Did Corporate Governance Compliance Have an Impact on Auditor Selection and Quality? Evidence From FTSE 350

Gerged, A., Mahamat, B. & Elmghaamez, I.

Author post-print (accepted) deposited by Coventry University's Repository

Original citation & hyperlink:
Gerged, A, Mahamat, B & Elmghaamez, I 2020, 'Did Corporate Governance Compliance Have an Impact on Auditor Selection and Quality? Evidence From FTSE 350', International Journal of Disclosure and Governance , vol. 17, pp. 51–60.

DOI 10.1057/s41310-020-00074-1
ISSN 1741-3591
ESSN 1746-6539

Publisher: Springer

The final publication is available at Springer via http://dx.doi.org/10.1057/s41310-020-00074-1

Copyright © and Moral Rights are retained by the author(s) and/ or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This item cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder(s). The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holders.

This document is the author's post-print version, incorporating any revisions agreed during the peer-review process. Some differences between the published version and this version may remain and you are advised to consult the published version if you wish to cite from it.

Did corporate governance compliance have an impact on auditor selection and quality? Evidence from FTSE 350

Ali M. Gerged [a&b]*
(Corresponding author)

a: Leicester Castle Business School
De Montfort University
The Gateway
Leicester, LE1 9BH, UK
ali.gerged@dmu.ac.uk

b: Faculty of Economics
Misurata University
Misurata City
PO Box 2478, Libya

Babikir Bechir Mahamat

Loughborough University
Epinal Way, Loughborough LE11 3TU

Ibrahim K. Elmghaamez

Coventry Business School
Coventry University
William Morris, Gosford Street
Coventry, CV1 5ED

Ibrahim.elmghaamez@coventry.ac.uk

This paper is cited as follows:

Gerged, A., M., Babikir, B., M., & Elmghaamez, I. (2020). Did corporate governance compliance have an impact on auditor selection and quality? Evidence from FTSE 350. *International Journal of Disclosure and Governance*. (In press).

Did corporate governance compliance have an impact on auditor selection and quality? Evidence from FTSE 350

Abstract

This paper examines the possible effects of corporate governance (GC) on audit quality (AQ) among the FTSE 350 companies. Using a sample of 180 companies from 2012 to 2017 (i.e., 1080 firm-year observations) a binary logistic model has been employed to investigate the CG-AQ nexus. This analysis was supported by conducting a probit logistic model as a sensitivity analysis. Our findings are associative of a heterogeneous impact of CG on AQ post the implementation of the 2012 CG reforms in the UK. For example, although institutional ownership and management ownership can predict AQ, board independence, non-executive directors and audit committee are not attributed to AQ in the UK. This implies that corporate compliance with good CG practices has a limited impact on the decision to select a Big4 auditor in the UK. Despite the limitations of our study, we hope it can motivate further investigations in this area.

Key Words: Corporate governance, audit quality, auditor selection, FTSE 350, UK.

Introduction

In this study, we investigate the relationship between corporate governance (CG) and audit quality (AQ). Our motivation was primarily stemmed from agency theory, i.e., the idea that separation of control and ownership in modern businesses can create incentives for managers to prioritise their interests rather than shareholders' interests (Jensen and Meckling, 1976). Given that earnings figures may be used in different ''*contracts*'', such as compensation agreements, executives have incentives to manipulate their companies' reported earnings. Shareholders, therefore, can employ various devices to constrain such opportunistic behaviour. Our study focuses on two of these tools accessible to shareholders to watch management behaviour, i.e., the external audit and corporate governance (CG). External auditors are apparently independent parties appointed to verify the reliability and accuracy of the financial information provided by managers to shareholders (Chen *et al*., 2005). The audit process, nevertheless, does not certainly offer blanket assurance that all types of misstatements and/or misclassifications were captured (Jackson *et al*., 2008). Rather, auditing reports might be of variable quality (Hoitash *et al*., 2007). Audit quality (AQ) can affect the probability that an auditor will be able to detect material misstatements (Adams, 1994). This means that AQ is attributed to a more significant opportunity to discover any material misstatements. Similarly, a high AQ reduces information asymmetry leading to a lower bid-ask spread (Coller and Yohn, 1997). If a company does not assure a top AQ, this might result in increasing the uncertainty

regarding the reported financial information, in that way increasing investment risk which is associated with the cost of equity of a firm (Lenz and Hahn, 2015).

In an attempt to restore public confidence in a competitive business environment, Big 4 audit firms intervene independently to detect accounting misstatements and frauds, defined as '*audit quality*' by DeAngelo (1981). The International Federation of Accountants (IFACs) and International Standards on Auditing (ISA) on professional ethics highlight the importance of auditor independence in mind and appearance in accounting estimates. The reason is that external auditors are involved routinely with the board of directors and, importantly, with the audit committee in the audit process to provide an unqualified view for the users of financial statements (Ghafran and O'Sullivan, 2017).

Shareholders, furthermore, have another mechanism by which they can attain a high quality of audited information, i.e., the corporate governance process. For example, if shareholders have adequate voting stock to be influential, they might be able to apply sufficient force to obtain high AQ (Ntim *et al.*, 2012).

The incidence of a series of corporate scandals at the end of the 1980s, such as the bankruptcy of the Barings Bank, increased the necessity to reform and enhance CG provisions in the UK (Al-Bassam *et al*., 2016). That period was categorised by poor performance and weak corporate disclosure regarding CG systems (Conyon & Mallin, 1997). Accordingly, since the early 1990s, several pieces of regulations and legislation have been introduced, aiming at restoring investors' confidence by enhancing transparency and accountability of the publicly listed firms on London stock exchange (LSE). In May 1991, for example, the LSE and the Financial Reporting Council (FRC) established the Cadbury Committee, with the aim of improving CG practices among UK listed companies (Ntim *et al*., 2015). Cadbury Report, however, was criticised for concentrating mostly on the financial-related aspects of CG and discounting other significant features such as risk management and the pay of executive directors (Conyon & Sadler, 2010; Ntim *et al.*, 2016).

In 2003, the Smith Report focused on enhancing the performance and function of audit committees (Aebi *et al*., 2012). In 2006 and 2008, the UK Combined CG Code was revised, after the 2008 financial crisis, however, it has increased the debate related to the effectiveness of CG mechanisms in constraining executives' opportunistic behaviours and protecting the wealth of shareholder (FRC, 2016).

In 2012, the UK Combined CG Code was revised with a specific focus on improving the effectiveness and role of institutional shareholders. These reforms have also recommended that non-executive directors (NEDs) should make up half of a company board to provide creative strategies for companies by providing free oversight and constructive challenges to executive directors (FRC, 2016). We have, therefore, been motivated to investigate the possible effects of the 2012 CG reforms on AQ in the UK from 2012 to 2017 using an agency theory perspective. On the basis of these reforms, we examine the possible effects of a composite of five CG internal mechanisms on AQ. These CG mechanisms are the board independence, institutional ownership, management ownership, non-executive directors and audit committee. Our paper contributes to CG-to-AQ related literature in the UK and around the world that apply the "*Anglo Saxon*" CG system by evaluating the strengths and weaknesses of the 2012 UK CG reforms that would help regulators and policymakers to improve the '*comply-or-explain*' principles that could contribute to good CG practices and high quality of audited financial information.

Our results suggest that CG compliance in the UK have, so far, a limited impact on AQ or auditor selection. Our evidence is in line with the voluntary nature of CG mechanisms in the UK, where listed corporations might not be held accountable for not conforming with a specific CG provision if they have offered a reasonable explanation. This implies a crucial need for developing such effective enforcement mechanisms for CG provisions in the UK such as appending CG reforms, such as the 2012 reforms, to listings rules for listed firms to comply with.

The remainder of this paper is designed as follows. First, we briefly discuss previous literature and the development of hypotheses. Second, we introduce the research design. Third, we present the results of logistic regression, including additional analysis and; finally, we conclude our research's policy and practitioner implications, limitations and future studies.

Literature Review and Hypotheses Development

There is a stream of literature that investigated the association between corporate governance and audit quality internationally. In our review of CG-AQ studies, we focus on mature markets that have been experiencing various governance and financial reporting issues.

There are various investigations of the CG-AQ nexus in the mature markets such as the US (e.g., Cohen *et al*., 2002; Cohen *et al*., 2010; Schelker, 2013); the UK (e.g., Zaman *et al*., 2011;

Ghafran and O'Sullivan, 2017); South Korea (e.g., Kwon *et al*., 2014; Kwon *et al*., 2018); Australia and New Zealand (e.g., Hay *et al*., 2017). Most of these studies suggest that corporate governance mechanisms were, on average, positively and significantly associated with audit quality. For example, in their study of the relationship between CG and AQ in the UK, Zaman *et al*. (2011) were suggestive of a significant positive association between CG (proxied by audit committee effectiveness) and AQ (proxied by audit fee and non-audit services fee) only in the case of large-sized firms. This implies that larger clients, maybe due to their complexity, appeared to be keener in purchasing non-audit services even if they were characterised with active audit committees. Similarly, Ghafran and O'Sullivan (2017) examined the possible effects of a CG mechanism (proxied by audit committee expertise) on audit quality (proxied by audit fees) among a sample of FTSE 350 companies in the UK. Their findings indicate that the audit committee with greater financial expertise was attributed to higher audit fees. This positive relationship was driven by non-accounting versus accounting expertise among the sampled companies.

Collectively, the results of these studies called for more in-depth analysis for the CG-AQ nexus. The recommendations of future directions for CG-to-AQ studies in developed countries might help to identify the possible determinants of a sound CG along with better audited financial information which believed to promote objectivity and independence and address the agency conflict between the principal and agent within a given organisation (Hay *et al*., 2017; Kwon *et al*., 2018). In a free market, such as the UK, a good CG mechanism is critical where government intervention is limited in the business environment. The agency conflict becomes the most dominant issue. Interestingly, auditors intervene in the mature markets might be regarded as a regulatory agency for the shareholders and the management to provide assurance services. These factors provide evidence of the added value of the best CG practices and AQ. Our study, therefore, aims at addressing the existing gap in the literature by investigating the CG-AQ nexus among a sample of FTSE 350 post the 2012 CG reforms in the UK.

Board of directors has a significant role in the governance of the ownership separation between management and shareholders (Gebrayel *et al*., 2018). In this regard, Sharma and Kuang (2014) conclude that independent non-executive directors (NEDs) are concerned with discipline and monitoring the management to ensure there is a good quality of financial reporting. Independent NEDs play a critical role in reducing frauds and the misstatement of financial information in an organisation. The link between AQ services and the board of directors may be formal. In term of management responsibility, NEDs regularly work with management in

the selection of external auditors. Since external auditors are charged with the review of financial statements, the board has the duty to review the work and scope of the audit planning and fees (Alwardat *et al*., 2015).

The independent board of directors can influence AQ through their expertise and commitment to overseeing the audit work and make sure their expectations do not undermine auditor independence (Kwon *et al*., 2018). If the external auditors understand that the auditee is pursuing complex accounting, they have the ultimate duty to challenge the management, whether it is in the best interests of the shareholders. Performing AQ services help to avoid or jeopardise professional competences. Ghafran and O'Sullivan (2017) found that the existence of board independence promotes high AQ, which minimises the agency cost, thus resulting in a low audit fee. Based on the above discussion, the following hypothesis was formulated.

> H1: There is a significant positive relationship between board independence (BI) and audit quality (AQ) among the FTSE 350 from 2012 to 2017.

According to agency theory, the principal-agent relationship is influenced by opportunistic behaviour and moral hazard resulting from information asymmetry (Niskanen *et al*., 2011). Ivanova (2017) assumes that institutional ownership (IO) has more power than individual shareholders. It is reasonable that IO asks for high AQ services to protect their interests and tend to choose Big4 audit firms to pursue high AQ (Bell *et al*., 2015). In other words, the larger the institutional investors, the higher the AQ and the lower the agency cost for the firm. It is assumed that the growth of institutional investors creates a demand for AQ services (Bell *et al*., 2015). Accordingly, the following hypothesis is formulated.

> H2: There is a significant positive relationship between institutional ownership and audit quality among a sample of FTSE 350 from 2012 to 2017.

Good CG can only be achieved by the strength of rule and regulation. A company with a robust internal control structure requires high AQ, for instance, in internal control mechanisms whereby the non-executive directors (NEDs) retain the balance power on behalf of the shareholders (Knyazeva *et al*., 2013). The roles and responsibilities of NEDs are highly important in overseeing the financial reporting (Baker *et al*., 2010); thus preventing the manipulation of accounting figures by the management (Spira, 2007). Likewise, governance mechanisms can only be achieved through the mechanisms of good control and monitoring (Ntim *et al*., 2012). This implies that the role of NEDs is to make sure that companies' annual reports are prepared in compliance with the UK CG code. The UK Best CG Code (2012) recommends that half of the board should be made up of independent NEDs. The presence of

NEDs on the board helps to minimise the weaknesses of the board on the committee (Knyazeva *et al*., 2013). In this regard, Ibrahim *et al*. (2016) argue that the number of NEDs can considerably influence the entity's financial information disclosure. According to the UK 2012 CG reforms, the balance between the executive board and NEDs tends to reduce both information asymmetry and conflict of interest.

Knyazeva *et al*. (2013) and Huang and Chan (2013) stated that the contribution of NEDs is critical to a firm's performance where it believed to enhance the audit function. The UK 2012 CG reforms recommend that the audit committee must be at least three independent NEDs. This indicates the significance of NEDs in minimising agency conflicts. An independent NED is important in monitoring management behaviour. It seemed to limit the frauds and errors in the financial reporting process, improve the financial performance, strengthen the auditor's independence, and then, enhance the quality of audited information (Khani and Noroozian, 2018). Based on the discussion above, the following hypotheses were formulated:

> H3: There is a negative and significant relationship between managerial ownership and audit quality among a sample of FTSE 350 from 2012 to 2017.
>
> H4. There is a positive and significant relationship between non-executive directors and audit quality among a sample of FTSE 350 from 2012 to 2017.

Audit Committee (AC) is seen as one of the most effective CG control tools used in Europe and the Anglo-Saxon model of CG, the '*comply-or-explain*' principles (Ibrahim *et al*., 2016). The Cadbury Committee (1992) recommends listed companies to have a minimum of three AC members in the monitoring mechanisms. However, if the AC is accountable for the selection and the appointment of external auditors, it must ensure that there is an effective appointment procedure, internal control, accounting standards and a provision to safeguard the auditor's independence (Verschoor, 2008). Likewise, Verschoor (2008) stated that the involvement of an AC reduces the likelihood of fraud, litigation, earnings management and preserves the external auditor's objectivity and independence which consequently reduces the conflict of interests and agency costs. As a result, the 2012 CG reforms recommend that all listed companies ought to establish an AC of at least three independent NEDs or explain why they have not complied. Therefore, the following hypothesis was formulated.

> H5: There is a positive and significant relationship between the audit committee and audit quality among a sample of FTSE 350 from 2012 to 2017.

Research design

Data and sample considerations

The population of this research is based on all financial and non-financial firms listed on LSE, with complete data for the years from 2012 to 2017. It has been decided that the sample data will be collected from FTSE350 in the UK. The FTSE350 index represents a large number of listed firms that comply with UK CG code on a '*comply-or-explain*' basis. The sample contains a systematic period of the post-2012 CG reforms in the UK. Consistent with Erkens *et al.* (2012), the data was obtained from the annual reports of 180 out of 350 companies listed in FTSE 350 available on the Bloomberg database. Companies in the sample should have available annual reports from 2012 to 2017, should be listed in the FTSE 350 index before 2012 and listings continued up to 2017 in compliance with UK listing rules (FRC, 2016), any company in the sample with incomplete annual reports is systematically excluded and, the fiscal year should end on 5th April of the year. Our sample, consequently, comprised 1080 observations (180 company, representing 51.4% of the overall population of listed corporations in LSE which is statistically acceptable) over a 6-year period.

Measures

Table 1 below explains how the research variables were operationally defined. In examining the research hypotheses, we divide our investigation into four stages. First, we measure audit quality using a dichotomous process where it takes 1 if the company is audited by a Big4 auditor and 0 if it is not (Kane and Velury, 2004), and audit tenure as a second proxy for AQ where a company coded one if the tenure is 3-6 years, otherwise 0 (Anafiah *et al*., 2017), and finally internal audit as a third proxy for AQ where a company is coded 1 if it has internal auditors (Beisland *et al*., 2015). However, we found no variability in internal auditors and a very low degree of variability (less than 3%) regarding using audit tenure as a proxy for AQ. We have, therefore, excluded them from our analysis as they have were not statistically meaningful. For the reasons mentioned above, we only use the big4 variable as a proxy for auditor selection and quality in our study. Second, we use the main proxies for corporate governance (CG) internal mechanisms that have been reformed in the 2012 CG reforms in the UK which are Board Independent (BI), CEO Duality (CD), Institutional Ownership (IO), Management Ownership (MO), and Audit Committee (AC). Third, in an effort to tackle any potential existence of endogeneities concerning omitted variables, a set of firm-specific characteristics has been used to control for the association between CG and AQ in our study.

The selected control variables are the firm size (SZ), business complexity (BC), industry type (IT), leverage (LE), and non-survivorship firms (NSF). Due to collinearity issues, nevertheless, we have included SZ and LE, only. These controls were chosen to be consistent with prior CG-to-AQ studies (see Zaman *et al*., 2011; Nnadi *et al*., 2017). Additionally, the current paper investigates the CG-AQ nexus using a binary logistic regression model to test the key hypotheses and a probit logistic regression as a robustness analysis.

INSERT TABLE 1 ABOUT HERE

Analysis

Consistent with prior CG-to-AQ studies that used a dummy variable as a proxy for AQ (e.g., Carey and Simnett, 2006; Premuroso and Bhattacharya, 2008; Brammer and Pavelin, 2008; Kane and Velury, 2004) the empirical examination is conducted using binary logistic regression (Wooldridge, 2010). The binary logistic regression is specified as follows:

$$AQ_{it} = \alpha_0 + \beta_1\ BI_{it} + \beta_2\ CD_{it} + \beta_3\ IO_{it} + \beta_4\ MO_{it} + \beta_5\ NEDs_{it} + \beta_6\ AC_{it} + \sum_{i=1}^{n} \beta_i\ CONTROLS_{it} + y_i + \varepsilon_{it}$$

Where AQ is audit quality, BI is board independence; the CD is CEO duality, IO is institutional ownership, MO is managerial ownership, NEDs is non-executive directors, AC is audit committee. CONTROLS are the firm size (SZ) and leverage (LE).

Table 2 presents the descriptive statistics of the research variables for all 1080 firm-year observations. Our results indicate varying degrees of distributional properties in our variables. For example, AQ shows a very low degree of variability with an Std. Deviation of 0.388. In contrast, IO indicates the second-highest level of variation among the selected research variables with an Std. Deviation of 29.13. Similarly, SZ is associated with the highest level of variability with 29.68 Std. Deviation.

INSERT TABLE 2 ABOUT HERE

Table 3 presents the frequencies for the dummies. It shows that 18.4% of the sampled firms were audited by non-big 4, whereas 81.5% were audited by the big four auditors. Regarding CEO duality, 96.6% of the CEO in our sample concurrently holds the position of chairman, while 3.4% were not. Likewise, the proportion of independent directors on the Board and NEDs varied from 0 to 16 in our sample. Additionally, the size of the AC was varying between 0 and 7.

INSERT TABLE 3 ABOUT HERE

Table 4 shows the correlation analysis of the variables of our study. According to the coefficients on both Pearson and Spearman correlations any residual non-normally distributed variables could be mild and are furthermore similar to those stated by previous studies (e.g., Kane and Velury, 2004; Carey and Simnett, 2006; Premuroso and Bhattacharya, 2008). Crucially, the magnitude and direction of coefficients on Pearson and Spearman matrices are mostly similar, consequently suggesting that any residual non-normalities are unlikely to lead to any statistical problems could affect the results of our investigation.

INSERT TABLE 4 ABOUT HERE

Logistic Regression Analysis

The primary hypothesis in our paper predicts that a firm with good CG practices is highly expected to have a higher quality of audited financial statements among the FTSE 350 after the 2012 CG reforms in the UK. In the correlation matrix (refer to Table 4), AQ is indeed positively and significantly correlated to board independence (BI), CEO duality (CD), institutional ownership (IO), non-executive directors on board (NEDs), audit committee size (AC), whereas it was negatively related to managerial ownership (MO). Nevertheless, once the binary logistic regression model was estimated with the other firm-specific characteristics of interest controlled, heterogeneous relations were observed (see Table 5 column 1). Remarkably, while IO and MO were positively and significantly associated with AQ, the remaining CG mechanisms (i.e., BI, CD, NEDs, and AC) cannot predict AQ as measured by big 4 in our

sampled companies. This means that using binary logistic regression, H2 has been statistically supported, whereas H1, H3, H4, and H5 have been rejected. (Refer to Table 5 column 1).

In addition to conducting a binary logistic regression, we have carried out a probit logistic regression as a robustness analysis. The results of probit regression were consistent with the main results of binary logistic regression where the effect of CG internal mechanisms on AQ is still heterogeneous in that they might have either increased or decreased the AQ (see Table 5 column 2).

Markedly, nevertheless not the key emphasis of our paper, the control variables (firm-specific characteristics) have significant influences on AQ. For example, firm size as measured by total assets (TA) is positively and significantly associated with AQ. Similarly, leverage (LE) has a positive and significant association with AQ (Refer to Table 5 column 1).

According to our results, the presence of independent directors is less likely to improve the governance standards as a monitoring tool for risk management in the UK, which goes against the claim of agency theory. This relationship could indicate that the proportion of inside directors reduces the ability of outside directors to contribute to AQ positively. This finding is consistent with the results of Gajevszky (2014), in contrast, inconsistent with Setia-Atmaja *et al*. (2011) findings that concluded that the independent directors are effectively addressing the conflicts of interests.

The findings also show that most IO in the UK relies on Big 4 audit firms to provide quality audit services. Theoretically, the reliance on Big 4 helps to monitor the agent behaviour as expressed by agency theory. This implies that IO plays a vital role in the control of listed companies after the 2012 CG reforms. In this regard, our findings were in line with the results of Husnin *et al*. (2016) that state that IO is one of the drivers of the selection and the appointment of external auditors to provide high-quality financial reports. However, Nnadi *et al*. (2017) opposed our findings by reporting a negative and significant association between IO and AQ in Morocco (a developing country) where family-owned businesses rely on local auditors rather than Big 4 auditors. Likewise, our results indicate that with important shareholdings, MO has a significant impact on the demand for AQ during the period of study. Arguably, the divergence of interests is likely, when an agent holds a large proportion of shares, to have a greater influence over the company, hence, the greater influence of power to act in their own self-interest (Holderness and Sheehan 1991). These agency conflicts raise the demand for high AQ, suggesting that Big 4 audit firms provide high AQ as a means to deter

MO's information asymmetry. Our findings are tied to the findings of Francis and Wilson (1988) and Adam and Bala (2015) that indicated a positive and significant relationship between MO and AQ.

The results of the present study suggest that NEDs cannot predict AQ, which leads to a question of whether NEDs opinions were biased. Furthermore, our results contradict the findings of Nnadi *et al*. (2017) that indicate that NEDs have a significant influence on AQ. Additionally, our results report an insignificant association between the AC and AQ, raising doubts that the AC attributes do not contribute to CG mechanisms in the provision of a good quality of audited accounting information in the UK. Many empirical studies give credibility to our findings; for example, Akinteye *et al*. (2015) and Tanyi and Smith (2014) are indicative of an insignificant association between AC and AQ. Relatedly, Ghafran and O'Sullivan (2017) found a positive association between AC expertise and AQ among a sample of FTSE 350 in the UK.

Conclusions

In 2012, the UK Combined CG Code was revised with a specific focus on improving the effectiveness and role of institutional shareholders and recommended that NEDs ought to be a half of a company's board (FRC, 2016). Given that, we have been inspired to examine the expected influences of CG compliance on auditor selection and AQ in the UK from 2012 to 2017. Our findings are suggestive of heterogeneous effects of CG mechanisms on AQ among a sample of FTSE 350. Notably, the institutional and managerial ownerships were both positively attributed to AQ, although board independence, non-executive directors, and the audit committee cannot predict the quality of audited financial statements in the context of the study. This means that institutional and managers owners are more interested in the selection of big4 auditors, which is expected to enhance the quality of the auditing quality. This also implies that the 2012 UK CG reforms have a limited effect on AQ, so far.

Given the voluntary nature of the UK CG code "*comply-or-explain*", listed firms might not essentially hold accountable for not being compliant with a specific CG provision as long as they were able to provide a realistic explanation. Our findings have, therefore, some policy and practitioner implications are related to the necessity of establishing a sound enforcement mechanism by which the 2012 CG reforms can be implementable in the UK. For instance, these reforms might be appended to a comprehensive set of listings rules for publicly listed firms to comply with.

Regardless of the efforts to confirm the robustness of our findings, several limitations must be acknowledged. For example, our sample consisted of data from six years for 180 out of the FTSE 350. Likewise, we could have included pre the 2012 CG reforms data. Therefore, we call for further studies using a more inclusive set of data associated with a period pre and post the 2012 CG and the other following reforms to examine the effects of corporate governance mechanisms on audit quality in the UK. Additionally, we recommend researchers to examine the moderating effects of CG mechanisms on the relationship between AQ, and other types of aggressive accounting practices such as earnings management and tax avoidance in the UK and those countries are adopting the "*comply-or-explain*" principles of CG.

- *On behalf of all authors, the corresponding author states that there is no conflict of interest.*

REFERENCES

Adam, S.I., and Bala, H. (2015). "Ownership structure and audit quality of Nigerian deposit money banks". *Journal of Social and Management Science Vol. 2* No. 3, pp. 54-65.

Adams, M.B. (1994). "Agency theory and the internal audit". *Managerial Auditing Journal*, Vol. *9* No. 8, pp. 8-12.

Aebi, V., Sabato, G., & Schmid, M. (2012). "Risk management, corporate governance, and bank performance in the financial crisis". *Journal of Banking & Finance,* Vol. *36* No. 12, pp. 3213-3226.

Akinteye, S.A., York, D.O. and Quat-Ullah, H. (2015). "Corporate Governance Mechanism: An Investigation of the Internal Audit Function Quality in Nigerian Listed Firms". *International Journal of Business and Social Science*, Vol. *6* No. 1, pp. 18-33.

Al-Bassam, W.M., Ntim, C.G., Opong, K.K., & Downs, Y. (2016). "Corporate boards and ownership structure as antecedents of corporate governance disclosure in Saudi Arabian publicly listed corporations". *Business & Society*, [In Press].

Alwardat, Y.A., Benamraoui, A. and Rieple, A. (2015). "Value for money and audit practice in the UK public sector". *International Journal of Auditing*, Vol. *19* No. 3, pp. 206-217.

Anafiah, V.A., Diyanty, V. and Wardhani, R. (2017). "The Effect of Controlling Shareholders and Corporate Governance on Audit Quality". *Jurnal Akuntansi dan Keuangan Indonesia*, Vol. *14* No. 1, pp.1-19.

Baker, H.K. and Anderson, R. (2010). *Corporate governance: A synthesis of theory, research, and practice* (Vol. 8). John Wiley & Sons.

Beisland, L.A., Mersland, R. and Strøm, R.Ø. (2015). "Audit quality and corporate governance: Evidence from the microfinance industry". *International Journal of Auditing*, Vol. *19* No. 3, pp. 218-237.

Bell, T.B., Causholli, M. and Knechel, W.R. (2015). "Audit firm tenure, non-audit services, and internal assessments of audit quality". *Journal of Accounting Research*, Vol. *53* No. 3, pp. 461-509.

Brammer, S. and Pavelin, S. (2008). "Factors influencing the quality of corporate environmental disclosure". *Business Strategy and the Environment*, Vol. *17* No. 2, pp. 120-136.

Carey, P. and Simnett, R. (2006). "Audit partner tenure and audit quality". *Accounting Review*, Vol. *81* No. 3, pp. 653-676.

Chen, K.Y., Lin, K.L. and Zhou, J. (2005). "Audit quality and earnings management for Taiwan IPO firms". *Managerial Auditing Journal*, Vol. *20* No. 1, pp. 86-104.

Cohen, J., Krishnamoorthy, G. and Wright, A. (2010). "Corporate governance in the post-Sarbanes-Oxley era: Auditors' experiences". *Contemporary Accounting Research*, Vol. *27* No. 3, pp.751-786.

Cohen, J., Krishnamoorthy, G., & Wright, A. M. (2002). "Corporate governance and the audit process". *Contemporary Accounting Research*, Vol. *19* No. 4, pp. 573-594.

Coller, M. and Yohn, T.L. (1997). "Management forecasts and information asymmetry: An examination of bid-ask spreads". *Journal of Accounting Research*, Vol. *35* No. 2, pp. 181-191.

Conyon, M., & Mallin, C. (1997). "A review of compliance with Cadbury". *Journal of General Management,* Vol. *22,* No. 2, pp. *24-37.*

Conyon, M., & Sadler, G. (2010). "Shareholder voting and directors' remuneration report legislation: Say on pay in the UK". *Corporate Governance: An International Review,* Vol. *18* No. 4*,* pp. 296-312*.*

DeAngelo, L.E. (1981). "Auditor size and audit quality". *Journal of Accounting and Economics*, Vol. *3* No. 3, pp.183-199.

Erkens, D.H., Hung, M. and Matos, P. (2012). "Corporate governance in the 2007–2008 financial crisis: Evidence from financial institutions worldwide". *Journal of Corporate Finance*, Vol. *18* No. 2, pp.389-411.

Francis, J.R. and Wilson, E.R. (1988). "Auditor changes: A joint test of theories relating to agency costs and auditor differentiation". *Accounting Review*, pp.663-682.

FRC. (2016). the UK Corporate Governance Code. [Online] Available from: https://www.frc.org.uk/getattachment/ca7e94c4-b9a9-49e2-a824-ad76a322873c/UK-Corporate-Governance-Code-April-2016.pdf. [Last assessed 08/07/2018].

Gajevszky, A. (2014). “Audit quality and corporate governance: evidence from the Bucharest Stock Exchange”. *Journal of Economic and Social Development*, Vol. *1* No. 2, pp.1-11.

Gebrayel, E., Jarrar, H., Salloum, C. and Lefebvre, Q. (2018). “Effective association between audit committees and the internal audit function and its impact on financial reporting quality: Empirical evidence from Omani listed firms”. *International Journal of Auditing*. [In press].

Gerged, A.M., Cowton, C.J. and Beddewela, E.S. (2018). “Towards Sustainable Development in the Arab Middle East and North Africa Region: A Longitudinal Analysis of Environmental Disclosure in Corporate Annual Reports”. *Business Strategy and the Environment*, Vol. *27* No. 4, pp.572-587.

Ghafran, C. and O'Sullivan, N. (2017). “The impact of audit committee expertise on audit quality: Evidence from UK audit fees”. *British Accounting Review*, Vol. *49* No. 6, pp. 578-593.

Hay, D., Stewart, J. and Botica Redmayne, N. (2017). “The Role of Auditing in Corporate Governance in Australia and New Zealand: A Research Synthesis”. *Australian Accounting Review*, Vol. *27* No. 4, pp.457-479.

Hoitash, R., Markelevich, A. and Barragato, C.A. (2007). “Auditor fees and audit quality”. *Managerial Auditing Journal*, Vol. *22* No. 8, pp.761-786.

Holderness, C.G. and Sheehan, D.P. (1991). “Monitoring an owner: The case of Turner Broadcasting”. *Journal of Financial Economics*, Vol. *30* No. 2, pp.325-346.

Huang, H.H. and Chan, M.L. (2013). “Long-term stock returns after a substantial increase in the debt ratio”. *Applied Financial Economics*, Vol. *23* No. 6, pp.449-460.

Husnin, A.I., Nawawi, A. and Puteh Salin, A.S.A. (2016). “Corporate governance and auditor quality–Malaysian evidence”. *Asian Review of Accounting*, Vol. *24* No. 2, pp.202-230.

Ibrahim, M.Y., Che-Ahmad, A., John, S.K. and Rahman, H.U. (2016). “The impact of corporate governance regulations on board independence and quality of financial information reporting: A proposed study”. *The European Proceedings of Social and Behavioral Sciences EpSBS*, pp.761-768.

Ivanova, M.R. (2017). “Institutional investors as stewards of the corporation: Exploring the challenges to the monitoring hypothesis”. *Business Ethics: A European Review*, Vol. *26* No. 2, pp.175-188.

Jackson, A.B., Moldrich, M. and Roebuck, P. “2008. Mandatory audit firm rotation and audit quality”. *Managerial Auditing Journal*, Vol. *23* No. 5, pp.420-437.

Jensen, M. C., & Meckling, W. H. (1976). “Theory of the firm: Managerial behaviour, agency costs and ownership structure”. *Journal of Financial Economics,* Vol. *3* No. 4, pp. 305-360.

Kane, G.D. and Velury, U. (2004). "The role of institutional ownership in the market for auditing services: an empirical investigation". *Journal of Business Research*, Vol. *57* No. 9, pp.976-983.

Khani, M.K. and Noroozian, M. (2018). "Analysing the Effective Factors on Internal Audit Quality of Health Insurance Organization of Iran". *International Journal of Academic Research in Accounting, Finance and Management Sciences*, Vol. *8* No. 1, pp.19-25.

Knyazeva, A., Knyazeva, D. and Masulis, R.W. (2013). "The supply of corporate directors and board independence". *The Review of Financial Studies*, Vol. *26* No. 6, pp.1561-1605.

Kwon, S.Y. and Yi, H.S. (2018). "Do Social Ties between CEOs and Engagement Audit Partners Affect Audit Quality and Audit Fees?" *Auditing: A Journal of Practice & Theory*, Vol. *37* No. 2, pp.139-161.

Kwon, S.Y., Lee, N.R. and Ki, E. (2014). "Effects of agency costs on the relationship of corporate governance with audit quality and accounting conservatism in the Korean audit market". *Asia-Pacific Journal of Accounting & Economics*, Vol. *21* No. 2, pp.157-185.

Lenz, R. and Hahn, U. (2015). "A synthesis of empirical internal audit effectiveness literature pointing to new research opportunities". *Managerial Auditing Journal*, Vol. *30* No. 1, pp.5-33.

Niskanen, M., Karjalainen, J. and Niskanen, J. (2011). "Demand for audit quality in private firms: evidence on ownership effects". *International Journal of Auditing*, Vol. *15* No. 1, pp.43-65.

Nnadi, M., Efobi, U. and Oledinma, A. (2017). "Audit quality, family business and corporate governance mechanisms: the case of Morocco". *Journal of Accounting in Emerging Economies*, Vol. *7* No. 4, pp.507-527.

Ntim, C. G., Lindop, S., Osei, K. A., & Thomas, D. A. (2015). "Executive compensation, corporate governance and corporate performance: a simultaneous equation approach". *Managerial and Decision Economics,* Vol. *36* No. 2, pp. 67-96.

Ntim, C.G. (2012b). "Does the South African stock market values independent board dual leadership structure?" *Economics and Business Letters*, Vol. *1* No. 1, pp. 35-45.

Albassam, W.M. and Ntim, C.G. (2017). "The effect of Islamic values on voluntary corporate governance disclosure: The case of Saudi-listed firms". *Journal of Islamic Accounting and Business Research*, Vol. *8* No. 2, pp.182-202.

Premuroso, R.F. and Bhattacharya, S. (2008). "Do early and voluntary filers of financial information in XBRL format signal superior corporate governance and operating performance?" *International Journal of Accounting Information Systems*, Vol. *9* No. 1, pp.1-20.

Schelker, M. (2013). "Auditors and corporate governance: Evidence from the public sector". *Kyklos*, Vol. *66* No. 2, pp.275-300.

Setia-Atmaja, L., Haman, J. and Tanewski, G. (2011). "The role of board independence in mitigating agency problem II in Australian family firms". *British Accounting Review*, Vol. *43* No. 3, pp.230-246.

Sharma, V.D. and Kuang, C. (2014). "Voluntary Audit Committee Characteristics, Incentives, and Aggressive Earnings Management: Evidence from New Zealand". *International Journal of Auditing*, Vol. *18* No. 1, pp.76-89.

Spira, L.F. (2007). *The audit committee: performing corporate governance*. Springer Science & Business Media.

Tanyi, P.N. and Smith, D.B. (2014). "Busyness, expertise, and financial reporting quality of audit committee chairs and financial experts". *Auditing: A Journal of Practice & Theory*, Vol. *34* No. 2, pp.59-89.

Verschoor, C.C. (2008). *Audit committee essentials*. John Wiley & Sons.

Wooldridge, J.M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

Zaman, M., Hudaib, M. and Haniffa, R. (2011). "Corporate governance quality, audit fees and non-audit services fees". *Journal of Business Finance & Accounting*, Vol. *38* No. 1-2, pp.165-197.

Table 1: The operational definition of the variables of the study.

VARIABLES	DEFINITION	MEASUREMENT	PREVIOUS STUDIES
		DEPENDENT VARIABLE	
AQ	Audit Quality	Audit quality is a dependent variable equal to 1. If a firm is audited by one of the big4 audit firms such as KPMG, PWC and Deloitte equal 1, otherwise 0.	Kane and Velury (2004).
AT	Audit Tenure	Audit tenure is coded to 1 if the tenure is 3-6 years, otherwise 0	Anafiah, Diyanty and Wardhani (2017).
IA	Internal Audit	The internal auditor is a proxy of audit quality coded to 1 if a company has internal auditors.	Beisland, Mersland and Strøm (2015).
		INDEPENDENT VARIABLES	
BI	Board Independent	The board independence is the proportion of independent directors on the Board	Zaman et al. (2011) and Kane and Valury (2004)
CD	CEO duality	If the chief executive duality is the chairman of the company. A dummy variable scores one if the CEO concurrently holds the position of chairman, 0 otherwise.	Zaman et al. (2011).
IO	Institutional Ownership	Institutional investors are measured by the proportion of shares owned to the total issued capital of the firm	Nnadi, Efobi and Oledinma (2017).
MO	Management Ownership	Management ownership is measured by the proportion of shares held by corporate officers or insiders divided by the number of shares of outstanding common stock	Zaman, Humdaid and Hanifa (2011); Kane and Valury (2004).
AC	Audit Committee	The size of the audit committee is a dummy variable coded to 1 to firms having an audit committee, otherwise 0	Zaman et al. (2011).
		CONTROL VARIABLES	
SZ	Company Size	Company size is based on the natural logarithm of total assets	Zaman, Hudaib and Haniffa (2011); Nnadi, Efobi and Oledinma (2017).
BC	Business Complexity	Business complexity is the number of subsidiaries a company owns	Zaman and Haniffa (2011); Nnadi, Efobi and Oledinma (2017).
IT	Industry Type	If a company belong to a financial sector equal to 0, otherwise equal to 1.	Gerged et al. (2018)
LE	Leverage	Leverage is measured by the percentage of long-term debts divided by total assets	Kane and Valury (2004) and Beasley (1996)
NSF	Non-survivorship firms	Non-survivorship firms on the results, a dumpy variable created coded to 1 if companies continuously present in the sampling period from 2012 to 2017, otherwise 0.	Carcello and Nagy (2004); Zaman et al. (2011).

Table 2: Descriptive Statistics

Variables	N	Mean	Std. Deviation	Minimum	Maximum
AQ	1080	0.82	0.388	0	1
BI	1080	5.76	2.375	0	16
CD	1080	0.97	0.182	0	1
IO	1080	36.07	29.13	0	343.60
MO	1080	5.03	14.70	0	127.4
NEDs	1080	6.42	2.587	0	16
AC	1080	3.72	1.217	0	7
SZ	1080	63.90	29.68	38.50	269.25
LE	1080	14.64	33.76	-42.61	96.22

The variables are entirely defined in Table 1

Table 3: Frequency for categorical data

Variables	codes	Frequency	Percent	Valid Percent	Cumulative Percent
AQ	0	199	18.4	18.4	18.4
	1	881	81.5	81.6	100
	Total	1080	99.9	100	
CD	0	37	3.4	3.4	3.4
	1	1043	96.5	96.6	100
	Total	1080	99.9	100	
BI	0	38	3.5	3.5	3.5
	1	2	0.2	0.2	3.7
	2	12	1.1	1.1	4.8
	3	68	6.3	6.3	11.1
	4	165	15.3	15.3	26.4
	5	260	24.1	24.1	50.5
	6	197	18.2	18.2	68.7
	7	137	12.7	12.7	81.4
	8	71	6.6	6.6	88
	9	56	5.2	5.2	93.1
	10	30	2.8	2.8	95.9
	11	23	2.1	2.1	98.1
	12	13	1.2	1.2	99.3
	13	3	0.3	0.3	99.5
	14	2	0.2	0.2	99.7
	15	1	0.1	0.1	99.8
	16	2	0.2	0.2	100
	Total	1080	99.9	100	
NEDs	0	42	3.9	3.9	3.9
	1	2	0.2	0.2	4.1
	2	24	2.2	2.2	6.3
	3	118	10.9	10.9	17.2
	4	229	21.2	21.2	38.4
	5	196	18.1	18.1	56.6
	6	170	15.7	15.7	72.3
	7	100	9.3	9.3	81.6
	8	78	7.2	7.2	88.8
	9	37	3.4	3.4	92.2
	10	35	3.2	3.2	95.5
	11	35	3.2	3.2	98.7
	12	6	0.6	0.6	99.3
	13	4	0.4	0.4	99.6
	14	1	0.1	0.1	99.7
	15	2	0.2	0.2	99.9
	16	1	0.1	0.1	100
	Total	1080	99.9	100	
AC	0	39	3.6	3.6	3.6
	1	11	1	1	4.6
	2	427	39.5	39.5	44.2
	3	395	36.5	36.6	80.7
	4	142	13.1	13.1	93.9
	5	40	3.7	3.7	97.6
	6	19	1.8	1.8	99.4
	7	7	0.6	0.6	100
	Total	1080	99.9	100	

The variables are entirely defined in Table 1

Table 4: Pearson and Spearman Correlation Coefficients

Per/ Spr	AQ	BI	CD	IO	MO	NEDs	AC	SZ	LE
AQ		.155**	.173**	.193**	-.160**	.113**	.159**	.151**	0.042
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.164
BI	.183**		.218**	.620**	-.465**	.740**	.467**	.626**	.226**
	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000
CD	.173**	.271**		.091**	-.064*	.184**	.174**	.089**	.100**
	0.000	0.000		0.003	0.034	0.000	0.000	0.003	0.001
IO	.090**	.575**	.077*		-.533**	.537**	.337**	.718**	.206**
	0.003	0.000	0.012		0.000	0.000	0.000	0.000	0.000
MO	-.119**	-.168**	-.108**	-.175**		-.441**	-.214**	-.565**	-.262**
	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
NEDs	.152**	.742**	.245**	.474**	-.131**		.384**	.622**	.210**
	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000
AC	.214**	.532**	.284**	.235**	-.104**	.468**		.233**	.064*
	0.000	0.000	0.000	0.000	0.001	0.000		0.000	0.036
SZ	-0.019	.414**	0.038	.614**	-.066*	.354**	.077*		.438**
	0.537	0.000	0.212	0.000	0.030	0.000	0.012		0.000
LE	0.013	0.039	0.007	0.028	-0.006	0.036	-0.003	0.010	
	0.665	0.206	0.827	0.353	0.840	0.243	0.920	0.748	

**. Correlation is significant at the 0.01 level (2-tailed),*. Correlation is significant at the 0.05 level (2-tailed). The variables have been operationally defined in Table 1.

Table 5: Results of binary and probit logistic regressions for 1080 firms-year observations

Variables	Binary Logistic Regression	Probit Logistic Regression
BI	-0.015 (0.186)	-0.005 (0.379)
CD	-0.004 (0.959)	-0.020 (0.588)
IO	0.001 (0.000)***	0.002 (0.000)***
MO	0.002 (0.002)***	0.001 (0.005)***
NEDs	-0.014 (0.119)	-0.008 (0.088)*
AC	-0.020 (0.130)	-0.016 (0.027)**
SZ	0.005 (0.000)***	0.002 (0.000)***
LE	0.002 (0.044)**	0.001 (0.151)
Constant	-4.495 (0.000) ***	-2.559 (0.000)***

Note: The primary investigation method in this study is a binary logistic model. The robustness test probit logistic model. The variables are entirely defined in Table 1

View publication stats