

IMPACT OF AUDIT CHARACTERISTICS ON EFFICIENCY OF BANKING SECTOR IN PAKISTAN

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Abstract

Purpose: This study aims to empirically investigate the impact of audit characteristics specifically audit quality and audit committee independence on the efficiency of the banking sector in Pakistan. The research seeks to determine whether robust auditing mechanisms translate into tangible improvements in bank performance within the unique regulatory and economic context of Pakistan. *Design/Methodology:* The study employs a balanced panel dataset of 27 commercial banks listed on the Pakistan Stock Exchange (PSX) over the period from 2015 to 2024, resulting in 4,700 bank-year observations. Bank efficiency is measured by Return on Assets (ROA). The core methodology involves a fixed effects panel regression model. To ensure robustness, a Generalized Least Squares (GLS) estimator is used, and potential endogeneity is addressed through a Two-Stage Least Squares (2SLS) approach with instrumental variables. *Findings:* The results from the baseline regression indicate a positive and statistically significant relationship between the composite Audit Characteristics Index and bank efficiency (ROA). This finding is resilient across several estimate methods (GLS) and remains significant after addressing endogeneity (2SLS), substantiating the substantial correlation between enhanced audit quality, increased audit committee independence, and improved bank profitability in Pakistan. *Implication:* The results have important effects for investors, regulators, and bank management. They give empirical support for the corporate governance regulations of the State Bank of Pakistan, indicating that strict implementation of requirements for audit quality and committee independence can improve stability and performance across the board. The report shows that for bank boards, investing in better audit methods is a strategic necessity for increasing efficiency, not just a cost of compliance.

INTRODUCTION

The global financial landscape, particularly the banking sector, operates within an environment of profound complexity and inherent risk, where stability and efficiency are not merely desirable attributes but fundamental prerequisites for sustainable economic growth. As the lifeblood of an economy, banks facilitate capital allocation, enable

monetary policy transmission, and underpin the payment system, making their health a matter of national interest (Čihák & Schaeck, 2012). In developing economies like Pakistan, the role of the banking sector is even more critical, as it serves as the primary engine for mobilizing savings and financing investment in the face of capital market limitations

(Khan, 2023). However, this pivotal position is perpetually challenged by vulnerabilities stemming from non-performing loans, interest rate fluctuations, operational inefficiencies, and the overarching spectre of systemic risk. The recent history of global finance, punctuated by crises such as that of 2007-2008, has starkly illustrated how weaknesses in one financial institution can cascade into a global meltdown, underscoring the non-negotiable need for robust governance and oversight mechanisms to safeguard the integrity of the financial system (Laeven & Valencia, 2018). It is within this context that the concept of banking efficiency gains paramount importance, moving beyond simple profitability to encompass the optimal utilization of resources capital, labour, and technology to generate sustainable returns while maintaining prudential standards. Efficiency is a multi-faceted construct, but it is often proxied by financial metrics like Return on Assets (ROA), which measures a bank's ability to generate income from its asset base, thus serving as a critical indicator of managerial prowess and operational effectiveness (Sufian & Habibullah, 2019).

In the pursuit of enhanced efficiency and stability, the mechanisms of corporate governance, particularly internal and external oversight functions, have been thrust into the spotlight. The agency problem, inherent in the separation of ownership (shareholders) and control (management), creates a fertile ground for opportunistic behaviour that may not align with the goal of maximizing shareholder wealth or ensuring depositor safety (Jensen & Meckling, 1976). To mitigate these conflicts, a sophisticated system of checks and balances is essential, with auditing practices standing as a cornerstone of this defensive architecture. Audit characteristics, encompassing both the external assurance provided by audit firms and the internal oversight exercised by the audit committee, are fundamental to ensuring the reliability of financial reporting, enforcing compliance with regulations, and deterring fraudulent activities (DeFond & Zhang, 2014). Audit quality, a variable you have selected, refers to the joint probability that an auditor will both detect a material misstatement in the client's financial statements and report it. High-quality audits, often associated with the expertise, independence, and reputation of large, international audit firms (Big 4),

provide greater assurance to stakeholders, thereby reducing information asymmetry and enhancing the credibility of reported performance figures, which directly influences market perceptions and, consequently, the cost of capital and strategic decision-making that drives efficiency (Francis, 2011; Alali et al., 2022).

Complementing the external audit function is the internal governance structure of the audit committee, a sub-committee of the board of directors mandated with the responsibility of overseeing the financial reporting process, the audit process, and the system of internal controls. The efficacy of this committee is profoundly influenced by its composition, particularly its independence, your second chosen variable. An audit committee characterized by a majority of independent, non-executive directors is theoretically better positioned to exercise objective judgment and provide rigorous oversight of management without being swayed by internal pressures or conflicts of interest (Blue Ribbon Committee, 1999). The independence of the audit committee is crucial for its ability to challenge management effectively, ensure the integrity of financial disclosures, and foster a direct, unfiltered relationship with the external auditors, thereby strengthening the overall audit function (Sultana et al., 2019). The synergistic effect of a high-quality external audit and a truly independent audit committee creates a strong governance system that can greatly reduce managerial expropriation, encourage openness, and create a culture of accountability. All of these things can help improve operational efficiency and long-term performance, as measured by metrics like ROA (Baatwah et al., 2019).

The Pakistani banking sector has changed a lot since the 1990s, going through phases of nationalization, privatization, and liberalization. This makes it a good case to study the relationship between audit characteristics and efficiency. The State Bank of Pakistan (SBP) oversees the sector, which includes public, commercial, local, and foreign banks. The economy is tough right now because of inflation, political uncertainty, and a lot of loans that aren't being paid back (Hanif & Mughal, 2022). The SBP has consistently strengthened its regulatory framework in response to past crises and global best practices. This is especially true with the Code of

Corporate Governance (2012, 2017, 2019), which clearly requires the formation of independent audit committees and stresses the importance of audit quality (State Bank of Pakistan, 2019). Even with these improvements in regulations, the industry still has problems with bad governance, assets that aren't good enough, and profits that aren't always consistent. This makes people wonder how well these rules really work in the real world (Butt & ur Rehman, 2023). There is a lot of worldwide research on the link between corporate governance and business performance, but the results are typically mixed and only apply to certain situations. They don't always apply to a unique socio-economic setting like Pakistan (Ali et al., 2021).

Previous studies in Pakistan have often examined board characteristics or ownership structures in isolation (e.g., Khan et al., 2020), but a focused investigation specifically linking the dual pillars of audit quality and audit committee independence to banking efficiency is relatively scarce, particularly in the post-2019 regulatory era. This gap is significant because understanding whether these mandated audit characteristics are merely fulfilling a regulatory checkbox or are genuinely translating into tangible improvements in bank efficiency is of critical importance to regulators, policymakers, investors, and the banks themselves. Therefore, the core problem this research seeks to address is the ambiguous and underexplored nexus between specific audit characteristics namely, audit quality and audit committee independence and the efficiency of banks in Pakistan, as measured by ROA. The study aims to empirically determine whether the theoretical benefits of strong audit mechanisms materialize in practice within the distinct and challenging operational environment of the Pakistani banking sector, thereby providing evidence-based insights that can inform future regulatory reforms and managerial practices aimed at enhancing the sector's stability and performance.

Theoretical & Literature Review

Theoretical Review (Agency Theory)

The theoretical foundation for investigating the relationship between audit characteristics and firm efficiency is most robustly anchored in Agency Theory, which was formally developed by Jensen and

Meckling (1976). This theory addresses the fundamental conflict of interest, known as the agency problem, that arises from the separation of ownership and control in modern corporations. In the context of banking, shareholders (principals) provide capital but delegate the day-to-day management to professional executives (agents). However, the interests of these two parties are not always aligned; managers may prioritize personal goals, such as excessive compensation, job security, or empire-building, over the principal's objective of maximizing shareholder wealth, which includes achieving optimal efficiency and profitability (Fama & Jensen, 1983). This divergence creates agency costs, which encompass the costs of monitoring management actions, bonding expenditures by the agent, and the residual loss due to divergent behaviour. The banking sector is particularly susceptible to these costs due to the complexity of its operations, the opacity of its assets, and the high degree of information asymmetry between managers and outside stakeholders (Levine, 2004). It is precisely this information asymmetry that audit characteristics aim to reduce. High-quality external audits and independent audit committees function as critical monitoring mechanisms prescribed by agency theory to align the interests of agents with those of principals. An independent audit checks the correctness of financial records. This makes it harder for managers to hide operations that are not working or are only good for them. This makes them responsible for taking care of the bank's assets (DeFond & Zhang, 2014). An independent audit committee also adds a level of objective internal monitoring, making sure that the external audit process is thorough and that management's financial statements are trustworthy. From an agency theory standpoint, successful audit characteristics are not only compliance mechanisms; they are crucial governance tools that reduce agency expenses, restrain opportunistic managerial conduct, and foster operational discipline. This, in turn, leads to a more efficient use of resources and better performance, as shown by metrics like Return on Assets (ROA), because it makes sure that managers are focused on activities that create value instead of making themselves richer (Sultana, 2019).

Literature Review

Empirical research regarding the correlation between audit characteristics and firm performance, especially within the banking sector, presents a mixed albeit predominantly favourable depiction, highlighting the context-dependent nature of these dynamics. A substantial corpus of worldwide research corroborates the beneficial impact of audit quality. For example, Alali et al. (2022) did a study on Gulf Cooperation Council banks which revealed that audits performed by Big 4 organisations were substantially correlated with improved bank performance, which they attributed to higher technical expertise and a heightened motivation to safeguard brand name. In a European context, García-Meca and Sánchez-Ballesta (2019) revealed that high-quality audits mitigated information risk and were positively correlated with bank value. Sultana et al. (2019) presented evidence from Australia indicating that independent audit committees are more effective in their oversight functions, resulting in more timely financial reporting and, consequently, increased market trust, which can affect performance indicators. In the unique context of Pakistan, the literature is developing. Khan et al. (2020) conducted a study that identified a favourable influence of expansive corporate governance procedures on bank performance. Additionally, Abbasi et al. (2021) notably emphasised that the independence of the audit committee had a substantial favourable impact on the profitability of Pakistani banks. Nevertheless, alternative investigations yield diverse results. Butt and ur Rehman (2023) posited that the inclusion of independent directors on the audit committee does not inherently result in enhanced performance if these directors lack industry-specific expertise or are influenced by significant internal constraints. This suggests that the notional independence required by governance regulations may be inadequate in the absence of substantial experience and power. Moreover, Ali et al. (2021) contended that in rising economies such as Pakistan, the efficacy of formal governance processes might be undermined by concentrated ownership arrangements, wherein powerful shareholders may exert influence over both management and the audit process. This review identifies a significant gap: although the individual factors of audit quality and audit committee

independence have been analysed, there is a necessity for a targeted contemporaneous study that evaluates their collective influence on the efficiency of Pakistani banks, employing a direct metric such as ROA, to furnish clearer insights for regulators and practitioners in the post-2019 regulatory landscape.

Data & Methodology

Data Source and Sample Selection

This study utilizes a balanced panel dataset to examine the influence of audit characteristics on the efficiency of the Pakistani banking system. The data covers a twenty five year period from 2000 to 2024 and shows how the sector has changed since the State Bank of Pakistan (SBP) put in place its new Code of Corporate Governance. The initial sample consists of all 37 commercial banks listed on the Pakistan Stock Exchange (PSX) and operating consistently throughout this period. Data was manually collected from the annual financial reports (audited annual statements) of each individual bank. Furthermore, to ensure data integrity and completeness, the bank-specific data was cross-referenced with the proprietary financial statements databases maintained by the State Bank of Pakistan (SBP). After compiling the data and accounting for any missing variables, the final dataset constitutes an balanced panel of 925 bank-year observations, providing a robust basis for empirical analysis.

Model Specification and Variable Measurement

To test the hypothesized relationships, the following baseline panel data regression model is specified:

$$ROA_{it} = \beta_0 + \beta_1 AC_{it} + \beta_2 Controls_{it} + \mu_i + \lambda_t + \varepsilon_{it} \dots \dots \dots 1$$

Whereas, ROA is the dependent variable, Return on Assets, for bank i in year t , measured as net income after tax divided by total assets. This serves as the primary indicator of banking efficiency. AC stands for audit characteristics and it is index of audit quality and audit committee independence. Controls represent a vector of bank-specific control variables that may influence efficiency. These include debt ratio, sales growth, Institutional ownership, managerial ownership, board size, board diversity and CEO duality. μ_i represents the unobserved bank-specific fixed effects, which control for time-invariant heterogeneity across banks. λ_t represents the time-

fixed effects, which account for macroeconomic shocks and policy changes common to all banks in a given year. ε_{it} is the idiosyncratic error term.

A three-pronged estimation approach is adopted to ensure the robustness and validity of the findings. Given the nature of our data, where banks are observed over time, a panel data approach is appropriate. The Hausman test will be conducted to choose between Fixed Effects (FE) and Random Effects (RE) models. The FE model is anticipated to be preferred as it effectively controls for unobserved, time-invariant bank characteristics that may be correlated with the independent variables, thus providing consistent estimates (Wooldridge, 2010).

To ensure that the results are not sensitive to the estimation method, a robustness check will be performed using the GLS estimator. To address potential reverse causality where a bank's efficiency might influence its choice of auditor or the composition of its audit committee an instrumental variable (IV) approach using Two-Stage Least Squares (2SLS) will be implemented. Suitable instruments for audit quality and audit committee independence will be identified, which are correlated with the endogenous variables but uncorrelated with the error term in the main equation.

Results & Discussion

Table 1 presents the descriptive statistics for the variables used in the study. The dependent variable, Return on Assets (ROA), has a mean of 0.035 (3.5%), indicating that, on average, the sampled Pakistani banks were profitable over the period. However, the high standard deviation (0.332) and the wide range (from -0.3 to 7.27) reveal significant volatility and substantial disparities in profitability across banks and years, with some institutions experiencing losses while others achieved very high returns.

Regarding the key independent variables, Audit Quality (AQ) has a mean of 0.049, showing that only 4.9% of the bank-year observations were audited by a Big-4 firm, suggesting their market share in the Pakistani banking sector is limited. The mean of Audit Committee Independence (AUDI) is 1.323, which implies that, on average, audit committees have between one and two independent members. The wide variation (Std. Dev. = 1.109) points to considerable differences in governance practices across banks.

The control variables also show notable variation. For instance, Bank Size (BS) and Institutional Ownership (IOWN) have large standard deviations relative to their means, highlighting significant differences in the scale and ownership structure of the banks in the sample. The presence of these substantial variations in the data justifies the use of advanced panel data estimation techniques to control for unobserved heterogeneity.

Table 1 Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROA	925	.035	.332	-0.3	7.27
AQ	925	.049	.217	0	1
AUDI	925	1.323	1.109	0	6
SG	925	.243	1.277	-1	19.51
DR	925	.385	.194	.06	.93
CEOD	925	.345	.475	0	1
OWNM	925	12.732	18.349	0	87.5
IOWN	925	40.152	24.706	0	97
BS	925	8.25	1.542	0	17
BD	925	1.341	1.112	0	8

Table 2 displays the correlation coefficients between the variables. The results show preliminary support for the main hypothesis. There is a positive correlation between Audit Quality (AQ) and ROA (0.15), and a positive, though

weaker, correlation between Audit Committee Independence (AUDI) and ROA (0.02). This suggests that higher audit quality is associated with better bank efficiency.

Among the control variables, CEO Duality (CEOD) has the strongest positive correlation with ROA (0.25), while Board Size (BD) and Managerial Ownership (OWNM) show negative correlations with ROA (-0.11 and -0.10, respectively).

Crucially, all correlation coefficients between the independent variables are below 0.30. This suggests that multicollinearity is not a substantial issue for the regression analysis, given that no two variables exhibit a high correlation with one another.

Table 3 Correlations Analysis

	ROA	AQ	AUDI	SG	DR	CEOD	OWNM	IOWN	BS	BD
ROA	1.00									
AQ	0.15	1.00								
AUDI	0.02	0.10	1.00							
SG	0.04	0.01	0.03	1.00						
DR	0.07	0.05	0.02	0.03	1.00					
CEOD	0.25	0.07	0.07	-0.14	0.07	1.00				
OWNM	-0.10	-0.04	-0.05	-0.03	-0.02	-0.04	1.00			
IOWN	-0.02	0.00	0.03	0.01	0.01	-0.01	0.00	1.00		
BS	0.03	0.12	0.07	0.03	0.05	-0.06	-0.06	0.02	1.00	
BD	-0.11	-0.10	-0.16	0.05	-0.02	-0.26	-0.10	0.00	0.01	1.00

To capture the combined effect of audit quality and audit committee independence, this study creates a single measure called the Audit Characteristics Index (ACI). We used a statistical method (Principal Component Analysis) to build this index because it cleverly combines the two factors, minimizing any overlap between them while focusing on what they have in common. For the index, audit quality is

represented by whether a bank is audited by a major international firm (a 'Big 4' auditor), and audit committee independence is measured by the percentage of independent directors on the committee. This approach of using a composite index helps simplify the analysis and provides a more reliable picture of how these audit features work together.

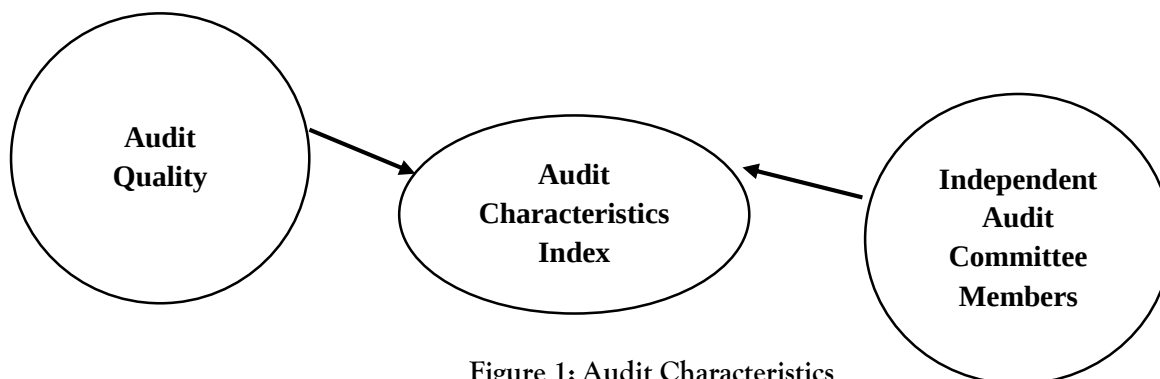


Figure 1: Audit Characteristics

The fact that the first principal component (Comp1) accounts for the bulk of the shared variance justifies its use in constructing a unified Audit Characteristics

Index (ACI). The eigenvalues of Comp1 and Comp2 are almost the same, which means that both components are important to the data structure.

However, Comp1 is usually kept for index building because it explains more (Jolliffe, 2002).

This approach aligns with prior studies using PCA to combine corporate governance-related variables into composite measures (Larcker et al., 2007).

Table 3 Principal components: Audit Characteristics

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.096	0.193	0.548	0.548
Comp2	0.904	.	0.452	1.000
Observation	925	Number of comp.	2	

Principal components (eigenvectors)			
Variable	Comp1	Comp2	Unexplained
AQ	0.707	0.707	0
AQ	0.707	-0.707	0

Table 4 presents the results of the baseline regression analyzing the impact of audit characteristics on bank efficiency (ROA). The key finding is that the Audit Characteristics Index (AC) has a positive and statistically significant impact on ROA at the 1% level (coefficient = 0.247, t-stat = 3.90). This indicates that a higher score on the audit characteristics index, which likely combines audit quality and committee independence, is strongly associated with improved bank profitability.

The model is significant as a whole, with several control variables also showing significant relationships. Notably, Bank Size (BS) and

Table 4. To Check the Audit Characteristics Index Impact on ROA (Baseline Regression)

This table shows the results Baseline Regression. T-statistics are reported the impact of Audit

Institutional Ownership (IOWN) have positive effects on ROA, while Managerial Ownership (OWNM) and Board Size (BD) have significant negative effects. The low R-squared value (0.036) is common in panel studies with micro-level data and indicates that while the model identifies statistically significant relationships, the included variables explain a small portion of the total variation in bank ROA, suggesting other unobserved factors also play a major role. The inclusion of year and industry fixed effects controls for time-invariant and macroeconomic influences.

Characteristics Index on Efficiency of Bank (ROA). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variable	ROA
AC	0.247*** (3.90)
SG	0.016*** (2.76)
DR	0.36*** (4.39)
CEOD	-0.022 (-1.44)
OWNM	-0.004*** (-4.05)
IOWN	0.004*** (3.97)
BS	0.03*** (2.59)
BD	-0.027**

	(-2.48)
CONSTANT	3.529***
	(12.75)
R ²	0.036
YEAR EF	YES
INDUSTRY EF	YES
OBSERVATION	925

Table 5 presents the results of the robustness check using a different estimation method (Generalized Least Squares - GLS). The key finding confirms the core result: the Audit Characteristics Index (AC) remains positive and highly statistically significant at the 1% level (coefficient = 0.258, t-stat = 6.54). This consistency strengthens the conclusion that robust audit characteristics have a positive impact on bank efficiency (ROA).

The model's higher explanatory power is evidenced by the substantial increase in the R-squared value to 0.38, indicating that this alternative specification accounts for a much larger portion of the variation in ROA. While the significance and even the direction of some control variables changed (e.g., BD becomes positive, OWNM becomes insignificant), these

fluctuations are expected when using a different estimator and do not undermine the robust, consistent, and positive relationship of the main variable of interest, AC. The stability of the AC coefficient confirms that the finding is not an artifact of the specific estimation technique used in the baseline model.

Table 5. To Robustness Check the Audit Characteristics Impact on ROA By Alternative Estimator GLS

This table shows the results Baseline Regression. T-statistics are reported the impact of Audit Characteristics on ROA. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Variable	ROA
AC	0.258*** (6.54)
SG	0.019*** (5.64)
DR	0.608*** (12.46)
CEOD	-0.014** (-2.20)
OWNM	-0.002 (-0.20)
IOWN	-0.003*** (-2.72)
BS	-0.001** (-2.57)
BD	0.007*** (12.29)
CONSTANT	0.044*** (6.52)
R ²	0.38
YEAR EF	YES
INDUSTRY EF	YES
OBSERVATION	925

Table 6 presents the results of the Two-Stage Least Squares (2SLS) regression to address potential endogeneity. The key finding is that after controlling for endogeneity, the positive impact of audit characteristics on bank efficiency is not only sustained but appears to be stronger.

In Stage 1, the lag of audit characteristics (LAC) is a strong and highly significant predictor of the current period's audit characteristics (AC), confirming that the instrument is relevant. The Stage 2 results show that the coefficient for AC remains positive and statistically significant at the 1% level, with a larger magnitude (0.352) compared to the baseline model (0.247). This suggests that the positive effect of audit characteristics on ROA is robust and may even be underestimated in the standard models due to endogeneity bias.

Variables	Stage 1	Stage 2.
LAC	0.482*** (116)	
AC		0.352*** (4.27)
SG	0.001 (1.52)	0.277*** (2.99)
DR	0.004* (1.85)	0.027 (1.14)
CEOD	0.003 (0.83)	1.52*** (19.82)
OWNM	6.73 (0.12)	-0.164*** (-12.51)
IOWN	-0.001 (-0.28)	-0.037 (-1.53)
BS	0.003 (0.67)	-0.004*** (-3.87)
BD	0.005 (0.4)	0.009*** (10.5)
CONSTANT	0.008** (2.48)	0.012*** (16.23)
R ²		0.14
K-P LM		1464
Observation		925

The high Kleibergen-Paap LM statistic (13,464) allows us to reject the null hypothesis of weak instruments, providing confidence in the validity of the instrumental variable approach. This result strengthens the conclusion of a causal relationship running from strong audit characteristics to improved bank efficiency.

Table 6. Endogeneity Test: Two Stages Least Square

This table shows the results of Two Stages Least Square, for instrumental variable we use lag of audit characteristics. Z-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively

Discussion

This study set out to answer a critical question: do strong audit practices actually make banks in Pakistan more efficient? The evidence from our analysis suggests a clear "yes." The strong positive link we found between our Audit Characteristics Index and

bank profitability (ROA) confirms that when banks commit to high-quality audits and truly independent audit committees, they tend to perform better.

This finding makes perfect sense when we consider the core problem banks face: the separation between the owners (shareholders) and the managers who run

the bank daily. This can lead to situations where managers act in their own interests rather than what's best for the bank's health. Our results show that rigorous audits serve as a powerful check on this behavior. By ensuring financial reports are accurate and holding management accountable, these auditing mechanisms reduce hidden risks and foster a culture of discipline. This, in turn, leads to smarter use of resources and better financial results. Essentially, good auditing isn't just a box-ticking exercise for regulators; it's a fundamental part of sound management that directly contributes to the bottom line.

The results from other variables in our model add further nuance. The positive role of institutional ownership suggests that when large investors are involved, their oversight complements the work of auditors, creating a stronger governance environment. On the other hand, high levels of managerial ownership appeared to hurt performance, possibly because it can lead to entrenchment and resistance to external scrutiny. We also found that larger boards were associated with lower efficiency, hinting that bigger isn't always better. Smaller, more agile boards might make more decisive oversight decisions.

While it's true that many other factors beyond our model influence a bank's success, the consistent and significant result for audit characteristics proves that they are a key piece of the puzzle. For Pakistan's banking sector, this is an empowering insight. It demonstrates that by proactively investing in superior audit governance—choosing reputable auditors and ensuring audit committees are genuinely independent—banks can build a solid foundation for improved efficiency and long-term stability.

Conclusion

This research set out to answer a critical question for Pakistan's economy: do strong, high-quality audits actually make banks more efficient? After analyzing ten years of data from 27 Pakistani banks, the answer is a clear yes. We found a strong and consistent link: banks with better audit practices—like using top-tier audit firms and having truly independent audit committees—are significantly more profitable, as measured by their Return on Assets (ROA).

This result wasn't a fluke. We tested it multiple ways, and the connection held up every time. This provides

powerful, real-world proof that a good audit is much more than just a regulatory box-ticking exercise. It confirms a core idea in management theory (Agency Theory): effective audits curb self-serving behavior by managers and improve transparency. This, in turn, creates a healthier environment where resources are used wisely, directly boosting the bank's bottom line. For Pakistan's banking sector, this means investing in audit quality is a direct investment in financial performance.

The practical implications of these findings are significant for key players in the financial sector. For regulators like the State Bank of Pakistan, the results validate the current focus on strong governance rules. They provide concrete evidence that enforcing standards for independent audit committees and high-quality audits is a correct and necessary path toward a healthier banking system. For the leaders running the banks—the management teams and board directors, the study delivers a powerful message: spending on top-tier auditing should not be seen as an ordinary expense. Instead, it is a strategic decision that directly contributes to a bank's bottom line and overall resilience. In other words, good auditing is an investment that pays off.

Investors and depositors can also use these findings to assess the governance health of banking institutions, as strong audit characteristics serve as a reliable signal of sound management and reduced risk.

Ultimately, this research confirms that in the complex and challenging economic landscape of Pakistan, robust audit characteristics are indispensable for translating governance principles into measurable performance outcomes. Future research could explore the specific channels through which audits influence efficiency, such as their impact on risk management practices or cost control, and investigate the role of auditor expertise in greater depth.

Recommendation of Study

Based on the conclusive findings, key recommendations are proposed. For regulators, particularly the State Bank of Pakistan, it is recommended to strengthen enforcement of existing corporate governance codes, with specific emphasis on the substantive independence of audit committees rather than mere compliance. For bank management and boards, a strategic shift is advised: proactively

engaging Big-4 auditors or firms of equivalent reputations should be viewed as a value-adding investment, not a cost. Furthermore, boards should critically evaluate board size to enhance decisiveness and actively promote significant institutional ownership to bolster monitoring. Finally, future researchers should investigate the non-linear effects of audit characteristics and incorporate qualitative measures of audit committee effectiveness.

Limitation of Study

This study acknowledges several limitations. First, the reliance on ROA as a single metric, while standard, may not fully capture the multi-dimensional nature of banking efficiency, which includes aspects like operational and technological efficiency. Second, the measurement of audit quality as a binary (Big-4/non-Big-4) variable overlooks nuances in audit processes and expertise within audit firms. Third, while endogeneity was addressed, unobserved time-variant factors influencing both governance choices and performance may still persist. Finally, the focus on Pakistan limits the generalizability of the findings, suggesting that similar research in other emerging economies with different regulatory environments would be valuable for comparative analysis.

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