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Audit Committee's Characteristics and the Cost of Debt

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Abstract

Objective: This paper examines the association between audit committee characteristics and the cost of debt, with the aim of gaining new insights on how this corporate governance mechanism contributes to the reduction of debt costs.

Methodology: Using a sample of FTSE 100 companies listed in 2018 and 2019, our study investigates how audit composition and characteristics, such as financial and industry expertise, gender, tenure and diligence affect audit committees' oversight role, and therefore the impact on the companies' level of risk and the cost of debt.

Findings: The results show that overall audit committee's characteristics do not impact the corporate cost of debt, except for the gender of the audit committee's chair. Companies with audit committees managed by a chairwoman experience a lower cost of debt. The results also confirm that external auditors influence the cost of debt. As additional test, we conducted a principal component analysis to construct a corporate governance index of audit committee´s characteristics, and we obtained similar results. Overall, the study results seem to suggest that the cost of debt is more significantly influenced by external auditors than by the characteristics of the audit committee.

Value Added: This paper contributes to the literature on corporate governance by showing how audit committees characteristics affect the cost of debt.

Recommendations: This study improves the understanding of the way debtholders may assess audit committee's characteristics and auditors when assessing companies' financial risk and the corporate cost of debt.

Key words: audit committee´s characteristics, auditors, cost of debt, corporate governance.

Introduction*

The existing literature has been providing evidence that audit committees play a key role in overseeing financial reporting and monitoring the external audit process with an impact on financial reporting quality (Abbott et al., 2003; Dao et al., 2013). The role of audit committee (AC) as a corporate governance mechanism has been gaining interest among regulators and investors with the aim of understanding which AC characteristics lead to a reduction in information asymmetries with positive consequences on the financial reporting process (Bilal et al., 2018).

Considering that one of the main elements used by creditors to assess companies' financial capacity and viability are financial reports, it can be expected that from a creditor´s viewpoint all the factors that influence financial reporting quality are of great concern as fa as their valuation is concerned. In this context, knowing the AC attributes that influence the quality of financial reporting will be of great value to creditors in determining debt costs (Anderson et al., 2004).

The existing research provides evidence that good corporate governance is related to lower cost of equity and lower cost of debt (Zhu, 2014). By reducing agency conflicts between the company and creditors, corporate governance mechanisms may contribute to lower debt costs. Lorca et al. (2011) provide evidence that board activity, director ownership and board size are the attributes that contribute to reducing the cost of debt. Andersen et al. (2004) conclude that the cost of debt is inversely associated with board independence and board size. Dao (2013) shows that the cost of equity is lower for companies with higher average AC members' age.

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However, due to its role in providing active monitoring of the financial reporting process and external auditor process, the study of the attributes of AC has been gaining increasing interest of regulators and supervisors. The Securities and Exchange Commission, the Financial Accounting Standards Board, and the major stock exchanges frequently emphasize the role of the board of directors in overseeing the financial accounting process (Anderson et al., 2004). According to the Financial Reporting Council (FRC) (2016), the code provision (C.3.1) requires the board to establish an AC, which is a sub-committee of the board that mostly encompasses nonexecutive directors responsible for the oversight of reliable financial reporting and a credible audit function (Shah & Napier, 2017). The AC's mission is to apply the board's internal control principles and to maintain an appropriate relationship with the company's auditors (FRC, 2016).

According to the FRC, and as elaborated by the United Kingdom (UK) Governance Code, the AC should: guarantee the integrity of the financial statements, reviewing significant financial reporting judgments contained in them; review the company's internal control and risk management systems and the effectiveness of the company's internal audit function; make recommendations to the board to get the approval of the shareholders during the general meeting. Furthermore, its role should assure the external auditor's independence and the objectivity and effectiveness of the audit process, always based on the policy implemented in the UK (FRC, 2016). Many studies consider the implementation of an effective AC as essential for driving professionalism to the improvement of financial reporting quality (Velte, 2017; Weber, 2020; Sulaiman, 2017; Qu, 2020). The monitoring and advisory-related function of ACs are of great importance in reducing information asymmetries between management, supervisory board and shareholders, and it has the ultimate board-level responsibility for financial reporting oversight (Archambeault et al., 2008). Lorca et al. (2011) concluded that as a structure of the corporate governance, a greater AC effectiveness can result in a lower cost of debt for the companies due to reduced agency problems and the reduction in information asymmetry.

Previous studies have specifically addressed the effect of the composition of the Board of Directors on the cost of debt financing (Anderson et al., 2004;

Lorca et al., 2011) and those results are consistent with the argument that debtholders consider board monitoring effectiveness as a source of greater assurance concerning the integrity of accounting numbers, thus improving the financial accounting process. Cotter and Silvester (2003) find evidence that independent directors on the AC reduce the monitoring by debtholders when leverage is low. The corollary is that executives on the AC lead to increased monitoring by debtholders.

Fewer studies have addressed the relationship between audit committees´ composition and characteristics and the cost of debt. Therefore, this study aims to fill this gap by investigating the effect of different attributes of the AC on the cost of borrowing. We expect that AC characteristics such as financial and industry expertise, gender, tenure and diligence affect audit committees' oversight role, and therefore impact the companies' level of risk and the cost of debt.

To conduct the analysis, a sample of FTSE 100 companies listed in 2018 and 2019 was used.

The UK has a global reputation for having high standards of corporate reporting, auditing and governance. The UK Corporate Governance Code aims to ensure high-quality corporate governance that should be fulfilled by the AC as a promoter of audit quality in the UK (FRC, 2016).

This research contributes to the literature in several ways. Firstly, it investigates the relationship between the attributes of the AC and their impact on the corporate cost of debt. Although the cost of debt is an important factor to a company's performance and value, the consequences of corporate governance mechanisms on debtholders´ perspective have been less studied. Secondly, the research can help regulators and supervisors by providing information about the effectiveness of AC´s attributes as a corporate governance mechanism. Finally, our study improves the understanding of the way debtholders may assess AC characteristics and auditors when assessing companies' financial risk and the corporate cost of debt.

The remaining part of the paper proceeds as follows: Section 2 provides the literature review, where the focus is on the AC characteristics and their possible impacts, and the hypotheses are developed. Section 3 presents the research

design, while Section 4 describes the sample and the data. In Section 5, the results and findings are discussed. Finally, the in last section the main conclusions are presented.

Literature Review and Hypothesis Development

Previous studies show that the effectiveness of the oversight corporate governance mechanisms may play an important role in constraining managerial opportunism and improving the quality of financial reporting (Anderson et al., 2004; Lorca et al., 2011). More effective oversight mechanisms may reduce companies' risk and, consequently, reduce the risk premium and the corporate cost of debt.

ACs are an important corporate governance mechanism, protecting shareholders' interests and overseeing the external audit process. In the UK, the revised Combined Code (2012) endorsed that the AC should comprise a minimum of three members; all members should be independent non-executives; at least one member should have recent and relevant financial experience; and AC should meet at least four times per year.

Financial and Industry Expertise of Audit Committee

The financial background of board members represents one of the most widely investigated attributes that are of interest to regulators. Zalata et al. (2018), Abbot et al. (2003) and Abbot et al. (2004) studied the impact a financial expert may have in different areas, such as earnings management, audit fees and the occurrence of financial reporting restatements, and they found that the financial reporting quality is higher when AC members have more financial expertise. Ghafran & O'Sullivan (2017) argue that greater levels of financial expertise in the AC are a synonym for demanding higher audit fees. Nevertheless, according to the author, it is unquestionable that the knowledge on AC will enhance reports' quality. Weber (2020) appends the fact that high levels of financial

expertise and advanced educational backgrounds tend to increase companies' earnings quality, and it may reduce information asymmetries between management, supervisory board and shareholders, contributing to improving the financial reporting quality.

According to FRC (2016), at least one AC member should have recent and relevant experience in preparing and auditing financial statements and accounting for accruals, estimates and reserves. Abbot et al. (2004) argued that AC members who possess financial literacy/expertise provide additional support for external auditors when discussing accounting issues and disagreements with management. Therefore, it is expected that greater AC financial knowledge will result in a reduced amount of financial misstatement and, therefore, in a higher quality of financial reporting.

Among the AC members, the chair is of special relevance. According to the Guidance on AC (FRC, 2016), the AC chair decides on the frequency and timing of AC meetings and keeps in touch on an ongoing basis with key people in the companies' governance. Additionally, AC chairs are encouraged to report personally in their annual statements how the principles relating to the role and effectiveness of the board have been applied. It will bring clearer context for the investors so they will be willing to accept explanations when a company chooses to justify their provisions (FRC, 2016). Sulaiman (2017) suggests that the effectiveness of AC is influenced by the knowledge and understanding of financial reporting and auditing.

Lary and Taylor (2012) developed a financial expertise score to better qualify the chair's financial expertise. The authors incorporated previous experience in a BIG4 company as a component of this score, as they argued that such experience contributes to a more comprehensive preparation. Furthermore, there is a lot of evidence that BIG4 auditors deliver higher audit quality in the reports due to their associated credibility (DeFond & Zhang, 2014). As a result, it may be expected that an AC chair that had already worked in a BIG4 will perform a more effective oversight. A more effective oversight will tend to reduce companies' financial risk and, consequently, reduce the corporate cost of debt.

Regarding the industry expertise, Cohen et al. (2014) argued that AC industry knowledge is valuable because accounting guidance, estimates and

oversight of the external auditor are often linked to a company's operations within a particular industry. Hence, industry expert audit committee members who understand industry's complexities and risks might communicate more effectively with the auditor. Moreover, industry experts on the AC are likely to be in a better position to understand the nature of industry-specific audit effort required to assure the quality of the financial reports.

In contrast, Brazel & Schmidt (2019) proposed that ACs with industry-expert chairs are more likely to be associated with large inconsistencies than those without, arguing that AC chairs with more experience in the industry can use their specific knowledge as well as their oversight attributes over the external auditor's activities to influence audit adjustments that eventually increase fraud risk. The AC chair may also play a ceremonial role in the interaction with the external auditors and the management (Beattie et al., 2015), being unable to challenge adequately the auditors and the management.

Considering the above arguments, a positive effect of the financial expertise of the AC chair on the corporate cost of debt is anticipated, i.e. companies whose AC chair has greater financial expertise will be associated with a lower risk and thus a lower corporate cost of debt. It is also predicted that there is an association between the industry expertise and the corporate cost of debt.

H1 a) *There is a negative association between the level of financial expertise of the AC chair and the corporate cost of debt.*

H1 b) *There is an association between the level industry expertise of the AC chair and the corporate cost of debt.*

Tenure of Audit Committee Chair

As mentioned before, there is considerable research concerning AC, its influence on the company and its responsibilities. Qu (2020) studies the specific 'styles' of AC members and chairpersons. These 'styles' are defined as individual characteristics inherent of each member, and they may affect the financial

reporting choices. The author claims that these 'styles' are a good tool to measure the independence from the company and, if they do not harm the company, they should be preserved. The legislation requires that AC's members should maintain some independence from the company in order to provide the best results. Unquestionably, independent ACs provide more reliable accounting information when compared to insider-stacked committees (Qu, 2020). Anderson et al. (2004) confirm that AC composition influences the financial accounting process, and may have an impact on the level of companies' financial risk. Therefore, it may be concluded that corporate debt yields will exhibit an inverse relation to AC independence. Consequently, independent ACs are associated with a significantly lower cost of debt financing.

If audit committee members were completely separated from management, it could mean that the independent AC members would see fewer industry issues and would be more likely to side with the auditor, requiring fewer negotiations and deliberations and thus fewer meetings, impacting the level of monitoring.

Tenure is a factor that may influence independence in a positive or negative way. The longer the tenure someone has, the less independent the chair becomes and the higher is the probability of the chair's behaving like an inside director (Qu, 2020). This raises the question as to whether the chair's tenure should be restricted in the same way as that of the lead auditor. Nevertheless, Sharma et. al. (2011) also consider that the longer the tenure, the better the knowledge of the company and thus better results. Based on the argument that tenure reduces independence (Qu, 2020), the independence of an AC on the basis of the tenure of the AC's chair has been measured.

Considering those opposite arguments, the signs of the relationship between the tenure of the AC's chair (and consequently the independence that the AC is associated with) and the cost of debt financing the company will present cannot be anticipated. The following hypothesis is formulated, without making the direction of such influence explicit:

H2) *There is an association between the tenure of the AC chair and the corporate cost of debt.*

Frequency of Audit Committee Meetings

The Treadway Commission (1987) recommends the frequency of at least four AC meetings per year (consistent with the reviews of quarterly financial statements). Meeting frequency may indirectly provide information on the value of AC monitoring of quarterly statements and their diligence in carrying out their responsibilities (Abbot et al., 2003). Abbot et al. (2004) stated that if quarterly meetings are associated with greater audit committee diligence in their monitoring duties, then we expect quarterly meetings to be associated with a lower level of misstatement, and thus better quality reports and lower corporate costs of debt. Aldamen et al. (2012) agree with the claim, mentioning that the proper number of meetings can potentially have a positive impact on the company's performance.

According to Abbot et al. (2004), an AC comprised solely of independent directors and meeting quarterly would be more willing to confront management about financial reporting matters and thus exhibit fewer incidents of financial reporting misstatements. Hoque et al. (2013), Mangena & Tauringana (2008), and Munro & Buckby (2008) also found that AC that meets more regularly tends to be more effective in its oversight role. Therefore, it is predicted that a higher frequency of AC meetings will tend to increase the effectiveness of the oversight and therefore reduce the companies' financial risk and the corporate cost of debt:

H3) *There is a negative association between the meeting frequency of the AC and the corporate cost of debt.*

Gender in Audit Committee

The presence of women in the ACs has also become a new topic during the last years. Qu (2020) provides evidence that women are more risk-averse than men, and men exhibit higher levels of overconfidence when compared to women. The social-psychological literature emphasizes the gender differences in optimism about future economic outcomes, and finds women less confident and more conservative in making financial decisions. Byrnes et al. (1999) add that

men are more likely to be involved in 'risky experiments', 'intellectual risk taking' and 'gambling' than women. Zalata et al. (2018) have demonstrated that an increased presence of female experts on the audit committee leads to a significant reduction in earnings management. This finding highlights the positive impact of women in the role of AC members.

According to Abbott et al. (2004) and Bédard et al. (2004), AC female financial experts are expected to have a more pronounced effect on earnings management than their male counterparts. Adams & Ferreira (2009) argue that since women directors do not belong to the 'old-boy' networks, they are more likely to provide most substantial oversight, monitoring, and an unbiased way of thinking as independent directors.

The current research provides only limited and inconsistent evidence regarding the economic impact that higher female representation in AC might bring to the company. Based on the opinion of Qu (2020), it is predicted that companies with female AC chairs tend to be associated with a lower financial risk and, consequently, a lower corporate cost of debt. Therefore, the following hypothesis is formulated:

H4) *There is a negative association between the fact of the AC chair being a woman and the corporate cost of debt.*

Auditor Tenure and Audit Fees

The concept of 'Big N research' has been extensively investigated in the literature in recent years (DeFond & Zhang, 2014; Pittman & Fortin, 2004). The auditor size proxied by 'Big N firms' has been consistently linked in the literature to higher quality audits. Pittman & Fortin (2004) state that choosing a bigger auditor firm reduces debt monitoring costs by enhancing the credibility of financial statements; hence, it enables companies to lower their interest rates. Based on this argument, it may be expected that audit firm size may lower the corporate cost of debt, reducing it as a result of the credibility that the audit firm has in terms of financial transparency and reliability with creditors. Since this study's sample includes only BIG4 audit firms, it is not considered as a hypothesis.

Nevertheless, 'Big N firms' are associated with higher audit fees. Yang et al. (2018) claim that the audit fees are significantly and positively related to the firm-specific financial, strategic and operational risks, indicating the informativeness of corporate textual risk disclosures. This means that higher audit fees are linked with higher informativeness of risk that the audit firm is associated with. Accordingly, beyond this argument, it may be expected to cause a higher corporate cost of debt when facing creditors, since creditors are more aware of the risks the company is associated with; thus, they ask for higher fees.

Board tenure captures the ability of managers to influence directors, so longer tenure potentially permits managers to have a greater influence over directors' decisions (Brickley et al., 1994). The same is expected to occur with auditors. According to Tepalagul & Lin (2015), there are two opposing views on the effects of auditor tenure on audit quality. According to the first one, as the auditor-client relationship prolongs, the auditor may establish a close relationship with the client and become more likely to act in favour of the management, thusly reducing audit quality. This view supports mandatory audit partner rotation. In the second view it is claimed that as the auditor's tenure lengthens, auditors increase their understanding of their clients' business and develop their expertise during the audit, which results in higher audit quality. Singer & Zhang (2018) find that longer audit firm tenure may lead to less timely detection and correction of misstatements, which is consistent with a negative effect of long auditor tenure on the audit quality. This fact addresses the benefit of a fresh look by a new auditor. According to the author, the negative association between auditor tenure and timely discovery of misstatements is predominant in the first ten years of an audit engagement (Singer & Zhang, 2018). Since there is no consensus on the literature, the question of which impact may be stronger when affecting the borrowing cost will be examined. It leads to the formulation of the following hypotheses:

H5) *There is a positive association between audit fees and the corporate cost of debt.*

H6) *There is an association between auditor tenure and the corporate cost of debt.*

Research Design

In accordance with the previous literature on the topic, we use the following pooled OLS model to examine the association between the audit committee's characteristics and the cost of debt presented by companies:

$$COD_{i,t} = \beta_0 + \beta_1 WBIG4_{i,t} + \beta_2 INDEXP_{i,t} + \beta_3 AGECHAIR_{i,t} + \beta_4 MEETFREQ_{i,t} + \beta_5 WCHAIR_{i,t} + \beta_6 AUDFEE_{i,t} + \beta_7 AUDTENURE_{i,t} + \beta_8 LEV_{i,t} + \beta_9 FIRMSIZE_{i,t} + \beta_{10} INTCOV_{i,t} + \beta_{11} LOSS_{i,t} + \beta_{12} I.SECTOR_{i,t} + year\ controls_{i,t} + \varepsilon_{i,}t \quad (1)$$

Where *COD* is the cost of debt calculated on the basis of the ratio between total interest cost incurred and the average debt of each company during the last four years of the sample period (Khemakhem & Naciri, 2013). *WBIG4* measures AC chair's financial expertise and it is a dummy variable that equals one if the AC chair had already worked in a BIG4 company and zero otherwise (Lary & Taylor, 2012). *INDEXP* measures the AC chair's industry expertise and it is a dummy variable that equals one if the AC chair had some industry expertise and zero otherwise (Anderson et al., 2004). *AGECHAIR* measures AC chair's tenure and it is the logarithm of the number of years of the actual duration of the current AC chair's tenure (Aldamen et al., 2012). *MEETFREQ* measures the diligence of the AC and it is the number of meetings that the AC reported in a sample year (Aldamen et al., 2012). *WCHAIR* is a dichotomous variable that equals one if the chair of the AC is a woman and zero otherwise (Aldamen et al., 2012). *AUDFEE* is the natural logarithm of audit fees (Abbott et al., 2003; Yang et al., 2018). *AUDTENURE* is the natural logarithm of the number of years of the actual duration of the current auditor's tenure (Pinto & Morais, 2019; Qu, 2020; Zalata et al., 2018).

The regression model requires the introduction of control variables that complement the model. The following elements are used as control variables: the company size – *FIRMSIZE*-, measured by the natural logarithm of total assets to capture information asymmetry and any residual risk effect (Lorca et al., 2011; Qu, 2020; Yang et al., 2018); the interest coverage ratio – *INTCOV*-,

which is calculated as the ratio of operating profit over interest expense for the period and it is used to proxy for a company's ability to service its debt (Lorca et al., 2011); leverage (*LEV*), which is calculated as the ratio of total debt to total assets (Aldamen et al., 2012; Iyer et al., 2020; Pinto & Morais, 2019); and *LOSS* which equals one if the company reports a negative net income and zero otherwise (Draeger et al., 2020; Weber, 2020; Zalata et al., 2018). We also control for industry effects with $n - 1$ dummy variable, SECTOR, based on the two-digit SIC code (Aldamen et al., 2012; Lorca et al., 2011) and for year effects, introducing a dummy variable for each year.

Sample and Data

The data apply to the UK's FTSE 100 companies in the year 2018 and 2019. Company-level financial data are retrieved from Bloomberg. All AC characteristics were hand-collected from FTSE 100 companies' financial reports.

After eliminating companies with missing independent variables, 170 observations remain in the sample examined. The sample includes large companies, as it includes only those listed on the FTSE 100 index. The companies in the sample are not highly leveraged, with debt representing on average 21% of their total assets.

Table 1 provides descriptive statistics for the variables used in our research model. It was found that the cost of debt has a mean and a median of 4.5% and 3.6%, respectively, with a standard deviation of 4.9% and it fluctuates from 0 to 48.3%. On average, the sample exhibits a debt-to-total-assets ratio (LEV) of 28.6%, and 6% of the companies register a negative net income. As far as the chairs of the audit committees are concerned, on average 59% of them have industry expertise, 34% have already worked in the BIG4, and 26% are women.

Table 1. Descriptive Statistics

	Panel A. Descriptive statistics for continuous variables				
	Mean	Median	Standard Deviation	Min	Max
COD	0.045	0.036	0.049	0	0.483
AGECHAIR	1.078	1.099	0.049	0	2.197
AUDFEE	8.104	8.086	0.086	7.935	8.274
AUDTENURE	1.702	1.609	0.074	0	3.871
LEV	0.286	0.288	0.013	0.0003	0.83
FIRMSIZE	16.953	16.367	0.14	13.582	25.488
INTCOV	273.138	6.025	183.856	-5.095	34737.5
MEETFREQ	5.3	5	1.92	3	13
	Panel B. Mean, median and frequencies for dichotomous variables				
	Mean	Median	No. of companies coded=1	No. of companies coded=0	
WBIG4	0.34	0	58	112	
INDEXP	0.59	1	100	70	
WCHAIR	0.26	0	44	126	
LOSS	0.06	0	10	160	

Pooled sample descriptive statistics. All variables are defined in Appendix A.

The pairwise correlations for the independent variables are presented in Table 2. The highest correlation value is 0.426 between *AUDFEE and FIRMSIZE*, which suggests that the tests presented have no multicollinearity concerns. The Variance Inflation Factors (VIFs) were calculated for all variables to test for potential multicollinearity*.

* VIF statistics for all variables are between 1.10 and 3.10.

Table 2. Correlation Matrix

	WBIG4	INDEXP	AGECHAIR	MEETFREQ	WCHAIR	AUDFEE	AUDTENURE	LEV	FIRMSIZE	INTCOV	LOSS
WBIG4	1.00										
INDEXP	0.10	1.00									
AGECHAIR	0.00	-0.04	1.00								
MEETFREQ	0.25***	0.04	-0.08	1.00							
WCHAIR	0.11	-0.12	0.01	-0.03	1.00						
AUDFEE	-0.16**	-0.13*	0.06	0.24***	-0.06	1.00					
AUDTENURE	0.00	0.01	-0.11	0.01	0.04	-0.07	1.00				
LEV	-0.18**	-0.08	0.05	-0.06	0.01	0.03	-0.03	1.00			
FIRMSIZE	0.04	-0.03	0.18**	0.31***	-0.12*	0.43***	-0.09	-0.25***	1.00		
INTCOV	0.10	0.06	0.03	0.06	-0.03	-0.06	0.01	-0.15**	0.36***	1.00	
LOSS	0.03	-0.09	0.01	-0.08	0.07	-0.10	-0.05	-0.08	-0.06	-0.02	1

All variables are defined in Appendix A.

Empirical Results

Influence of Audit Committee's Characteristics on the Cost of Debt

Table 3 shows the results delivered thanks to the application of the study model which was used to determine the impact of AC's characteristics on the cost of debt.

Table 3. Influence of the audit committee characteristics on the cost of debt

Independent Variables:	Coefficient	Predicted Sign	Coefficient	*P*-Value
Intercept	β_0	?	-0.793	0.425
WBIG4	β_1	-	-0.034	0.844
INDEXP	β_2	?	0.137	0.407
AGECHAIR	β_3	?	0.005	0.969
MEETFREQ	β_4	-	0.006	0.886
WCHAIR	β_5	-	-0.435**	0.012
AUDFEE	β_6	+	0.192**	0.020
AUDTENURE	β_7	?	-0.03	0.692
FIRMSIZE	β_8	-	-0.244***	0.000
INTCOV	β_9	-	-0.001***	0.000
LEV	β_{10}	+	-0.897	0.073
LOSS	β_{11}	+	0.614	0.109
Year fixed effect			yes	
Industries dummies			yes	
No. of observations			170	
Adj.-R2			40.26%	

The table presents the results of estimating equation (1) which examines the influence of the level the audit committee characteristics on the cost of debt. A pooled OLS has been conducted. All variables are defined in Appendix A. Significance at the level of ***1%, **5% and *10%.

The findings suggest that the only AC characteristic that is value relevant for debtholders is the gender of the audit committee´s chair. In line with H4, it was found that if the AC chair is a woman, the cost of debt is reduced. The coefficient

of WCHAIR (β_5=-0.435) is negative and statistically significant at the level of 5%. This result is consistent with prior literature which suggests that women are more conservative and have more capacity to control the financial decisions (Abbott et al., 2004; Bédard et al., 2004; Qu, 2020).

As an additional test, the same model is estimated but the WCHAIR variable (dummy variable equals 1 when the AC chair is a woman and 0 otherwise) is replaced by the percentage of women in the AC. In this case, the coefficient is not statistically significant. This finding emphasizes the role of the chair in the audit committee. It should be noted here that the AC chair schedules the meetings and it is the bridge between AC and the external auditors and management. As a result, women chairs seem to positively impact the cost of debt of a company, reducing its level.

Regarding industry and financial expertise, the results suggest that debtholders do not consider relevant the fact that audit committee´s chair has previous experience in the same industry, or the fact that the chair has worked previously in the BIG4.

The same happens with the second hypothesis formulated. It was found that the tenure of AC chair is not related to the company's cost of debt as the coefficient for the *AGECHAIR* (β_3) variable is not statistically significant. There is no evidence that the tenure of the AC chair influences the debtholders and the cost of debt.

As far as the third hypothesis is concerned, it was found that the frequency of audit committee meetings does not impact the borrowing costs, since the coefficient for the *MEETFREQ* (β_4) variable is not statistically significant. This evidence is in line with the opinion of Aldamen et al. (2012) and Abbot et al. (2004).

As predicted in the fifth hypothesis made, it was discovered that higher audit fees tend to increase the corporate cost of debt. The coefficient for audit fees (β_6=0.192) is positive and statistically significant at the level of 5%. This result confirms the outcomes of the study by Yang et al. (2018) that show that audit fees are positively related to company risks.

Regarding the last hypothesis formulated, it was found that audit tenure does not impact the corporate cost of debt, since the *AUDTENURE* (β_7) coefficient is not statistically significant.

As expected, the coefficients of control variables are mostly consistent with prior literature and the predictions made. The results provide evidence confirming that

most of the control variables impact the corporate cost of debt. *FIRMSIZE* was used to measure information asymmetry and any residual risk effect. It was determined that larger companies tend to have lower cost of debt, and this conclusion follows the view of Lorca et al. (2011). Likewise, companies with higher interest coverage ratios (*INTCOV*) lead to low borrowing costs since they seem to better control the inherent risk of failure to their debtholders. Finally, profitability is measured using the *LOSS* variable and it was found that this variable is not statistically significant.

Influence of AC´s Characteristics Index on the Cost of Debt

As an additional test, a principal component analysis (henceforth PCA) has been conducted in order to construct a corporate governance index of AC´s characteristics. The effectiveness of the AC is measured by numerous attributes related to the characteristics of its members or using the structure and organization of the audit committee. Tarchounaa et al. (2017) highlight that the simultaneous introduction of many corporate governance variables in the model may increase the explanatory power of the model, but it can also create some confusion in its interpretation due to the interrelation between variables. The different corporate governance mechanisms may have a substitute or complementary role, which can make it difficult to draw conclusions about the impact of AC´s attributes on the cost of debt (Florackis, 2005). Therefore, in order to investigate the impact of several AC´s dimensions simultaneously, an AC´s characteristics index was constructed using the PCA method (Tarchounaa et al., 2017).

Based on the literature review presented above, seven audit AC´s characteristics were applied that the existing literature identifies as relevant in the effectiveness of the AC as a corporate governance mechanism. The variables used to construct this index are not the same as those included in the previous model for two reasons. Firstly, since industry and financial experience are measured by dummy variables, it was impossible to include these attributes in the PCA analysis. Secondly, in this analysis it is possible to include variables that are highly correlated, since PCA is used to extract the principal components which are uncorrelated from a set of inter-correlated variables.

Therefore, this analysis includes the variables described above, such as AC´s chair tenure (AGECHAIR), auditor´s tenure (AUDTENURE), meeting frequency (MEETFREQ), and audit fees (AUDFEE). The gender dimension was considered with the

introduction of the percentage of women on the audit committee (WACR). In addition to these variables, also the number of members of the AC (NAC) and the non-audit fee of the external auditor (NAUDFEE) were introduced to the analysis.

As already mentioned, the PCA method provides weights for each corporate governance attributes rather than using arbitrary or equal weights in the corporate governance index. Table 4 presents the weights of individual corporate governance variables in the whole corporate governance index for the three subsamples and the full sample of US commercial banks for each year, from 2000 to 2013, as well as for the entire period.

All factors with an eigenvalue equal to 1 or greater have been retained, which results in 3 factors that explain about 60% of the total variance in the original data. This solution is then rotated using orthogonal varimax (Larcker et al., 2007).

Table 4 shows the variables that are associated with each factor and have a loading that exceeds 0.50 in absolute value. Each of the 3 factors was named according to the variables that are related to the factor. The first factor is related to auditors´ fees, and thus it was named 'Auditors'. The second factor is associated with the composition of the AC in terms of the number of AC´s members and the percentage of women in the AC; therefore, it was named 'Composition'. The last factor is related to the chair's and auditor´s tenure, and it is named 'Tenure'.

Table 4. Exploratory principal components analysis

	Auditors	**Composition**	**Tenure**
AGECHAIR	-0.182	0.045	-0.569
MEETFREQ	-0.419	0.075	0.378
AUDFEE	0.620	-0.197	0.017
AUDTENURE	0.048	-0.144	0.718
WACR	0.119	0.665	-0.001
NAC	0.085	0.699	0.128
NAUDFEE	0.619	0.045	-0.001

Factors are calculated using PCA, retaining all factors with an eigenvalue equal to 1 or greater. This table presents the loadings on audit committee´s characteristics for each factor. Loading that exceeds 0.50 in absolute value has been retained. All variables are defined in Appendix A.

When using the scores calculated for each of the three factors, the model (equation 1) was estimated by replacing the AC´s variables with the three factors. Table 4 presents the results of this analysis.

Table 4. Influence of the audit committee characteristics index on the cost of debt

Independent Variables:	Coefficient	Coefficient	*P*-Value
Intercept	β_0	0.936	0.516
AUDIT	β_1	-0.279***	0.007
COMP	β_2	-0.072	0.299
TENURE	β_3	-0.031	0.609
FIRMSIZE	β_4	-0.253***	0.000
INTCOV	β_5	-0.002***	0.000
LEV	β_6	-0.760	0.123
LOSS	β_7	0.235	0.360
Year fixed effect		yes	
Industries dummies		yes	
No. of observations		170	
Adj.-R^2		44.99%	

This table presents the results of estimating equation (1), replacing audit committee´s characteristics with the factors calculated using PCA: (1) AUDIT which includes audit fee and non-audit fee; (2) COMP which includes the number of audit committee members and the percentage of women in the committee; and TENURE which includes chair and auditor tenure. All variables are defined in Appendix A. Significance at the level of ***1%, **5% and *10%.

Findings show that debtholders attribute greater importance to external factors, such as external auditors' fees, suggesting that the importance of the AC is closely related to its role in monitoring the external audit process. The coefficients of audit committee composition and tenure are not statistically significant, indicating that these characteristics are not value relevant for creditors.

Conclusions, Limitations and Further Research

The main objective of this research is to analyse the impact that some AC characteristics may have on the corporate cost of debt for companies belonging to the FTSE100. A sample of 100 companies has been used to study the relationship in 2018 and 2019. The findings offer new insights into these associations in an institutional context that greatly differs from those of the countries considered in the previous literature, particularly the US context (Anderson et al., 2004; Khemakhem & Naciri, 2013).

Unlike in the previous research in other countries, ACs' characteristics do not seem to impact the corporate cost of debt, with one exception: the AC chair's gender. The chair of the AC is responsible for ensuring that AC meetings run efficiently, managing the AC's agenda and making sure that each item is thoughtfully discussed and challenged by all members of the AC (Aldamen et al., 2012). Furthermore, the AC chair is the first point of liaison with the external auditor and the management, and gender appears to matter as far as the chair is concerned. According to the literature, women seem to be more prudent and more conservative (Abbot et al., 2004; Brynes et al., 1999; Zalata et al., 2018), which positively impacts the banks and the debtholders, reducing the corporate cost of debt.

External auditors also seem to influence the corporate cost of debt through their audit fees. The study results suggest that debtholders care more about external auditors than internal corporate governance mechanisms, in particular the AC. Regarding AC characteristics, debtholders seem only to mind the AC chair, maybe due to the chair's close relationship with the external auditor.

The results have certain inherent limitations related to the measurement of the AC characteristics variables used. As far as the presence of an industry expert within the AC is concerned, the study measure is established based solely on the requirement of the chair's industry expertise in his/her entire career. This allows us to obtain only some subjective information on industry expertise of AC members: firstly, it is based solely on the AC chair's industry expertise, and secondly, it is the AC chair's expertise in the industry s/he worked in that is considered, but the fact is that even if the chair had worked in that

industry before, it does not necessarily mean that s/he is an industry expert. Therefore, it may explain the fact that no relationship was found between the presence of industry expertise in an AC and the corporate cost of debt.

The measure of the cost of debt used in this research is one of the most frequently used in the literature (Anderson et al., 2004; Khemakhem & Naciri, 2013; Lorca et al., 2011). However, a significant drawback of this measure is its reliance on accounting figures, which can introduce inherent biases associated with accounting information. Attempts have been made to address this issue by incorporating control variables, but there remains a possibility of certain gaps in the interpretation of the results.

As already mentioned, the sample is based on the data concerning UK companies since the UK has a global reputation of having high standards of corporate reporting, auditing and governance. Nevertheless, the extension of the scope of this study to other countries would be valuable in terms of diversity and comparison. Finally, the present study has been conducted for only slightly over two years. Extending the research period would make it possible to obtain a better perspective on the changing characteristics of the AC and the financial benefits of these changes.

This study contributes to the literature on AC characteristics and their association with the cost of debt by adding a topic that is not sufficiently explored and measured. It also contributes to the concerns of credit agencies, since they are worried about how governance could improve the company's financial position and leave debtholders not so vulnerable to losses. In addition, this field of research will provide companies with a more refined sense of how companies' cost of debt might be affected by the composition, attributes and operation of the oversight mechanisms, both internal and external. The present paper also has managerial implications, providing some light into the way in which debtholders may assess AC characteristics and auditors when considering the company's cost of debt.

In future studies, it is suggested to extend the analysis to other AC characteristics, such as AC size or financial and industry experts in the entire AC. Moreover, it is recommended to analyse more years in the study, as well as to add the data from various countries in order to examine if the conclusions remain the same.

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Appendix A. Variable Definitions

Variables	Definition
COD	Ratio of total interest expenses to total debt.
WBIG4	Dummy variable that equals one if the AC chair has already worked in a BIG4 and zero otherwise.
INDEXP	Dummy variable that equals one if the AC chair has industry expertise and zero otherwise.
AGECHAIR	Natural logarithm of the number of years of the actual duration of the current AC chair's tenure.
MEETFREQ	Natural logarithm of the number of meetings that the AC reported in the sample year.
WCHAIR	Dummy variable that equals one if the AC chair is a woman and zero otherwise.
AUDFEE	Natural logarithm of the audit fees.
AUDTENURE	Natural logarithm of the number of years of the actual duration of the current auditor's tenure.
LEV	Ratio of total debt to total assets.
FIRMSIZE	Natural logarithm of the total assets.
INTCOV	Ratio of operating profit to interest expense.
LOSS	Dummy variable that equals one if the company reports negative net income and zero otherwise.