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Abstract

This paper analyses the relationship between agency costs, ownership structure and corporate governance mechanisms in Ghana for the study period 2000-2009. Our results show that smaller board size and the presence of audit and remuneration committees decrease agency costs. We also find that higher managerial and institutional ownership reduces agency costs. However, duality and the proportion of non-executive directors on the board have no effect on agency costs, suggesting that not all board structure governance mechanisms are effective in mitigating agency costs. Interestingly, the non-board structure code recommendations such as improved shareholder voting rights, the adoption of International Financial Reporting Standards and auditor quality have also reduced agency costs. Overall, we find that the introduction of the Ghanaian Code played significant role in reducing agency costs.

Keywords: Agency costs, corporate governance, ownership structure, Ghana

1. Introduction

Agency costs refer to the monitoring, bonding and residual loss that may be incurred by shareholders in an agency relationship. Agency costs arise because of the separation of ownership and control and the misalignment of the interests of managers and shareholders (Jensen and Meckling 1976; Jensen, 1986). The separation of ownership and control leads to non-zero agency costs (Ang *et al*, 2000) and these costs might be significantly higher in countries with weak legal systems and poor investor protection (Gurgler *et al*, 2003). Agency costs are not only limited to the incidence of separation of ownership and control (Berle and Means, 1932) but are also present between controlling shareholders and other investors (Shleifer and Vishny, 1997; Fan *et al*, 2002) if the controlling shareholders become part of management or have significant influence on management decision making. From the agency theory perspective, strong corporate governance plays an important role in protecting shareholders in general, and minority interests in particular and, hence, should result in lower agency costs.

Agency theory identifies a range of governance mechanisms that are designed to realign the interests of managers and shareholders in order to reduce agency costs. Many countries, for example, the UK, Germany, Australia and South Africa have promoted good governance through the introduction of codes of best practice. In addition, the Organisation for Economic Co-operation and Development has also issued a code that identifies desirable governance characteristics. These codes recommend that firms adopt internal governance mechanisms such as non-executive directors' representation on the board, the separation of the posts of Chief Executive Officer (CEO) and chairman and the setting up of committees to deal with a range of issues such as auditing and remuneration.

The Ghanaian corporate governance code of best practice (henceforth the Ghanaian Code) was introduced by the Security and Exchange Commission Ghana in 2003, with its principles applying to all corporate bodies approved or licensed as stock exchanges, dealers and investment advisers. In particular, the Code identified governance structures that were perceived to promote effective corporate governance and recommended that they should be adopted. This is similar to the approach adopted in the UK and South Africa in the Cadbury Report (1992) and King Report I (1994) respectively and is based on a *comply* or *explain* philosophy. The Ghanaian Code therefore requires that, in their annual reports, companies disclose their compliance with the code or provide an explanation for any non-compliance.

While the extant research has extensively focused on the governance-performance relationship (i.e. Dalton *et al* 1998; Weir *et al*, 2002; Dahya and McConnell, 2007; Coles *et al,* 2008; Wintoki *et al,* 2012; Owusu and Weir, 2016), relatively few studies dealing with either developed or emerging economies have attempted either to directly measure agency costs or to analyse the factors that influence them. Studies that have investigated agency costs include Ang *et al* (2000); Singh and Davidson (2003) for the US; Fleming *et al* (2005) for the Australia; McKnight and Weir (2009), Florackis and Ozkan (2009) for the UK; Wang *et al* (2011) and Mustapha and Che Ahmad (2011) for China and Malaysia. However, none of these investigated the period before and after the introduction of their country-specific code or whether the non-board structure governance variables recommended within these corporate governance codes were also important factors in reducing agency costs**.**

We therefore analyse how far compliance with the individual governance mechanisms of the Ghanaian Code has affected agency costs. In addition, if firms voluntarily adopt the recommendations of the code in such a volatile environment, investors' interests are more likely

to be protected and this might lead to increased share ownership with the consequential effect on ownership structures across Ghanaian firms. We therefore argue that increased managerial and institutional ownership following the introduction of the Ghanaian Code might reduce agency costs relative to the pre-code period. This study is important because Ghana, relative to the other country-specific studies, is an emerging African country characterised by weak legal systems, poor investor protection and poor economic management (Rabelo and Vasconcelos, 2002, Gurgler *et al*, 2003; Fisher, 2011). Given that corporate governance matters more in countries with weak legal systems and poor investor protection (Klapper and Love, 2004), we argue that the introduction of the Ghanaian Code in 2003 should have mitigated any agency conflicts and so have led to lower agency costs.

Using a sample of Ghanaian listed firms covering the period 2000 to 2009 and a panel data analytical framework, our results show that, after controlling for endogeneity, smaller board size decreases agency costs measured by sale-to-assets ratio. We also find evidence to suggest that the presence of audit and remuneration committees decrease agency costs measured by sales-to-assets ratio. However, we find that neither duality nor the proportion of non-executive directors affects agency costs. We also find that increased managerial and institutional ownership mitigates agency costs. Further, we find evidence to suggest that the introduction of the Ghanaian Code played a significant role in reducing agency costs relative to the pre-code adoption period. Finally, we report that non-board structure variables recommended by the Ghanaian Code, for example, shareholder activism, audit quality and the adoption of the International Financial Reporting Standards (IFRS) have also been effective in reducing agency costs.

Our paper makes a number of contributions to the existing literature. First, although the agency costs, ownership structure and corporate governance mechanisms have been subject to much analysis, for example, Ang *et al* (2000); McKnight and Weir (2009); Mustapha and Che Ahmad (2011), to date no study has investigated agency costs in an emerging African economy like Ghana and therefore this study helps to fill this gap in the literature. Second, prior studies have analysed the link between agency costs, ownership structure and corporate governance mechanisms after the introduction of a code, we show that the introduction of the Ghanaian Code has brought about ownership and corporate governance changes that have reduced agency costs relative to the pre-code period. Third, our evidence not only complements Singh and Davidson (2003), Fleming *et al* (2005), Mustapha and Che Ahmad (2011) who show that firms with greater managerial ownership experience lower agency costs, we provide further evidence to suggest that the relationship is more pronounced after the introduction of a corporate governance code of best practices relative to pre-code period. Finally, we provide new evidence to suggest that non-board structure variables such as shareholder activism, audit quality and the adoption of IFRS as recommended by the Ghanaian code are effective in reducing agency costs. These results highlight the importance of looking beyond board structure mechanisms, something which tends to be ignored in other studies.

The paper is structured as follows. Section 2 discusses the relevant literature and sets out a number of hypotheses. Section 3 presents data sources, variable measurement and the empirical models. Section 4 provides the results and discussion whilst Section 5 conclusions the paper.

2. Literature review and hypotheses development

2.1 Theoretical overview

The theoretical context for the analysis is the agency model which suggests a range of corporate governance mechanisms that, if adopted, should improve the effectiveness of a firm's governance by alleviating the agency conflicts. Given that many countries have introduced governance codes, we expect that the recommendations within these codes will result in a better governance system and hence should reduce agency costs as a consequence of more effective monitoring and a better quality of advice.

Consistent with the agency model, the 2003 Ghanaian Code introduced corporate governance guidelines with which Ghanaian firms were encouraged to comply. The key board-related provisions in the code refer to the separating the posts of the CEO and the Chairman of the board of directors; limiting the board size to between eight and 16 directors; having at least one-third of the total membership of the board to be independent directors; and the establishment of separate board committees. These committees are the audit committee responsible for the protection of shareholder interests in relation to financial reporting and internal controls, and the remuneration committee responsible for designing appropriate remuneration packages that promote the long-term success of the business. Other provisions call for improvement of the relationship between shareholders and managers as well as the provisions on financial affairs, auditing and disclosure practices. The underlying expectation is that compliance will reduce agency conflicts and therefore reduce agency costs.

Extant research in Ghana demonstrates that significant progress has been made in relation to Ghanaian listed firms' governance practices since the introduction of the Ghanaian Code in 2003. For example, Owusu and Weir (2013) find evidence to suggest that the standard of

corporate governance across companies has improved since the introduction of the Ghanaian Code. This is supported by Owusu and Weir (2016) who constructed a corporate governance index measuring the extent of overall compliance with the Ghanaian Code and show that the overall compliance with the Code's recommendations increased significantly after its introduction. However, Owusu and Weir (2016) did not investigate the effectiveness of individual governance provisions recommended by the Ghanaian Code or whether the code affected ownership structures.

2.2 Hypothesis development

Agency theory suggests that a smaller board size is more effective than larger board size for performing their monitoring, controlling and decision making functions (Lipton and Lorch, 1992; Jensen and Meckling 1976). For example, Lipton and Lorch (1992) argue that a board size of between eight and nine directors is optimal because the additional costs associated with slow decision-making are higher than the marginal benefits if the number of directors exceeds ten. Consistent with this, there is a considerable evidence showing that smaller boards have a positive effect on firm performance. For example, Yemarck (1996), Eisenberg *et al*, (1998), Singh and Davidson (2003), Bozec (2005) and Guest (2009) all show that smaller boards improve performance. Therefore, boards that are too big will have a negative impact on shareholder value implying that they increase agency costs.

The Ghanaian Code recommends a board size to be in the range of eight to sixteen. Given the work of Kyereboah-Coleman and Biekpe (2006) who found the average board size of around eight to be positively associated with firm performance in Ghana, the first hypothesis is:

H1. The smaller the board size, the lower the agency costs.

The second governance mechanism recommended by the Ghanaian Code relates to duality, the combining of the two most powerful board positions, the CEO and chairman. Duality is held to be undesirable because it adversely affects the ability of the board to effectively evaluate the CEO's performance, and hence will increase agency costs.

However, the empirical evidence relating to the impact of duality on performance is mixed. For example, Dalton *et al* (1998), *Chen et al* (2008), McKnight and Weir (2009) and Larcker *et al* (2011), find no support for the claim that duality harms performance. However, Kyereboah-Coleman and Biekpe (2006) find some evidence that duality is harmful to firm performance in Ghana in the period before the code was introduced. Consistent with the Ghanaian code, the second hypothesis is:

H2. The separation of the roles of CEO and Chairman should lead to lower agency costs.

The third governance mechanism recommended by the Ghanaian Code is for firms to have a balance of executive and non-executive directors with at least one third independent non-executive directors. Agency theory argues that boards dominated by executive directors (insiders) are not accountable to shareholders (Fama, 1980) and therefore may lead to higher agency costs. Given that the non-executive directors on the board have different expertise and are appointed to monitor and advise the executive directors on behalf of the shareholders, their presence is expected to enhance the board decision-making process to help maximise shareholder value, particularly as they are concerned with their reputation in the external labour market

(Fama and Jensen 1983). Alternatively, non-executive directors are usually part time and may sit on several boards, all of which will adversely affect their ability to monitor the actions of the executive directors.

In spite of the fact that all governance codes recommend that non-executive director presence is a good thing, the evidence surrounding their impact on performance is mixed. A number of studies have found a positive association between the proportion of non-executive directors representation on the board and firm performance (Cho and Kim, 2007; Coles *et al*, 2008; Gupta and Fields, 2009). However, other studies suggest that the presence of outside directors on the board has no effect on firm performance (Daily and Dalton, 1992; Klein, 1998; Haniffa and Hudaib, 2006; Kajola, 2008; Sanda *et al*, 2010; Wintoki *et al*, 2012). This is consistent with McKnight and Weir (2009) who find no evidence that non-executive director representation affects agency costs.

In spite of the mixed evidence, and consistent with the Ghanaian Code recommendations, the third hypothesis is:

H3. The larger the proportion of non-executive directors on the boards, the lower the agency costs.

The fourth governance mechanism recommended by the Ghanaian Code is the establishment of board committees. Klein (1998) argues that these committees' functions help to minimise agency costs because of managers' timely release of unbiased accounting information to shareholders. Weir *et al* (2002) argue that the existence of board committees may improve corporate accountability, legitimacy and credibility. The setting up of committees therefore improves the effectiveness and efficiency of the board (Jiraporn *et al*, 2009).

Prior studies have found a positive relationship between board committees and firm performance (Wild 1994; Laing and Weir, 1999; Black and Kim, 2012). However, Vafeas (1999) finds that the adoption of board committees adds extra costs relating to management time, travel expenses and additional fees paid to the members of the committees. He concluded that board committees can have negative effect on firm performance, a finding supported by Bozec (2005) and Lam and Lee (2012).

The main committees recommended by the Ghanaian Code are the audit and remuneration committees. For example, the audit committee functions of having frequent meetings with the firm's internal and external auditors, reviewing its financial statements, facilitating the audit process and accounting control systems may be important in reducing agency costs. Similarly, ensuring that executive remuneration is linked to company performance will also reduce agency costs. Therefore, given the recommendations of the Ghanaian Code, the fourth hypothesis is:

H4. The presence of audit and remuneration committees should reduce the agency costs.

Jensen and Meckling (1976) argue that increased managerial ownership helps to align the interests of shareholders and managers by giving them a financial stake in the firm's performance. Therefore as managerial ownership increases, agency costs will be reduced (Singh and Davidson, 2003; Fleming *et al*, 2005; McKnight and Weir, 2009; Mustapha and Che Ahmad, 2011). In Ghana, Isshaq *et al* (2009) find no significant relationship between insider ownership and firm performance. However, their measure of insider ownership based on the managers and

employees shareholdings is different from managerial ownership used by prior studies. In line with the agency model, the fifth hypothesis is:

H5. Higher managerial ownership should lead to lower agency costs

Shleifer and Vishny (1986) argue that agency costs may be reduced by the presence of large ownership blockholders that have the resources and ability to monitor the actions of managers. Support for this active monitoring hypothesis has been found by Allen and Philips (2000) and Florackis and Ozkan (2009). However, mixed results were found by Singh and Davidson (2003) and McKnight and Weir (2009). In Ghana, the Ghanaian Code considers controlling shareholders to have a responsibility to make use of their voting rights to help add value to their investment. This suggests that larger institutional shareholders have significant influence on corporate behaviour and should be responsible for reducing agency costs. Therefore, the sixth hypothesis is:

H6. Higher levels of institutional ownership should lead to lower agency costs.

3. Data and methodology

3.1 Data sources

The study covers the period from 2000 to 2009. The sample consists of all Ghanaian firms listed on the Ghana Stock Exchange (GSE). The minimum number of years of data is 2 years with a maximum of 10 years. A panel dataset was constructed using 283 firm-year observations from a total of firms ranging from 21 in 2000 to 35 as at the end of 2009. The data

used in this study are taken from two sources, firms' annual reports and the GSE *Factbooks* 2005 and 2010. Firms' annual reports provide the governance information on board structure, board committees and board size. The reports are also the source of information on managerial ownership and institutional ownership. Accounting data on assets, sales, debt, selling, general and administration expenses were gathered from the GSE *Factbooks* 2005 and 2010.

3.2 Empirical design

Given our interest in analysing the impact of governance and ownership structures that vary over time on agency costs, we employ a panel data regression analysis which provides a means of controlling for unobserved firm heterogeneity over the sample period. The Hausman (1978) test is used to differentiate between random and fixed effects regression models. This approach allows us to test the hypothesis of no correlation between the independent variables and the individual firm-specific effects. If there is no correlation, a random-effects model is appropriate but if correlation exists, a fixed-effects model is more appropriate. Using *SPAR* and *OPETSR* as agency cost measures in equation 1, the Hausman test gave χ^2 of 62.11 and 56.25 (*p-value* = 0.000 and 0.000), respectively, rejecting the hypothesis of no correlation. We therefore use the following general form of fixed effects regression in the analysis:

$$AC_{it} = \alpha + \sum_{j=1}^{n} \beta_j (Governance_{jit}) + \sum_{j=1}^{n} \beta_j (Ownership_{jit}) + \sum_{k=n+1}^{n+m} \beta_k (Control_{kit}) + Year_t + u_{it} \qquad (1)$$

where AC_{it} is agency costs; α is the overall intercept; $Governance_{jit}$ refers to specific governance mechanisms, *j*, for firm *i* in year *t*; $Ownership_{jit}$ is the ownership type *j*, for firm *i* in time t; $Control_{kit}$ is a set of firm specific control variables, *k*, for firm *i* in year *t*; where *k* = 1

to *m*; $Year_t$ is a vector of 9 dummy variables representing the 10 sample years; and u_{it} is the unobserved error component.

In addition, the agency cost-governance relationship may suffer from endogeneity (Coles *et al*, 2008; Linck *et al*, 2008, McKnight and Weir 2009). Thus for example, the extent of agency costs may determine governance structures rather than governance structures determining agency costs. To address this problem we use lagged values of the governance variables as instruments (Hermalin and Weisbach, 1991; Himmelberg *et al*, 1999; Coles *et al*, 2008; Larcker and Rusticus, 2010).

Dependent variables

We measure agency costs in two ways. First, consistent with Singh and Davidson (2003) and McKnight and Weir (2009), we use the annual sales-to-total assets ratio (*STAR*). This measures the efficiency with which assets are utlised because a high ratio value suggests a given value of assets are being used efficiently to generate sales. *STAR* is therefore an inverse proxy for agency costs because a high value indicates low agency costs. In contrast, a low value indicates that assets are being used on projects that generate low sales values and therefore suggests high agency costs and a misalignment of interests.

However, caution should be exercised when using the sales-to-assets ratio as a measure of agency costs. For example, it has been criticised on the grounds of differences in the accounting policies used in the measurement of assets (Ang *et al*, 2000). In addition, McKnight and Weir (2009) argue that higher sales may not increase shareholder wealth because they may come from wealth-destroying activities. Notwithstanding these issues, consistent with Ang *et al*

(2000), Singh and Davidson (2003) and McKnight and Weir (2009), we argue that the sales-to-assets ratio is a useful indicator of agency costs.

The second measure of agency costs is the expenses-to-sales ratio which indicates the extent to which discretionary expenses are incurred in the generation of sales. As in Ang *et al* (2000), Singh and Davidson (2003) and Florackis and Ozkan (2009), we measure agency costs in terms of the operating expenses-to-sales ratio (*OPETSR*). Operating expenses are defined as total expenses less cost of goods sold, interest expense and managerial compensation (Ang *et al*, 2000). This measures how successful managers are at controlling operating costs, something which includes perks. A high ratio indicates that managers are unable to control operating expenses and therefore shows high agency costs

Independent Variable

(i) Governance variables

BODSIZE is a firm's total number of board members. *DUALITY* is a dummy variable that takes a value of 1 if the roles of the CEO and the Chairman of the board are combined and 0 otherwise. *NX is* the percentage of non-executive directors on the total board. *AUDCOM* is a dummy variable that takes the value of 1 if a firm has an audit committee and 0 otherwise. *REMCOM* is a dummy variable that takes the value of 1 if a firm has a remuneration committee and 0 otherwise.

(ii) Ownership variables

Managerial ownership (*MGROWN*) is the percentage of shares held by executive directors. Blockholding is measured by institutional ownership (*INSTITSH*) which is the total percentage of shares held by institutional shareholders in excess of 3% of the total shareholding.

(iii) Control variables

We control for firm size (*SIZE*) and debt levels (*DEBT)* in our regression models for the following reasons. Firm size is likely to affect agency costs due to the differences in asset utilisation (Singh and Davidson, 2003). In addition, larger and complex firms present greater informational difficulties for shareholders (Doukas *et al*, 2000). *SIZE* is defined as the natural log of annual sales. Similarly, firms with the higher levels of debt are more closely monitored by debt-holders and thus managers have less chance to undertake non-value maximising projects (Jensen and Meckling, 1976). A firm's debt, *DEBT*, is measured by the ratio of total debt to total assets.

Based on our hypotheses, Table 1 sets out the predicted signs for each of the tested governance and ownership structure variables.

INSERT TABLE 1 HERE

4. Empirical results

Table 2 reports the descriptive statistics for the whole period from 2000 to 2009. The average sales-to-assets agency cost measure is 1.4186 and the operating expense-to-sales ratio's average was 0.9187. Average managerial ownership is 8.59% and the average total institutional ownership for those with at least a 3% holding is 72.96%. The average board size is 8.52. Some 16% of the Ghanaian listed firms combined the posts of CEO and chairman with non-executive directors making up an average of 75.80% of boards. Only 28% of firms have a remuneration committee but 70% have an audit committee.

INSERT TABLE 2 HERE

To assess the effect of the introduction of the Ghanaian Code on share ownership and on the adoption of the recommended individual governance mechanisms, Table 3 compares the mean ownership and the individual governance mechanisms during the pre-and post-code sub-periods. As Table 3 shows, there was a significant increase in the managerial ownership during the post-code period from 3.35% to 10.5%. Similarly, institutional ownership experienced a significant increase in the post-code period from 45.33% to 74.03%. Board size experienced a significant decrease in the post-code period from 9.03 to 8.17, suggesting that the Ghanaian boards became smaller after the introduction of the Ghanaian Code. Although there has been a fall in duality, it is not significant. Similarly, there has been an increase in the proportion of non-executive directors, but the change is not significant. However, there have been significant increases in the adoption of both audit and remuneration committees. These results therefore show that ownership and certain governance mechanisms experienced significant changes after the introduction of the Ghanaian Code.

INSERT TABLE 3 HERE

Table 4 presents the correlation matrix to help determine whether there is high collinearity between the variables included in the analysis. No evidence of multicollinearity was found.

INSERT TABLE 4 HERE

Models 1 and 2 of Table 5 presents the fixed effects regression results for the impact of individual governance and ownership variables on agency costs during the whole study period from 2000 to 2009 whilst models 3 and 4 include non-board structure variables. Following Larcker and Rusticus (2010), we use lagged values of the governance variables to address the endogeneity problem and therefore the number in our sample is reduced from 283 to 244. Consistent with hypothesis 1, Model 1 shows that board size is positively and significantly related to the sales-to-assets ratio. This suggests that smaller boards reduce agency costs relative to larger board sizes. In contrast to hypotheses 2 and 3, we find no evidence to suggest that either duality or the proportion of non-executive directors affects agency costs.

However, and consistent with hypothesis 4, there is evidence that the presence of audit and remuneration committees reduces agency costs measured by sales-assets-ratio. This suggests that both types of committees are operating as expected during the period under consideration. Therefore it would appear that audit committees are fulfilling their monitoring and advisory roles effectively. In addition, the results suggest that remuneration committees may have been operating as anticipated and that the executive directors pay awards have been successful in realigning the interests of management and shareholders. Consistent with hypothesis 5, model 1 shows that higher managerial ownership reduces agency costs. We also find evidence to support hypothesis 6, that higher institutional ownership reduces agency costs. However, as model 2 shows, none of the board variables were significant in explaining the expenses-to-sales ratio measure of agency costs.

INSERT TABLE 5 HERE

The above analysis covers the whole study period from 2000 to 2009. We therefore develop the analyses further by evaluating the effect of the Ghanaian Code's introduction on agency costs. Consistent with the agency model, if the recommendations represent good governance, and given the increase in the overall compliance with the Ghanaian Code from pre-2003 to post-2003 (Owusu and Weir, 2016), we would expect the introduction of the code to result in lower agency costs, assuming that the pre-code governance structures were not effective. To test this we construct a variable, CODE, which takes the value of 1 in each of the years following the introduction of the code and 0 for each of the years preceding it. CODE therefore measures the effect of the adoption of a wide range of governance recommendations on agency costs.

First, we find that agency costs fell significantly after the introduction of the code. The sales-to-assets ratio rose from 0.9834 pre-code to 1.8521 post-code, and the expense-to-sales ratio fell from 1.2641 to 0.6329, both differences being statistically significant at the 1% level. Models 1 and 2 of Table 6 report the results of the code change, whilst models 3 and 4 include the non-board structure variables. As Table 6 shows, CODE is statistically significant for both agency cost measures which suggests that the introduction of the Ghanaian Code is associated with lower agency costs. The results therefore suggest that the Code has improved the standard and effectiveness of corporate governance in Ghana. Both managerial and institutional ownership remain significant for the sales-to-assets measure of agency costs but remain insignificant in model 2 for the expenses-to-sales measure of agency costs. These results therefore suggest that ownership is a substitute for the governance mechanisms recommended in the Ghanaian code.

INSERT TABLE 6 HERE

Given the significant impact of the introduction of the Ghanaian code, we further develop the analysis by undertaking regressions for each of the two sub-periods: before the Ghanaian Code was introduce (pre-2003) and after the Ghanaian Code was introduced (post-2003). If pre-code governance structures are considered ineffective, we would expect the governance relationships to be associated with higher agency costs during the pre-Code sub-period, whereas the agency model would predict that the structures recommended by the Ghanaian Code should lead to a reduction in agency costs.

Table 7 presents the results for both sub-periods where models 1, 2, 5 and 6 represent the pre-code and the post-code sub-periods of the ownership structure, individual governance mechanisms and agency costs relationship, whilst models 3, 4, 7 and 8 include the non-board structure variables. Unlike our earlier findings, smaller board sizes are found to significantly reduce both agency cost measures post-2003, suggesting that the average board size of 8.17 is more effective in reducing agency costs. We also find that, for both sub-periods, duality and the proportion of non-executive directors are insignificant, implying that the changes to duality and the proportion of non-executive directors representation brought about by the Ghanaian Code's introduction had no effect on agency costs. However, there is evidence that the introduction of audit and remuneration committees has reduced agency costs, a finding consistent with the agency model. Increased managerial and institutional ownership are also found to reduce agency costs, a finding also consistent with the agency model.

Given that we have found that agency costs are significantly lower since the introduction of the Ghanaian corporate governance code but that not all of the board structure variables seem to reduce agency costs, we develop the analysis to investigate the effect of non-board structure

variables recommended by the Ghanaian Code, with the results being reported in models 3, 4 7 and 8. Three variables are introduced: shareholder activism measured by voting by mail (VBM), audit quality measured by the type of audit firm used by a particular firm (AUDITOR) and improvement in financial reporting to shareholders measured by the adoption of the International Financial Reporting Standards (AIFRS).

The code recommends that firms provide shareholders with the opportunity to vote by mail, something which was not present before the code's introduction. This change represents a move towards more shareholder activism because shareholders now had more opportunity to influence decisions made at the annual general meetings (AGMs). VBM is a dummy variable which takes the value of 1 if shareholders are able to vote by mail and 0 if not. Before the code's introduction, all firms allowed proxy voting and the approval of directors' re-election. The importance of VBM is that it gives extra power to shareholders to participate in the decision-making process, something which should lead to a reduction in agency costs.

The Ghanaian code identifies auditor quality as a key factor in the improvement of financial monitoring. AUDITOR is a dummy variable which takes the value of 1 if the company is audited by one of the Big 4 auditing firms and 0 if not. This may be regarded as a measure of audit quality and should reduce agency costs.

AIFRS is a dummy variable that has the value of 1 if a firm has adopted the International Financial Reporting Standards and 0 if not. It therefore shows the impact on agency costs of firms adopting a consistent set of internationally accepted reporting standards. If firms did not adopt these standards, they were expected to comply with the Ghana National Accounting Standards and so the variable will pick up the improvement in reporting and disclosure required by international rather than local standards.

In models 3 and 4 of Table 7, we find that for the pre-code period, VBM, AUDITOR and AIFRS are all insignificant. However, each in models 7 and 8 of Table 7 is significant in the post-code period suggesting that the quality of financial monitoring and reporting improved after the code's introduction. The results also confirm that NX and DUALITY remain insignificant but board size and the presence of audit and remuneration committees reduce agency costs. The results therefore offer some support for the agency model because they identify the crucial role played by improved monitoring in the reduction of agency costs.

INSERT TABLE 7 HERE

5. Conclusions

This study investigates the relationship between agency costs, ownership structure and corporate governance in Ghanaian listed firms. We hypothesised that the ownership structure and corporate governance changes prompted by the introduction of the Ghanaian Code in 2003 should lead to lower agency costs. Using a sample of Ghanaian listed firms from 2000 to 2009 and a panel data analytical framework, our results after controlling for endogeneity, show that smaller board sizes decrease agency costs. This evidence is in line with Lipton and Lorch (1992) who argue that a board size between eight and nine is more effective than a larger board size. We also find that the presence of audit and remuneration committees reduces agency costs suggesting that they operate in the interests of shareholders. However, we find no evidence that increasing the representation of non-executive directors or reducing the incidence of duality has any effect on agency costs. This suggests that not all board structure governance mechanisms are effective in mitigating agency costs. We also find that, the non-board structure code

recommendations such as improved shareholder voting rights, the adoption of International Financial Reporting Standards and auditor quality have also reduced agency costs.

The results also show that increased managerial and institutional ownership significantly reduces agency costs, a finding that supports Coles *et al* (2008) and McKnight and Weir (2009). This offers support for the agency model and suggests that managers' and shareholders' interests are aligned through increased ownership in Ghana. Furthermore, we find that the adoption of the Ghanaian Code leads to a reduction in agency costs, something that would not have been clear if the pre-code and the post-code periods had not been investigated separately.

Our results have important implications for investors and policy makers. For investors, the adoption of a corporate governance code by their investee firms can provide a means of reducing agency conflicts prompted by the separation of ownership and control, hence, result in lower agency costs. For policy makers, firms should be encouraged to implement the applicable corporate governance code's provisions if they are to protect shareholders from expropriation and align managers and shareholders' interests towards value maximisation.

One limitation of this study is that it focuses on firms listed on the Ghana Stock Exchange. One development would be to extend the analysis to other African countries, particularly those with a governance code. This will present an opportunity to investigate how far differences in the institutional environment explain the level and the effect of governance and ownership structures on agency costs.

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Table 1: Predicted signs for the relationship between agency costs, ownership structure and corporate governance mechanisms

Ownership and governance variables	Agency cost measures	
	sales-to-assets ratio (SPAR)	expense-to-sales ratio (OPETSR)
Board size	+	-
Duality	-	+
Non-executive directors	+	-
Audit and remuneration committees	+	-
Managerial ownership	+	-
Large institutional shareholders	+	-

Table 2: Descriptive statistics of governance and ownership structure variables

STAR is the sales-to-assets ratio. OPETSR is the operating expenses-to-sales ratio. MGROWN is the % shares held by the executive directors. INSTITSH is the total % shares held by institutions where the holding is greater than 3%. BODSIZE is the number of board members. DUALITY is when the CEO and the Chairman posts are occupied by the same person. NX is the proportion of non-executive directors on the board. AUDCOM is a dummy variable that has the value of 1 if a firm has an audit committee and 0 if not. REMCOM is a dummy variable that has a value of 1 if a firm has a remuneration committee and 0 if not. DEBT is the ratio of total debt to total assets. SIZE is the log of sales.

	Mean	Median	Std. Deviation
	Mean	*Median*	*Std. Deviation*
STAR	1.4186	0.8499	1.95146
OPETSR	0.9187	0.9195	0.52440
MGROWN %	8.59	0.10	18.549
INSTITSH %	72.96	73.65	13.815
BODSIZE	8.52	8.00	2.154
DUALITY %	0.16	0.00	0.022
NX %	75.80	80.00	13.096
AUDCOM	0.70	1.00	0.461
REMCOM	0.28	0.00	0.448
DEBT %	26.95	22.29	26.089
SIZE	6.29	6.15	1.292

Table 3: Differences in ownership and governance mechanisms across Ghanaian listed firms

The *t-test* in column 4 is the independent-samples *t-test* (mean) based on pre-2003 and post-2003 introduction of the Ghanaian Code. The variables include MGROWN, INSTITSH, BODSIZE, DUALITY, NX and AUDCOM, REMCOM. The mean differences test for equality of means between pre-2003 and post-2003 agency costs, ownership and governance mechanisms. A mean difference with (***) and (**) indicate that the null hypothesis that the means are equal is rejected at 1% and 5% significant level.

	Pre-2003 (2000-2002) Mean	**Post-2003 (2004-2009) Mean**	***t*-test**
MGROWN%	3.35	10.53	-6.526***
INSTITSH%	45.33	74.03	-7.422***
BODSIZE	9.03	8.17	1.843**
DUALITY%	17	15	0.316
NX%	75	76	-0.546
AUCOM	33.60	85	-7.582***
REMCOM	16.70	32.50	-3.563***

Table 4: Correlation matrix of agency costs and all other variables

Pearson's correlation coefficient during the whole period. STAR is the sales-to-assets ratio. OPETSR is the operating expenses-to-sales ratio MGROWN is the % shares held by the executive directors. INSTITSH is the total % shares held by institutions where the holding is greater than 3%. BODSIZE is the number of board members. DUALITY is when the CEO and the Chairman posts are occupied by the same person. NX is the proportion of non-executive directors on the board. AUDCOM is a dummy variable that has the value of 1 if a firm has an audit committee and 0 if not. REMCOM is a dummy variable that has a value of 1 if a firm has a remuneration committee and 0 if not. DEBT is the ratio of total debt to total assets. SIZE is the log of sales.

	STAR	OPETSR	MGROWN	INSTITSH	BODSIZE	DUALITY	NX	AUDCOM	REMCOM	DEBT	SIZE
STAR	1.0000										
OPETSR	0.0439	1.0000									
MGROWN	0.0188	-0.0879	1.0000								
INSTITSH	0.1423	-0.2746	-0.1400	1.0000							
BODSIZE	0.0551	-0.1994	-0.3633	0.2620	1.0000						
DUALITY	-0.0851	-0.0202	0.0522	0.1954	-0.3031	1.0000					
NX	0.1789	0.1489	0.0100	-0.1733	-0.1798	0.0365	1.0000				
AUDCOM	0.1263	-0.0338	-0.0121	-0.0769	0.1321	-0.2087	-0.0252	1.0000			
REMCOM	0.1317	-0.0678	-0.1529	-0.0623	0.3097	-0.2075	0.2270	0.3044	1.0000		
DEBT	0.0279	-0.0434	0.0016	0.0017	0.1388	-0.1215	0.1295	0.1877	0.2085	1.0000	
SIZE	0.0833	-0.0278	0.2127	0.0466	0.0194	0.1951	0.0340	-0.0096	-0.0155	0.1595	1.0000

Table 5: Fixed effects regression results for the impact of governance and ownership structure variables on agency costs

Models 1, 2, 3 and 4 all correct for endogeneity using lagged governance variables. In Models 1 and 3, STAR represents sales-to-assets ratio measure of agency costs and OPETSR represents the operating expenses-to-sales ratio in Models 2 and 4. BODSIZE is the number of board members. DUALITY is a dummy variable that has the value of 1 if a firm CEO and the Chairman posts are occupied by the same person and 0 if not. NX is the proportion of non-executive directors on the board. AUDCOM is a dummy variable that has the value 1 if a firm has an audit committee and 0 if not. REMCOM is a dummy variable that has the value of 1 if a firm has a remuneration committee and 0 if not. MGROWN is the percentage of shares held by the executive directors. INSTITSH is the total percentage of shares held by institutions where the holding is greater than 3%. VBM is a dummy variable that has a value of 1 if a firm allows voting by mail and 0 if not. AUDITOR is a dummy variable that has the value of 1 if a firm has a Big 4 auditor and 0 if not. AIFRS is a dummy variable that has the value of 1 if a firm has adopted the International Financial Reporting Standards and 0 if not. DEBT is the ratio of total debt to total assets. SIZE is the log of sales. *t*-statistics are in parenthesis and coefficients are on top of parenthesis. Year dummy and firm dummy variables are included in the regression models but their coefficients are not reported. ***, ** and * significant at 1, 5 and 10 percent, respectively.

	Model 1	**Model 2**	**Model 3**	**Model 4**
	STAR	OPETSR	STAR	OPETSR
BODSIZE	0.071	-0.016	0.099	-0.030
	(2.23)**	(-0.76)	(2.96)***	(-1.82)*
DUALITY	-0.204	-0.047	-0.389	-0.028
	(-0.70)	(-0.45)	(-1.24)	(-0.74)
NX	0.008	0.005	0.070	0.092
	(0.74)	(1.54)	(0.83)	(0.33)
AUDCOM	0.103	-0.083	0.169	-0.043
	(2.61)**	(-1.25)	(2.84)***	(-2.39)**
REMCOM	0.906	-0.110	0.735	-0.190
	(3.57)***	(-1.21)	(4.24)***	(-2.15)**
MGROWN	0.121	-0.035	0.083	-0.002
	(2.04)**	(-2.22)**	(2.85)***	(-3.13)***
INSTITSH	0.037	-0.010	0.003	-0.066
	(2.47)**	(-3.63)***	(3.22)***	(-3.67)***
VBM	-	-	0.350	-0.395
	-	-	(2.46)**	(-2.54)**
AUDITOR	-	-	0.310	-0.171
	-	-	(2.03)**	(-1.73)*
AIFRS	-	-	0.345	-0.111
	-	-	(2.02)**	(-1.05)
DEBT	0.011	-0.001	0.007	-0.001
	(3.22)***	(-0.67)	(2.22)**	(-0.61)
SIZE	0.137	-0.011	0.221	-0.091
	(1.97)**	(-0.39)	(2.75)***	(-1.83)*
_cons	5.432	1.456	3.309	1.311
	(3.88)**	(3.84)**	(2.26)**	(2.44)**
R^2	0.39	0.31	0.20	0.26
N	244	244	244	244

Table 6: Fixed effects regression results for the impact of the code change and ownership structure variables on agency costs

In Models 1 and 3, STAR represents sales-to-assets ratio measure of agency costs and OPETSR represents the operating expenses-to-sales ratio in Models 2 and 4. CODE is a dummy variable which takes the value of 1for years after the introduction of the Ghanaian Corporate Governance Code and 0 for years before. MGROWN is the percentage of shares held by the executive directors. INSTITSH is the total percentage of shares held by institutions where the holding is greater than 3%. VBM is a dummy variable that has a value of 1 if a firm allows voting by mail and 0 if not. AUDITOR is a dummy variable that has the value of 1 if a firm has a Big 4 auditor and 0 if not. AIFRS is a dummy variable has the value of 1 if a firm has adopted the International Financial Reporting Standards and 0 if not. DEBT is the ratio of total debt to total assets. SIZE is the log of sales. *t*-statistics are in parenthesis and coefficients are on top of parenthesis. Year dummy and firm dummy variables are included in the regression models but their coefficients are not reported. ***, ** and * significant at 1, 5 and 10 percent, respectively.

	Model l	**Model 2**	**Model 3**	**Model 4**
	STAR	OPETSR	STAR	OPETSR
CODE	0.300	-0.101	0.212	-0.107
	(2.56)**	(-2.47)**	(3.66)***	(-3.40)***
MGROWN	0.006	-0.003	0.075	-0.003
	(2.31)**	(-0.27)	(3.21)***	(-0.25)
INSTITSH	0.018	-0.007	0.221	-0.009
	(2.45)**	(-1.04)	(2.75)***	(-2.19)**
VBM	-	-	0.009	-0.001
	-	-	(3.25)***	(-2.31)**
AUDITOR	-	-	0.182	-0.112
	-	-	(2.60)**	(-2.57)**
AIFRS	-	-	0.148	-0.200
	-	-	(3.30)***	(-0.68)
DEBT	0.010	-0.001	0.416	-0.122
	(3.54)***	(-0.46)	(3.32)***	(-0.64)
SIZE	0.108	-0.107	0.413	-0.092
	(1.72)*	(-2.89)***	(3.03)***	(-1.12)
_cons	3.705	2.061	4.158	2.095
	(3.71)***	(3.51)***	(4.06)***	(3.42)***
R^2	0.41	0.35	0.26	0.14
N	244	244	244	244

Table 7: Pre 2003 and Post 2003 fixed effects regression results for the impact of governance and ownership structure variables on agency costs

The models correct for endogeneity using lagged governance variables. In Models 1, 3, 5 and 7, STAR represents sales-to-assets ratio measure of agency costs and OPETSR represents the operating expenses-to-sales ratio in Models 2, 4, 6 and 8. MGROWN is the percentage of shares held by the executive directors. INSTITSH is the total percentage of shares held by institutions where the holding is greater than 3%. BODSIZE is the number of board members. DUALITY is a dummy variable that has the value of 1 if a firm CEO and the Chairman posts are occupied by the same person and 0 if not. NX is the proportion of non-executive directors on the board. AUDCOM is a dummy variable that has the value of 1 if a firm has an audit committee and 0 if not. REMCOM is a dummy variable that has a value of 1 if a firm has a remuneration committee and 0 if not. VBM is a dummy variable that has a value of 1 if a firm allows voting by mail and 0 if not. AUDITOR is a dummy variable that has the value of 1 if a firm has a Big 4 auditor and 0 if not. AIFRS is a dummy variable that has the value of 1 if a firm has adopted the International Financial Reporting Standards and 0 if not. DEBT is the ratio of total debt to total assets. SIZE is the log of sales. *t*-statistics are in parenthesis and coefficients are on top of parenthesis. Year dummy and firm dummy variables are included in the regression models but their coefficients are not reported. ***, ** and * significant at 1, 5 and 10 percent, respectively.

	Pre 2003 (2000-2002)				**Post 2003 (2004-2009)**			
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
	STAR	OPETSR	STAR	OPETSR	STAR	OPETSR	STAR	OPETSR
BODSIZE	0.016	-0.013	0.020	-0.061	0.067	-0.134	0.107	-0.018
	(1.42)	(-0.96)	(0.10)	(-1.24)	(2.66)**	(-1.87)**	(2.25)**	(-2.10)**
DUALITY	-0.063	-0.047	-0.124	0.171	-0.415	-0.086	-0.864	-0.238
	(-1.02)	(-0.42)	(-0.53)	(0.45)	(-0.62)	(-0.61)	(-1.50)	(-0.47)
NX	0.024	0.030	0.005	0.003	0.011	0.012	0.006	0.003
	(0.38)	(0.50)	(0.10)	(0.20)	(0.51)	(0.52)	(0.44)	(0.21)
AUCOM	-0.322	-0.084	-0.293	-0.238	0.301	-0.102	0.119	-0.026
	(-1.28)	(-0.34)	(-0.34)	(-1.12)	(1.94)**	(-1.28)	(2.31)**	(-2.22)**
RECOM	-0.042	-0.056	0.518	0.319	0.388	-0.037	1.898	-0.194
	(-1.13)	(-1.26)	(0.43)	(1.07)	(3.04)***	(-1.72)*	(4.46)***	(-2.51)**
MGROWN	0.064	-0.132	-0.012	-0.006	0.024	0.058	0.133	-0.202
	(2.05)**	(-1.03)	(-0.14)	(-0.28)	(2.11)**	(0.16)	(2.01)**	(-2.07)**
INSTITSH	0.033	-0.034	0.049	0.004	0.027	-0.028	0.073	-0.083
	(1.41)	(-1.78)*	(0.66)	(0.22)	(2.03)**	(-2.40)**	(2.80)***	(-2.12)**
VBM	-	-	0.130	-0.162	-	-	0.154	-0.271
	-	-	(0.55)	(-0.28)	-	-	(3.23)***	(-2.46)**
AUDITOR	-	-	0.118	-0.214	-	-	0.273	-0.203
	-	-	(0.55)	(-0.81)	-	-	(2.25)**	(-0.20)
AIFRS	-	-	0.150	-0.422	-	-	0.230	-0.141
	-	-	(0.11)	(-1.05)	-	-	(2.36)**	(-1.94)**
DEBT	0.016	0.008	-0.002	0.003	0.046	0.019	0.061	-0.085
	(1.52)	(0.20)	(-0.15)	(1.14)	(2.66)**	(0.91)	(2.26)**	(-1.09)
SIZE	-0.008	-0.051	1.525	0.333	0.035	-0.154	0.022	-0.098
	(-1.62)	(-1.07)	(0.93)	(0.82)	(1.25)	(-0.86)	(0.24)	(-1.18)
_cons	3.822	3.757	-1.565	-1.229	3.067	1.599	-1.919	1.836
	(3.16)***	(2.55)**	(-0.91)	(-0.39)	(2.32)**	(1.82)*	(-1.80)*	(0.86)
R^2	0.36	0.21	0.15	0.24	0.46	0.31	0.27	0.35
N	42	42	42	42	154	154	154	154