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FRESH EYES OR FAMILIAR TIES? AUDITOR TENURE AND ITS IMPACTS ON DEBT MARKETS

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ABSTRACT

Investors rely of financial statements when making their investment decisions. Independent auditors are expected to enhance this trust by producing high-quality audits. The study examines the impact of auditor independence (measured through auditor tenure – categorized into short, medium, and long auditor tenures) on the cost of debt, with the moderating role of Big4 audit firms, using the data from non-financial companies listed at the Pakistan Stock Exchange. The Generalized Method of Moments (GMM) regression technique is applied as the data suffered from the issues of autocorrelation and heteroscedasticity. The results support the "fresh-eyes" argument by revealing a non-linear relationship between auditor tenure and cost of debt, as short and medium auditor tenures are associated with a lower cost of debt, reflecting enhanced auditor efficiency and improved audit quality; whereas, long auditor tenures increase the cost of debt, indicating a potential decline in auditor independence and objectivity over time. Moreover, the moderating effect of Big4 audit firms is significantly negative, suggesting that their reputation and audit quality mitigate information asymmetry and reduce financing costs. The findings provide valuable implications for regulators, policymakers, and firms regarding auditor rotation policies as well as the selection of reputable audit firms to ensure sustainable financial credibility and cost efficiency.

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INTRODUCTION

The statutory audit of financial statements is considered a control mechanism meant to uphold investors' trust in financial statements (Roszkowska, 2021). In order to achieve investors' trust, the auditor must produce high-quality audits, which not only depend upon the auditor's competence but also independence, as well (Federsel, 2025). Concerning independence, the potential impairments to auditor independence (AI) posed by extended audit tenure (AT) have, for a long time, been debated by regulators, researchers, and professional accounting bodies and could, thereby, exert potential threats to audit quality (AQ) (Sawaya et al., 2025). The accounting and audit research fields have extensively explored whether extended AT could significantly compromise AI (Abouelela et al., 2025; Harber et al., 2024; Qin and Xiao, 2024; Tran et al., 2023). Prior literature acknowledges that AT is one of the determining factors of AQ (Jadiyappa et al., 2021). Extending the tenure of an auditor can enhance the quality of the audit by allowing the auditor to develop a deeper understanding of the client's operations, leading to more accurate and reliable assessments (Abouelela et al., 2025; Dayanandan and Kuntluru, 2023). Independence, both in fact and appearance, is fundamental to the auditor's role, as it underpins the assurance that reported figures are free from material misstatement (Zhou et al., 2024).

The debate over auditor tenure is long-standing in both academic research and regulatory circles. Supporting "knowledge-effect" argument, one school of thought believes that the extended auditor tenure enables the auditor with in-depth client-specific knowledge thereby improving their capability to detect anomalies in the financial statements (Abouelela et al., 2025; Cowle et al., 2023; Johnson et al., 2002). Advocating "fresh-eyes" argument, the other school of thought considers that extended auditor tenure leads to auditor's over-familiarity with the client, thus creating economic bonding leading to impairing auditor's independence, reduced skepticism, and enhanced complacency (Federsel, 2025; Harber et al., 2024; Zhou et al., 2024). In addition, subsequent to the 2008 financial crisis, investors' lack of trust in audited financial information prompted the European Commission to undertake a reform of the European audit market, aiming at restoring investors' confidence in financial reporting through the imposition of mandatory auditor rotation, in addition to other similar proposals. Therefore, the recent regulations on investor perception of AQ have made this issue relevant (Castillo-Merino et al., 2024).

The nexus of AI and AQ may be examined through the lens of cost of debt (COD hereafter) as the lenders rely on audited financial statements to assess default risk. This assessment of default risk is influenced by their assessment of the independence of the auditor. If the auditors are perceived as independent, lenders may view reported earnings as more reliable, reducing information risk and lowering lenders' required rate of return (Le et al., 2021). On the other hand, if lenders perceive that extended AT deteriorates AI, their information risk may elevate, leading to lenders demanding a higher rate of return on their investments. Thus, the auditor's role extends beyond shareholders to debt markets, shaping firms' cost of capital structure (Xiao and Qin, 2025).

The relationship of AI, AQ, and COD has garnered significant attention in recent years, as researchers seek to understand how

these elements interact and influence financial reporting and investor behavior. Auditor tenure is considered a critical aspect that indicates a non-linear relationship in association between AQ that influences the COD (Kamarudin et al., 2022). Prior literature claims that longer auditor tenure may significantly improve the AQ by increasing familiarity with the client's financial reporting process. However, in the long run, this diminishes the independence of auditors and significantly increases the COD (Qin and Xiao, 2024).

Accounting and auditing literature documented mixed evidence on the association between AT and financing cost. For instance, Karjalainen (2011) proposed that AQ is significantly associated with AT and COD. Likewise, Mansi et al. (2004) suggested that AQ significantly affects bond yield spreads, underscoring the significance of credible auditing for debt markets. However, few studies documented that extended AT may impair AI, leading to increasing COD, particularly in emerging economies where institutions are weak (Owusu and Korankye, 2023). These inconsistencies highlight the need for further investigation, especially in the context of economies where investor protection and regulatory oversight differ from developed markets.

Agency theory literature claims that information asymmetry can be mitigated using the tool of external auditing (Sawaya et al., 2025). Renowned audit firms, including the Big4, are regarded as providing superior AQ owing to their specialized knowledge and established reputation, leading to improved disclosure credibility of reporting (Le et al., 2021). The Big4 audit firms face higher litigation expenses and possess a stronger reputation than the non-Big 4 firms. Higher AQ is negatively and significantly associated with the COD as it improves the investors' confidence (Xiao and Qin, 2025). However, limited or no research has yet explored the moderating role of Big4 auditors in the relationship between auditor tenure and the cost of debt. Therefore, the present study aimed at investigating the moderating role of Big4 audit firms on the association between AT and AQ.

The current study aimed at investigating the impact of AI on COD with the moderating role of Big4 audit firms. Auditor tenure was used as a proxy for AI, categorized into short (≤3 years), medium (4–8 years), and long (>8 years) durations. The study conjectures that short and medium tenures should be associated with lower COD, reflecting the perception of the investor about the greater independence and objectivity of the auditor. Therefore, the study investigated the impact of AI on COD by taking 10 years of data from non-financial sector firms listed at the Pakistan Stock Exchange. Due to heteroscedasticity and autocorrelation issues in the data set, the dynamic panel regression Generalized Method of Moments (GMM) estimator was applied. The findings suggest that the impact of AT on COD is non-linear, as AT is negatively associated with COD during short and medium auditor tenures. However, long auditor tenure (AT > 8 years) is associated with higher COD. Moreover, Big4 audit firms significantly strengthen the negative association between short and medium auditor tenure and COD.

Beyond contributing to academic debates, the study has practical implications for regulators, lenders, and corporate boards. Regulators have long wrestled with setting appropriate limits on auditor tenure, balancing the benefits of client-specific knowledge with the risks of compromised independence. Evidence on the impact of tenure on financing costs may inform policies such as mandatory rotation or disclosure of tenure duration. For lenders, understanding how tenure affects independence and audit credibility can improve credit risk assessments. For boards and audit committees, the findings may guide auditor appointment and rotation decisions in ways that enhance audit quality and reduce financing costs.

Literature Review and Hypotheses Development

Accounting and auditing literature provides extensive but conflicting evidence on the association between AT, AQ, and COD. Since independence is the cornerstone of the auditing profession, the length of the auditor–client relationship has long been debated as either a benefit, through accumulated knowledge, or a risk, through familiarity threats. This section attempts to synthesize prior studies aiming at developing hypotheses focusing on AT as a determinant of COD.

Auditor Tenure and Audit Quality

Auditor tenure is considered the duration (usually measured in years) for which a client retains the same audit firm for auditing purposes (Kalabeke et al., 2019). Research over the past few decades has increasingly investigated how auditors' various characteristics, particularly AT, shape debt-market outcomes in emerging economies across Asia. This research is based on the straightforward logic that, owing to the potential agency conflict, auditors, if independent, reduce information asymmetry between the managers and the users of the financial information. Therefore, the characteristics that incline to strengthen perceived or actual AQ tend to reduce investors' required rate of return. On the contrary, the characteristics that signal weak AI may result in information asymmetry, thereby increasing investors' required rate of return.

However, empirical evidence across global settings is mixed, reflecting differences in institutions, markets, and measurement choices. Proponents of longer tenure argue that auditors accumulate firm-specific expertise over time, allowing them to better detect misstatements and provide higher-quality audits. Johnson et al. (2002) claimed AQ is higher when tenure is of moderate length, as the auditor not only has sufficient client-specific knowledge, the auditor is also independent. Mansi et al. (2004) extended this logic to debt markets, showing that bondholders value reputable and experienced auditors, which lowers bond yield spreads. Therefore, extended AT may signal high-quality audits, leading to a reduced rate of return demanded by the lenders.

On the contrary, the opponents of the extended AT warn that excessive tenure creates familiarity, economic bonding, leading to reduced professional skepticism. Carey and Simnett (2006) concluded that firms having the same auditors for a longer period are associated with lower financial reporting quality. Likewise, Cameran et al. (2015) proposed that extended AT may impair AI, thereby harming AQ. Thus, the literature suggests a non-linear relationship: short or moderate tenure enhances audit quality, while excessive tenure impairs it.

Auditor Tenure and the Cost of Debt

The cost of debt represents lenders' required return for extending credit. It is expected that AI is associated with higher AQ, leading to reducing investors' perceived information risk, thus reducing the investors' required rate of return (Le et al., 2021). However, with respect to the association of AI and AQ, the literature provides evidence supporting and opposing lengthy AT proposing "fresh-eyes" and "knowledge-effect" arguments. Supporters of "fresh-eyes" argument propose short tenure may signal auditor objectivity, as new auditors have not yet formed close ties with management, leading creditors to perceive lower risk. A recent research conducted in China proposed that ex-ante

bond yield spreads reduce significantly in the initial years of AT (Qin and Xiao, 2024). Moreover, the earnings response coefficient is significantly positive right after mandatory auditor rotation (Xiao and Qin, 2025). On the contrary, Verma et al. (2023) proposed that longer AT is associated with higher AQ as auditors equip themselves with in-depth client-specific knowledge. Likewise, longer AT is associated with higher accounting quality, supporting the knowledge-effect argument (Kamarudin et al., 2021).

Therefore, if the investors perceive AT as associated with AI and AQ, they link their investment decision and required rate of return accordingly (Sanoran, 2022). Based on the theoretical arguments and empirical evidence, the following hypotheses are proposed:

H1: Short and medium auditor tenures are negatively associated with the cost of debt, whereas long auditor tenure is positively associated with the cost of debt.

Big4 Audit Firm as a Moderator

Agency theory literature claims that information asymmetry can be mitigated using the tool of external auditing (Dakhli, 2022). Renowned audit firms, including the Big4, are regarded as providing superior AQ owing to their specialized knowledge and established reputation (Le and Moore, 2023). AQ significantly improves the credibility of disclosure reporting. The Big4 auditing firms face higher litigation expenses and possess a stronger reputation than the non-Big4 firms. Higher AQ is negatively and significantly associated with the COD and COE as it improves the investors' confidence (Xiao and Qin, 2025).

Recent literature in the domain of audit and assurance claims the significance of auditing services considering the industry expertise (Abouelela et al., 2025). The literature suggests that the relationship between auditor tenure and cost of debt is stronger when an industry-leading Big 4 auditor is hired compared to hiring any other Big 4 auditor. Earlier literature concludes that industry-leading auditors such as Big4 audit firms possess greater industry knowledge and reputation, leading to a lower COD. Based on the aforementioned discussion, the following has been hypothesized.

H2: Big4 audit firms strengthen the negative association between short and medium auditor tenures and cost of debt.

METHODOLOGY

Research Design and Sample Selection

The study employs a quantitative research design and panel data technique to investigate the impact of auditor independence on the cost of debt for non-financial sector companies listed on the Pakistan Stock Exchange. The study's population consists of non-financial companies listed on the Pakistan Stock Exchange (PSX) from 2014 to 2023. As discussed in Table 1, in total, 513 (333 non-financial and 180 financial) companies were listed at the PSX, of which 258 were considered in the current study. Companies with missing values (1% or more in independent variables and any missing value in independent variables) were excluded from the sample for final data analysis.

The present study considered the non-financial sector listed companies on the Pakistan Stock Exchange (PSX). To discover the relationship between auditor independence and cost of debt, Pakistan is currently the most suitable and promising option for the necessary business environment. Among the companies contributing to Pakistan's growth in the expanding market, Morgan Stanley Capital International (MSCI) stands out. A New York-based research firm statement titled "Denmark and Pakistan: The surprising stock markets that outperformed in 2020" highlighted that the PSX exhibited the best performance in 2020 and ranked fourth globally (Marketcurrentswealth.net, 2020). It was recognized as one of the leading emerging markets in Asia and achieved significant success in securing numerous new contracts and investments. The developed markets differed from the PSX due to its robust legal and institutional framework (Dittus and Prowse, 1995).

Measurement of Variable

The study aimed at investigating the impact of AI on COD; therefore, the study used Auditor Tenure, the independent variable of the study, as a proxy to measure auditor independence. Auditor Tenure is further categorized into three types, namely, short auditor tenure (SAT) if the AT is up to 3 years, medium auditor tenure (MAT) where AT is more than 3 years but less than 9 years, and long auditor tenure (LAT) where auditor tenure is greater than 8 years (Zhou et al., 2024). Whereas the cost of debt, the dependent variable of the study, is measured by dividing the finance cost of a firm for a year by the average total debt. Moreover, the variable of Big4 has been added as a moderator.

Table 1. Sample companies.

	Total Listed Companies on PSX	513
Less:	Companies Categorized under the Financial Sector	180
	Companies Categorized under Non-financial Sector	333
Less:	Companies with Missing Information	75
	Final Sample of the Study (Companies)	258

Table 2. Operationalization and measurement of variables

Variables	Measures	Source
Dependent Variable		
Cost of Debt (COD)	Finance cost for the year divided by the average total debt	(Friedrich et al., 2024)
Independent Variable		
Auditor Tenure (AT)	Audit Tenure is measured by calculating the engagement years in which the auditors of the same auditing firm conduct an audit of the same client.	(Federsel, 2025)
Short Auditor Tenure (SAT)	When auditor tenure is up to 3 years	(Zhou et al., 2024)
Medium Auditor Tenure (MAT)	When auditor tenure is greater than 3 years but less than 9 years	(Zhou et al., 2024)
Long Auditor Tenure (LAT)	When auditor tenure is greater than 8 years	(Zhou et al., 2024)
Moderator		
Big4 Audit Firm (Big4)	Dichotomous variable measured as 1 if the audit firm is one of the Big4 audit firms, 0 otherwise	(Zhou et al., 2024)
Control Variables		

Audit Committee Independence (ACind)	Number of independent directors in audit committee	
Board Size (BODsize)	Number of directors in board of directors	(Kalia et al., 2022)
Board Gender Diversity (BODgd)	Number of female directors in the board of directors	(Kalia et al., 2022)
Loss	A dichotomous variable showing 1 if firm reporting loss for the year, 0 otherwise.	(Garcia-Blandon, Argiles, et al., 2020)
Firm Size (Size)	Natural log of total assets	
Firm Growth (Growth)	Percentage of change in sales concerning the previous year	(Pangesti et al., 2023)
Firm Age (Age)	The number of years of incorporation of the company	(Zhou et al., 2024)
Firm Leverage (Leverage)	Ratio of total debt to total equity	(Friedrich et al., 2024)
Cash & Cash Equivalents (Cash)	Cash and Cash equivalents as a percentage of Total Assets	(Garcia-Blandon, Argiles, et al., 2020)

To account for firm characteristics that may influence COD, the following control variables are included: Firm Loss (Loss), a binary variable indicating whether the company reported a net loss (Garcia-Blandon, Castillo-Merino, et al., 2020). Firm Leverage (Leverage) is measured as total debt divided by total assets (Garcia-Blandon, Castillo-Merino, et al., 2020). Firm Size (Size) is measured as the natural logarithm of total assets (Christensen et al., 2019). Cash Holding (Cash) is measured as cash and cash equivalents as a proportion of total assets (Dechow et al., 1995). Audit committee independence (ACind), board of directors size (BODsize) are measured as the total number of directors on the board (Kalia et al., 2022; Sharma and Kaur, 2021). Board gender diversity (BODgd) is measured as the total number of female directors on the board (Kalia et al., 2022; Sharma and Kaur, 2021). All of the variables are discussed in Table 2.

Estimation Model and Technique

The study aimed at investigating the impact of auditor independence (auditor tenure) on the cost of debt, with the moderating role of Big4 audit firms for non-financial sector companies listed at PSX. Therefore, the following econometric model has been employed.

Equation 1 evaluates the association between Tenure (AT, SAT, MAT, LAT) with the cost of debt (COD), with the moderating role of Big4 audit firms, along with other control variables of the study.

$$COD_{it} = \beta_0 COD_{it-1} + \beta_1(Tenure_{it}) + \beta_2(Big4_{it}) + \beta_3(Tenure_{it} * Big4_{it}) + \beta_4(ACind_{it}) + \beta_5(BOD\ Size_{it}) + \beta_6(BODGD_{it}) + \beta_7(Leverage_{it}) + \beta_8(Size_{it}) + \beta_9(Cash_{it}) + \beta_{10}(Loss_{it}) + \beta_{11}Year + \beta_{12}Industry + \varepsilon_{it} \quad (1)$$

Equation 1 shows COD as the dependent variable, Tenure (AT, SAT, MAT and LAT) as the independent variable, Big4 audit firm as a moderator, and other control variables as discussed earlier. Year (to control for temporal shocks and macroeconomic effects) and Industry (to control for cross-sectional heterogeneity across different industries) dummies have been incorporated in the model to make the relationship more credible and interpretable. The measurement and detail of all of the variables are discussed in Table 2.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3 shows the descriptive statistics of the study variables. The results of descriptive statistics indicate that the mean value of audit tenure is 5.686 with the standard deviation of 3.368 considered as moderate variability, while the range indicates the minimum of 1 year and the maximum of 15 years of audit tenure. The average cost of debt is 0.074, with a small variability (standard deviation = 0.017), and the minimum and maximum values of debt cost due to borrowing range from 0.026 to 0.165. The mean of 1.369 and a standard deviation of 1.02 suggest variability in the independence of audit committees, and the minimum and maximum of independent committees range from 0 to 4, which affirms that firms do not have independent committees to fully independent committees.

The mean value of Big4 is 0.501, while the deviation from the mean is 0.50, which implies approximately 50% firms are audited by Big4, and the minimum and maximum values range from 0 to 1. The average board size is 7.709, with a standard deviation of 1.183, showing moderate variability, and the minimum is 6, and 14 is the maximum board size. Board diversity indicates the mean value of 1.459, while moderate deviation is 0.837, with a minimum value of 0 and a maximum value of 4. The average leverage ratio is 0.602, with a standard deviation of 0.171, indicating variability in firms' debt levels, and the minimum to maximum range of values of leverage indicates 0.038 to 0.999, which affirms that 3.8% to 99.9% level across the sample firms. The firm size indicates the mean value of 6.033 with a deviation from the mean of 0.893, while the minimum and maximum values range from 4.038 and 7.98, respectively. The mean cash level is 0.038, with a standard deviation of 0.079, showing significant variability in cash holdings, and the minimum and maximum range indicate values from 0 to 0.727, which indicates the sample firm holds 0 to 72.7% cash reserves. The mean value of firms' reported losses is 0.191, with the deviation from the mean being 0.394, while the minimum value is 0 and the maximum value is 1, which implies that approximately 19% of the total sample firms reported losses.

Correlation Analysis

Table 4 presents the results of pairwise correlations and significance of correlations among the latent constructs reported *** p<0.01, ** p<0.05, * p<0.1. The results of correlation analysis indicate a positive and significant association of COD (0.16***) with AT, hinting at an increase in COD with an increase in AT. Moreover, Big4 (0.45***) is significantly and negatively associated with COD, indicating that the firms having Big4 auditors enjoy lower costs of debt. Similarly, all of the corporate governance variables (ACind -0.26***, BODsize -0.06***, and BODgd -0.19***) are significantly and negatively associated with COD, indicating that firms having strong corporate governance are associated with lower cost of debt. Among other control variables, Leverage (0.26***) and Loss (0.21***) are significantly and positively associated with COD, indicating that firms reporting losses and firms highly levered are punished with a higher cost of borrowing. Last but not least, firm size (-0.29***) and cash (-0.11***) are significantly and negatively associated with COD, indicating that larger firms and firms with greater cash & cash equivalents enjoy lower costs of borrowings.

Table 3. Descriptive statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
AT	2580	5.686	3.368	1.000	15.000
COD	2580	0.074	0.017	0.026	0.165
COE	2580	0.095	0.018	0.028	0.210
ACind	2580	1.369	1.020	0.000	4.000
Big4	2580	0.501	0.500	0.000	1.000
BODsize	2580	7.709	1.183	6.000	14.000
BODgd	2580	1.459	0.837	0.000	4.000
Leverage	2580	0.602	0.171	0.038	0.999
Size	2580	6.033	0.893	4.038	7.980
Cash	2580	0.038	0.079	0.000	0.727
Loss	2580	0.191	0.394	0.000	1.000

Note: AT= audit tenure, COD= cost of debt, ACind= AC independence, Big4= Big 4 audit firm, BODsize= Board size, BODgd= board gender diversity, Leverage= firm leverage, Size= firm size, Cash= cash and cash equivalents, Loss= firm loss.

Table 4. Pairwise correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) COD	1.00									
(2) AT	0.16***	1.00								
(3) ACind	-0.26***	-0.07***	1.00							
(4) Big4	-0.45***	-0.11***	0.35***	1.00						
(5) BODsize	-0.06***	-0.04*	0.09***	0.14***	1.00					
(6) BODgd	-0.19***	0.04*	0.36***	0.03*	0.09***	1.00				
(7) Leverage	0.26***	-0.07***	-0.15***	-0.13***	-0.04**	-0.29***	1.00			
(8) Size	-0.29***	0.24***	0.22***	-0.02	0.05**	0.35***	-0.43***	1.00		
(9) Cash	-0.11***	0.16***	0.01	0.15***	-0.05**	0.09***	-0.16***	-0.02	1.00	
(10) Loss	0.21***	0.04*	-0.23***	-0.05***	-0.06***	-0.22***	0.28***	-0.26***	-0.05**	1.00

Note: AT= audit tenure, COD= cost of debt, ACind= AC independence, Big4= Big 4 audit firm, BODsize= Board size, BODgd= board gender diversity, Leverage= firm leverage, Size= firm size, Cash= cash and cash equivalents, Loss= firm loss.

Regression Results

The present study aimed at investigating the impact of AI on COD with the moderating role of Big4 audit firms. Regression diagnostics were carried out, which resulted in identifying the issues of autocorrelation and heteroscedasticity. Besides, the literature suggests a potential issue of endogeneity in the association between the study variables. Therefore, dynamic panel regression estimation using the Generalized Method of Moments (GMM) technique was applied. The regression results are presented in Table 5. Significant p-values of AR1 indicate the presence of first-order autocorrelation in the model, justifying the use of GMM. However, the insignificant p-values of AR2 suggest the absence of autocorrelation in the model, denoting that the model used in the study is correctly specified. Chi-square values are high, highlighting the overall significance of the model. Besides, the high values of the Chi-square tests indicate that the variable used in the model jointly explains a statistically significant proportion of the variation in the dependent variable. Moreover, the p-values of the Hansen J-test of over-identifying restrictions are well above 0.10, suggesting the validity of the instruments used in the model. Year (to control for temporal shocks and macroeconomic effects) and Industry (to control for cross-sectional heterogeneity across different industries) dummies have been incorporated in the model to make the relationships more credible and interpretable.

As far as the key variables of interest are concerned, the results suggest mixed evidence related to the impact of AT on COD. The first column presents the results of overall AT as an independent variable. The coefficient of AT has a positive sign; however, it is statistically insignificant, suggesting that AT does not directly affect borrowing costs. However, when the AT is categorized (columns 2-4) into short auditor tenure (SAT), medium auditor tenure (MAT), and long auditor tenure (LAT), interesting and distinct patterns emerge. SAT (β = −0.164*) and MAT (β = −0.466***) are negatively and significantly associated with COD. These results suggest that debt providers in Pakistan give due consideration to the independence of the auditors with respect to AQ and therefore demand a lower required rate of return in case the tenure is up to 8 years. In contrast, LAT is significantly and positively associated with COD (β = 0.527***), suggesting that the firms having the same auditors for a longer period (>8 years) are punished by their debt providers, consistent with the concerns that prolonged auditor-client relationships may impair AI, as the debt providers demand a risk premium.

One of the objectives of the study was to investigate the moderating role of Big4 audit firms with respect to the association between AI and COD. The interaction terms reveal that the presence of Big4 audit firms significantly strengthens the negative association between SAT (β = −0.304***) and MAT (β = −0.528***) with COD. These results propose that reputable audit firms enhance the debt providers' perception about the credibility of financial reporting quality, thereby lowering debt providers' risk perception and required rate of return during early and medium stages of auditor-client relationships (AT< 8 years). However, the interaction term for long tenure is insignificant, yet negative, indicating that the reputation of Big 4 auditors does not mitigate the potential loss of independence associated with excessively long engagements.

Table 5. Impact of audit tenure on cost of debt, with the moderating role of Big4 Audit firms.

IV	(AT)	(SAT)	(MAT)	(LAT)
DV	COD	COD	COD	COD
L.COD	0.856***	0.837***	0.862***	0.815***
	(0.063)	(0.058)	(0.065)	(0.072)
AT	0.157			
	(0.113)			
SAT		-0.164*		
		(0.087)		
MAT			-0.466***	
			(0.012)	
LAT				0.527***
				(0.018)
Big4	-0.127**	-0.291***	-0.318***	-0.018*
	(0.055)	(0.037)	(0.033)	(0.045)
AT * Big4	-0.053*			
	(0.031)			
SAT * Big4		-0.304***		
		(0.057)		
MAT * Big4			-0.528***	
			(0.029)	
LAT * Big4				-0.009
				(0.085)
ACind	-0.056**	-0.073**	-0.086***	-0.016
	(0.023)	(0.032)	(0.029)	(0.041)
BODsize	-0.036***	-0.056***	-0.057***	-0.055
	(0.008)	(0.021)	(0.021)	(0.036)
BODgd	-0.079**	-0.082***	-0.087**	-0.016**
	(0.035)	(0.031)	(0.032)	(0.008)
Leverage	0.067*	0.053	0.034	0.086**
	(0.035)	(0.049)	(0.076)	(0.041)
Size	-0.076*	-0.079*	-0.083**	-0.055
	(0.046)	(0.044)	(0.035)	(0.065)
Cash	-0.016	-0.035	-0.077**	-0.069**
	(0.027)	(0.027)	(0.031)	(0.029)
Loss	0.252***	0.177*	0.142*	0.181***
	(0.084)	(0.091)	(0.077)	(0.065)
Constant	0.167***	0.174***	0.264***	0.167***
	(0.062)	(0.054)	(0.091)	(0.021)
Observations	*2,064*	*2,064*	*2,064*	*2,064*
Industry Dummy	*Included*	*Included*	*Included*	*Included*
Year Dummy	*Included*	*Included*	*Included*	*Included*
Wald Chi2	*5,441*	*4.301*	*4,291*	*5,032*
Instruments	*88*	*77*	*92*	*102*
Hansen J-test	*0.19*	*0.15*	*0.22*	*0.23*
AR1(p-value)	*0.02*	*0.02*	*0.00*	*0.01*
AR2(p-value)	*0.33*	*0.25*	*0.21*	*0.29*

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Regarding control variables, audit committee independence (ACind), board size (BODsize), and gender diversity in boards (BODgd) are negatively and significantly related to the COD, implying that stronger corporate governance may reduce borrowing costs. Leverage has positive coefficients with mixed results related to the significance, suggesting that levered firms are considered more risky by the lenders; therefore, lenders demand a premium. While larger firm size and greater cash holdings generally reduce debt costs, consistent with reduced default risk. As expected, firms reporting losses are considered more risky, therefore, face significantly higher costs of debt across all models.

Overall, the findings of the study propose that AT influences COD in a non-linear manner: AT up to 8 years (SAT and MAT) is significantly and negatively associated with COD, signaling the debt providers about the independence of the auditor leading to high quality audit, therefore debt providers demand a low rate of return as proposed by Qin and Xiao (2024). However, AT exceeding 8 years (LAT) is significantly and positively associated with COD, suggesting that excessive tenure may erode independence, impair AQ, and raise financing costs as suggested by Federsel (2025). Moreover, Big4 audit firms strengthen the negative association between SAT and MAT, with COD strengthening the beneficial effects of shorter and medium tenures, amplifying the importance of auditor reputation in debt contracting (Le and Moore, 2023).

The results provide strong empirical evidence supporting theoretical expectations that AI (proxied through auditor tenure) significantly influences COD. Drawing on the agency theory, the external audit acts as a monitoring mechanism, aimed at reducing information asymmetry and enhancing investors' trust in the authenticity of the financial statements. These results suggest that SAT and MAT (AT up to 8 years) are negatively associated with COD by supporting the notion that auditors maintain higher independence and objectivity during their early and mid-stages of their relationship with their clients, leading to enhancing investors' trust in the accuracy of financial statements. This not only reduces agency costs of the investors but decreases the required rate of return demanded by the debt providers (Federsel, 2025; Jensen and Meckling, 1976; Qin and Xiao, 2024).

On the contrary, the positive association between LAT (AT>8) and COD is consistent with the concerns raised by regulators about AI in case of lengthy AT. Extended AT may lead to excessive familiarity and reduced professional skepticism, thereby impairing AQ (Federsel, 2025). Therefore, fund providers may perceive such situations as risky, leading to demanding risk premiums. These findings are aligned with prior empirical studies (Friedrich et al., 2024; Monteiro de Andrade et al., 2023), suggesting that extended AT may diminish AI and adversely affect market perceptions.

Moreover, the moderating role of Big4 auditors provides an important refinement to these results. The significantly negative interaction terms for AT up to 8 years (SAT and MAT) suggest that the reputation, resources, and global networks of Big4 audit firms strengthen the assurance value of financial statements, consistent with the reputation theory of auditing (Le and Moore, 2023). Big4 auditors amplify the beneficial effects of short and medium AT on reducing COD by mitigating information asymmetry and signaling higher AQ to the debt providers. However, the insignificance of the Big4 moderation for long tenure indicates that reputational capital alone cannot fully counteract the potential independence risks that arise from excessively prolonged AT. These findings coincide with the literature suggesting that even the prestigious auditors may face challenges in maintaining their independence during extended ATs as proposed by (Harber et al., 2024).

CONCLUSIONS

The present study investigated the impact of auditor independence (proxied by auditor tenure) on the cost of debt. The study further analyzed the moderating role of Big4 audit firms among non-financial firms listed at PSX. Using a dynamic panel approach and the Generalized Method of Moments (GMM) estimator, the findings provide new, important insights into the role of audit quality and auditor independence in shaping firms' financing costs in the context of an emerging economy.

The results suggest a non-linear relationship between auditor tenure and cost of debt, as the initial 8 years of auditor tenure (<9 years) are associated with a reduction in the cost of debt. These findings imply that moderate auditor-client familiarity (auditor tenure <9 years) enhances audit efficiency and investors' trust in the authenticity of the financial statements. However, the significantly positive association between longer auditor tenure and cost of debt suggests that excessive familiarity between auditor and client may impair auditor independence and reduce perceived audit quality. This pattern highlights that auditor rotation, after a reasonable period, can be beneficial for maintaining independence and investor confidence.

Moreover, the conditional effect of Big4 audit firms as a moderator in the association between AT and COD is found to be significant and negative (AT, SAT, and MAT), proposing that firms audited by Big4 audit firms enjoy a lower cost of debt, suggesting that the debt providers have higher confidence in the audit quality and reputation of Big4 audit firms. However, the insignificance of the Big4 moderation for long auditor tenure indicates that reputational capital alone cannot fully counteract the potential independence risks that arise from excessively prolonged AT.

Implications and Limitations

The findings of the study underline the significance of maintaining an optimal auditor tenure to balance auditor independence and audit efficiency. Regulators such as the Securities and Exchange Commission of Pakistan and the Institute of Chartered Accountants of Pakistan may consider periodic rotation policies or enhanced oversight in case of extended auditor tenure to mitigate the potential threats to auditor independence caused by overfamiliarity. For firms, the results emphasize that engaging reputable audit firms not only enhances credibility but can also lower financing costs through reduced creditor risk perception.

Overall, this study contributes to the growing literature on audit quality and cost of capital in emerging markets by providing evidence from Pakistan. Future research could extend this work by incorporating cross-country comparisons, alternative measures of audit quality, or the moderating effects of ownership structure and governance mechanisms.

This study is subject to certain limitations; the current study focuses on the non-financial companies listed on PSX from 2014 to 2023, which means that the findings may need to be more generalizable to financial institutions or companies that underwent manipulative audit departments outside this time frame. This period-specific analysis might only partially capture long-term trends or the impact of other audit and family ownership attributes. Additionally, the reliance on publicly available financial data limits the study to quantitative analysis, potentially overlooking qualitative factors like management quality, firm audit reputation, and investor perception, which can also influence a company's financial performance.

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