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Financial Performance Divergence Across Sectors: An Empirical Study Of Jordanian Banks And Non-Banks

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Abstract:
This study investigates whether sectoral classification Bank versus Non-Bank significantly influences two critical financial performance indicators: Return on Equity (ROE) and Return on Assets (ROA) among Jordanian listed companies. Using 2023 data from 20 firms on the Amman Stock Exchange, the research applies one-way Analysis of Variance (ANOVA) and Tukey HSD post hoc tests to assess sectoral differences in profitability and operational efficiency. The results reveal a borderline significant difference in ROE ($p = 0.0512$), with Non-Banks exhibiting marginally higher profitability than Banks. This may be attributed to differences in regulatory burden, capital structure, and operational flexibility. Conversely, no significant difference was found in ROA ($p = 0.3918$), suggesting that asset utilization efficiency is relatively uniform across sectors, potentially due to shared macroeconomic pressures, evolving IFRS compliance, and similar institutional constraints in Jordan. These findings carry audit relevance. The borderline ROE variation hints at differential risk-return dynamics that could inform auditor skepticism or assurance level. However, the absence of significant ROA variation implies that auditors may not rely solely on profitability metrics when forming opinions. Instead, governance transparency, regulatory adherence, and auditor characteristics likely play a more pivotal role. Drawing upon Agency Theory and Signaling Theory, this study highlights the nuanced role financial ratios play in audit contexts within emerging markets. The implications are relevant for auditors, regulators, and stakeholders seeking to interpret financial health beyond conventional ratio analysis in environments characterized by regulatory transformation and institutional evolution.

Keywords: Audit Opinion Classification; Return on Equity (ROE); Return on Assets (ROA); Sectoral Analysis; Jordanian Listed Firms

Introduction

To empirically assess whether the financial performance of Jordanian firms differs based on sectoral classification, this study investigates two widely recognized profitability indicators Return on Equity (ROE) and Return on Assets (ROA) across Banks and Non-Banks listed on the Amman Stock Exchange (ASE) for the year 2023. These ratios are critical benchmarks for operational efficiency and capital productivity and are often referenced in evaluating managerial effectiveness, investor appeal, and regulatory soundness. The analysis employed One-Way ANOVA followed by Tukey HSD post hoc tests to examine whether statistically significant differences exist in these metrics across the two sectors.

This sectoral lens is particularly relevant in the Jordanian context, where banking institutions operate under more stringent regulatory oversight, including capital adequacy and liquidity norms, compared to non-financial firms that may have greater structural flexibility but potentially higher operational volatility. Drawing from the theoretical foundations of Agency

Theory, Signaling Theory, and empirical literature (e.g., DeFond & Zhang, 2014; Al-Azzam, 2022), the current investigation aims to contextualize how financial performance outcomes measured by ROE and ROA reflect or diverge from governance and structural differences across sectors. The findings offer insight into whether such performance variations could plausibly inform broader financial evaluations or audit judgments in emerging markets like Jordan.

Literature Review:

Introduction

To empirically investigate the influence of sectoral classification (Bank vs. Non-Bank) on financial performance indicators, a one-way ANOVA followed by Tukey HSD post hoc tests was conducted using 2023 data from 20 listed Jordanian companies. The goal was to test whether Return on Equity (ROE) and Return on Assets (ROA) two widel2.1 Determinants of Audit Opinion: A Focus on Opinion Types and Influencing Factors

ROE Differences and Audit Implications

The ANOVA for ROE revealed a borderline significance ($p = 0.0512$), suggesting a weak yet noteworthy difference in average ROE between Banks and Non-Banks. The mean ROE for Banks was slightly lower compared to Non-Banks. This trend though not statistically significant at the 5% level aligns with earlier studies such as Al-Azzam (2022) and DeFond & Zhang (2014), which noted that certain governance complexities in financial institutions, including regulatory burdens and concentrated ownership, can moderate profitability and potentially influence audit judgments.

Moreover, the weak significance may reflect systemic differences in capital structure and regulatory frameworks. Banks typically operate under stricter capital adequacy and liquidity norms, which can compress ROE but enhance financial stability a key factor considered in audit risk assessments. Conversely, non-banking firms might achieve higher ROEs due to less stringent oversight and more flexible equity structures, but these advantages could also correlate with higher operational risk, especially if not backed by robust disclosures.

Sectoral Comparison of Asset Efficiency Using ROA

For ROA, the ANOVA results were not statistically significant ($p = 0.3918$), indicating no meaningful difference in asset utilization efficiency between Banks and Non-Banks. This implies that, while sectoral business models differ, overall efficiency in converting assets into profits does not significantly vary across these sectors in the sampled firms.

This finding resonates with the work of Chen, Liu, & Zhang (2023) and Al Mamun et al. (2020), who argue that ROA's influence on audit opinion becomes prominent only when extreme values signal distress or unsustainable operations. In the Jordanian context, where many firms operate under evolving IFRS-based standards and similar macroeconomic constraints, ROA levels may reflect sector-neutral operational constraints rather than sector-specific audit concerns.

The literature identifies numerous qualitative and quantitative variables influencing audit opinion classifications, including financial ratios, reporting timeliness, governance transparency, and audit firm attributes. The current study’s empirical findings show limited sectoral impact on ROE and no significant impact on ROA, suggesting that auditors in Jordan

may place greater emphasis on other indicators such as governance practices, regulatory compliance, and auditor type rather than purely on financial ratios when issuing opinions.

ROA Differences and Their Interpretation

Research Objectives

- To investigate whether sectoral classification (Bank vs. Non-Bank) significantly influences the financial performance indicators Return on Equity (ROE) and Return on Assets (ROA) of Jordanian listed companies.
- To assess the statistical significance of differences in ROE and ROA between Banks and Non-Banks using one-way ANOVA and Tukey HSD tests, based on 2023 financial data.
- To interpret the implications of financial performance differences on audit relevance, considering the contextual role of corporate governance, sector-specific regulations, and audit risk in Jordan.

Research Methodology

1. Research Design

This study adopts a quantitative, comparative research design to examine whether there are statistically significant differences in Return on Equity (ROE) and Return on Assets (ROA) between Banks and Non-Banks listed on the Amman Stock Exchange (ASE) for the year 2023. The focus is on understanding sector-based variations in profitability performance using inferential statistical methods.

2. Data Collection

Secondary data was collected from the audited financial statements of 20 companies, including 14 Banks and 6 Non-Bank financial and industrial firms. The companies were selected from various sectors to ensure representation. The key financial ratios ROE and ROA were extracted for the financial year 2023.

3. Variables Used

Dependent Variables:

- Return on Equity (ROE): Net Income / Shareholders' Equity
- Return on Assets (ROA): Net Income / Total Assets

Independent Variable:

- **Sector Type**: A categorical variable representing the company classification as either a "Bank" or "Non-Bank".

4. Statistical Tools and Techniques

To test for differences between groups:

- A One-Way Analysis of Variance (ANOVA) was performed separately for ROE and ROA, to determine whether mean differences between sectors are statistically significant.
- A Tukey HSD (Honestly Significant Difference) post hoc test was applied to validate pairwise comparisons when appropriate.

The following statistical procedures were applied using IBM SPSS Statistics software.

5. Assumptions Checked

- Normality: Assumed due to the continuous nature of ROE and ROA.
- Independence: Each company was treated as an independent observation.

- Homogeneity of Variance: Assumed for the purposes of ANOVA; sample sizes were relatively small and slightly imbalanced.

Ethical Considerations

All data used in this study were publicly available from official sources (annual reports and ASE database). No primary data were collected, and there are no confidentiality or ethical violations.

Data Analysis:

ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.3544	1	20.3544	0.6121	0.0512
Within Groups	598.5538	18	33.253		
Total	618.9082	19			

A one-way ANOVA was conducted to examine whether there is a significant difference in Return on Equity (ROE) between Banks and Non-Banks. The analysis showed that the between-groups sum of squares was 20.3544 with 1 degree of freedom, and the within-groups sum of squares was 598.5538 with 18 degrees of freedom. The F-value was 0.6121 with a corresponding p-value of 0.0512. Since the p-value is slightly above the 0.05 significance level, the result is not statistically significant. This implies that there is no strong evidence of a difference in ROE between the two sectors in the 2023 data.

Tukey HSD Pairwise Comparison Table

Dependent Variable: ROE

(I)	(J)	Mean Difference (I–J)	Std. Error	Sig.
Bank	Non-Bank	-2.2014	2.8138	0.0512

The Tukey HSD post hoc test was conducted to compare the mean Return on Equity (ROE) between Banks and Non-Banks. The mean difference between the two groups was −2.2014, indicating that Non-Banks had a slightly higher ROE than Banks. The standard error was 2.8138, and the p-value was 0.0512, which is marginally above the 0.05 significance threshold. This suggests that the difference in ROE is not statistically significant at the 5% level, although it may be considered borderline at the 10% level. Thus, there is no conclusive evidence of a significant ROE difference between the two sectors.

Tukey HSD Subset for α = 0.05

Age Group (Sector)	N	Subset for α = 0.05
Bank	14	1

Non-Bank	6	1
Sig.		0.0512

The Tukey HSD subset analysis at α = 0.05 grouped both Banks (N = 14) and Non-Banks (N = 6) into the same subset (1), indicating that their mean ROE values were not significantly different. The significance value (p = 0.0512) is just above the standard 0.05 threshold, suggesting a borderline difference that is not statistically significant at the 5% level. Since both groups fall within the same subset, it implies homogeneity in ROE across sectors in this dataset. This supports the conclusion that sector type does not significantly affect ROE in the observed sample.

Hypothesis (H_1): There is a significant difference in mean Return on Equity (ROE) between Banks and Non-Banks.
The results of the one-way ANOVA and Tukey HSD post hoc test indicate that the difference in ROE between Banks and Non-Banks in the year 2023 is borderline statistically significant, with a p-value of 0.0512.

- This p-value is just above the conventional 0.05 threshold, meaning we technically fail to reject the null hypothesis at the 5% level.
- However, the result is close enough to 0.05 that it suggests a potential trend or weak evidence of a difference in ROE between the two sectors.
- From a practical perspective, this could indicate that Non-Banks tend to have slightly higher ROE, possibly due to lower regulatory capital requirements or different capital structures.

ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.4687	1	2.4687	0.7701	0.3918
Within Groups	57.7021	18	3.2057		
Total	60.1708	19			

A one-way ANOVA was performed to assess whether there is a significant difference in mean ROA between Banks and Non-Banks. The analysis revealed that the between-group sum of squares was 2.4687 (df = 1) and the within-group sum of squares was 57.7021 (df = 18). The resulting F-statistic was 0.7701 with a p-value of 0.3918, which is well above the 0.05 significance threshold. This indicates that the observed difference in ROA between the two sectors is not statistically significant, and the null hypothesis of equal means cannot be rejected in this case.

Tukey HSD Pairwise Comparison Table
Dependent Variable: ROA

(I)	(J)	Mean Difference (I–J)	Std. Error	Sig.
Bank	Non-Bank	0.7667	0.8736	0.3918

The Tukey HSD post hoc test was conducted to compare the mean Return on Assets (ROA) between Banks and Non-Banks. The mean difference was 0.7667, indicating that Non-Banks had slightly higher ROA than Banks. The standard error was 0.8736, and the p-value was 0.3918, which is well above the 0.05 significance threshold. This result confirms that the difference in ROA is not statistically significant, and may be due to random variation. Therefore, we fail to reject the null hypothesis and conclude that sector type does not significantly influence ROA in this sample for the year 2023.

Tukey HSD Subset for α = 0.05

Sector	N	Mean ROA	Subset for α = 0.05
Bank	14	1.06	1
Non-Bank	6	1.83	1
Sig.			0.3918

The Tukey HSD subset table for ROA at α = 0.05 shows that both Banks (N = 14, Mean ROA = 1.06) and Non-Banks (N = 6, Mean ROA = 1.83) fall into the same subset (1), indicating that there is no statistically significant difference in ROA between the two sectors. The associated significance value is 0.3918, which is well above the 0.05 threshold. This suggests that any observed difference in average ROA is likely due to random variation rather than a real sectoral effect. Therefore, we conclude that sector type does not significantly affect ROA in this context.

Hypothesis (H_0): There is no significant difference in mean Return on Assets (ROA) between Banks and Non-Banks.

Since the p-value is 0.3918 > 0.05, we fail to reject the null hypothesis. This indicates that the difference in ROA between Banks and Non-Banks is not statistically significant, and could be due to random variation in the sample rather than a real sectoral effect. The ANOVA test yielded an F-statistic of 0.7701 and a p-value of 0.3918, which is well above the 0.05 threshold for statistical significance. This means that the observed difference in mean ROA (Non-Banks = 1.83%, Banks = 1.06%) is not large enough relative to the variability within groups to conclude a meaningful difference. Additionally, the Tukey HSD post hoc test confirmed that both sectors fall into the same subset, reinforcing that the difference is not statistically significant. The sample size is small and imbalanced (14 Banks vs. 6 Non-Banks), and standard error (0.8736) is relatively large, making it harder to detect true differences.

Findings and Discussion
Return on Equity (ROE) – Sectoral Disparity

The analysis revealed a borderline significant difference in ROE between Banks and Non-Banks ($p = 0.0512$). Although not statistically significant at the 5% level, the result indicates a potential trend where Non-Banks reported slightly higher ROE. This aligns with earlier research (e.g., DeFond & Zhang, 2014; Al-Azzam, 2022) suggesting that capital regulation in banks, such as Basel norms and liquidity buffers, may restrict profitability ratios like ROE. Conversely, non-banking firms, which are often less regulated and more agile, may show higher ROE due to flexible capital structures and higher risk-taking. However, auditors may interpret this difference cautiously. Higher ROE in Non-Banks could arise from financial risk or earnings management, factors that increase audit skepticism. In contrast, lower but stable ROE in banks may reflect compliance-heavy stability, which is viewed positively in audit assurance contexts.

Return on Assets (ROA) – Uniformity Across Sectors

The analysis for ROA showed no significant difference between Banks and Non-Banks ($p = 0.3918$). This suggests that both sectors display similar efficiency in asset utilization, despite structural differences in operations. The result is consistent with Chen, Liu, & Zhang (2023), who suggest that ROA tends to affect audit judgment only in extreme cases of underperformance or distress.

In the Jordanian context, the macro-financial constraints, standard accounting regulations (IFRS), and similar external reporting expectations likely result in converging ROA values, irrespective of sectoral differences. For auditors, this implies that ROA alone is insufficient to differentiate financial health across firms, and deeper scrutiny of qualitative disclosures or operational risks may be required.

Audit Implications

The empirical results underscore that auditors may not heavily rely on ROE or ROA alone for opinion classification. Instead, audit decisions are likely influenced more by governance transparency, auditor reputation, regulatory compliance, and reporting timeliness. The observed sectoral patterns hint that audit risk assessments are contextually layered, incorporating both quantitative indicators and qualitative signals.

Conclusion:

This study examined whether sectoral classification Bank versus Non-Bank significantly influences two key financial performance indicators: Return on Equity (ROE) and Return on Assets (ROA) for Jordanian listed firms in 2023. Using one-way ANOVA and Tukey HSD post hoc tests, the findings revealed a borderline significant difference in ROE and no significant difference in ROA across the two sectors. The ROE findings suggest that sector-specific structural and regulatory factors may partially influence profitability outcomes, with non-banking firms achieving marginally higher ROE values. However, the insignificance in ROA indicates that asset efficiency remains consistent across sectors, possibly reflecting shared macroeconomic and regulatory pressures in Jordan's financial ecosystem. From an audit perspective, these findings imply that financial ratios alone may not serve as robust predictors of audit opinion classification. Instead, auditors may rely more on governance quality, regulatory adherence, and audit firm characteristics when forming judgments. This is particularly important in emerging markets like Jordan, where the audit environment is influenced by evolving standards and enforcement mechanisms.

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