89
Overall	81	79	82	85	82

***- significant at the 1% level: ** - significant at the 5% level: * - significant at the 10% level.

Wald statistics in parenthesis