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Financial performance determinants in Kuwaiti banks: The influence of size, equity, and leverage

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Abstract
This study examines the relationship between bank size and financial performance in the Kuwaiti banking sector, focusing on key variables such as asset size, shareholders' equity, employee count, branch count, customer deposits, total loans, and leverage ratio. Using data from 10 Kuwaiti banks over the period 2010 to 2021, the analysis employs the Ordinary Least Squares (OLS) regression method to explore the impact of these factors on two primary financial performance indicators: return on assets (ROA) and return on equity (ROE). The results reveal that shareholders' equity, employee count, and leverage ratio are positively and significantly correlated with ROA, while total assets are negatively correlated, suggesting inefficiencies in larger institutions. In terms of ROE, only shareholders' equity and leverage ratio show a significant positive relationship. Other factors, such as branch count, customer deposits, and total loans, do not exhibit any statistically significant effect on either ROA or ROE. The findings suggest that while certain size-related factors, such as equity and leverage, play a crucial role in enhancing financial performance, larger asset sizes may not necessarily lead to higher profitability due to operational complexities. This study highlights the importance of focusing on equity structure and leverage strategies in improving bank profitability, rather than solely pursuing growth in asset size.

Keywords: Bank size, financial performance, return on assets (ROA), return on equity (ROE), Kuwaiti banks, leverage ratio, shareholders' equity, asset size, OLS regression

Introduction
The banking sector is widely recognized as a cornerstone of national economies. A robust banking industry is pivotal for driving economic development, emphasizing the need for central banks and investors to consider factors that influence the sector's stability and growth. As noted by Monnin and Jokipii (2010) [17], the banking sector significantly impacts economic activities worldwide, with banks playing a crucial role in fostering economic growth. Many investors hold the view that larger banks, characterized by substantial assets, are more secure and profitable due to economies of scale and their established presence.

Research on the relationship between bank size and profitability has produced varied results. For instance, Leong and Dollar (2002) [14], in their study of Singaporean banks, found that larger banks tend to be less productive, which in turn leads to lower returns on assets (ROA) and equity (ROE) compared to smaller banks. Similarly, Murthy (2015) [18] observed that larger asset bases negatively impacted profitability in a study of Gulf Cooperation Council (GCC) banks. Naceur (2003) [19] also identified a negative association between asset size and profitability in Tunisian banks, while Hassan and Bashir (2003) [11] and AlKassim (2005) [6] reported a similar inverse relationship in the case of Islamic banks and Jordanian commercial banks, respectively.

Conversely, some studies present different findings. Gul et al. (2011) [10] concluded that there was a non-significant negative correlation between shareholders' equity and profitability in Pakistani banks. In contrast, AlFadhli and AlAli (2021) [4] observed a positive relationship between shareholders' equity and both ROA and ROE in Kuwaiti banks. Menicucci and Paolucci (2016) [15] further supported these findings in their study of European banks, where a significant positive relationship between shareholders' equity and profitability was identified.

Research on staffing levels, such as AlAli's (2020) [1] investigation into Kuwaiti banks, found a negative but statistically insignificant relationship between employee count and profitability. Staikouras and Wood (2004) [21] observed similar findings in their analysis of European banks. Despite connections between bank branch numbers and profitability, as found by AlAli et al. (2021) [3], these relationships were also not statistically significant, a trend attributed to the increasing prevalence of digital banking services, such as e-banking and mobile banking (AlAli and AlAli, 2020) [1].

Studies on loans, such as Dang's (2019) research in Vietnam, indicate that while loan growth contributes to profitability, it also heightens risk, with banks facing performance challenges in subsequent years (Foos et al., 2010) [9]. Asset quality, as Hou and Dickinson (2007) suggest, is a key indicator of bank solvency, with non-performing loans frequently associated with bank failures. Leverage can amplify financial performance but also introduces significant risk, as demonstrated by Mennawi (2020) in Sudanese Islamic banks. Additionally, Oli (2021) [20] found a positive correlation between leverage ratios and profitability in Nepalese commercial banks.

Lastly, customers tend to favor banks that provide reliable services and demonstrate financial stability, safeguarding their deposits from bankruptcy. Gul et al. (2011) [10] identified that banks with larger equity, assets, and deposits, alongside favorable macroeconomic conditions, are perceived as more secure and profitable. However, Tarawneh (2006) [22] found that larger total assets, capital, and deposits do not necessarily guarantee higher profitability, as evidenced in his study of Omani banks.

Methodology

This study seeks to comprehensively analyze the influence of key factors such as asset size, shareholders' equity, employee count, number of branches, and total customer deposits on the financial performance of Kuwaiti banks, measured through return on assets (ROA) and return on equity (ROE). By utilizing a decade's worth of financial data from Kuwait's banking sector, spanning from 2010 to 2021, this research aims to shed light on how these variables contribute to overall profitability and operational efficiency.

To achieve this, the Ordinary Least Squares (OLS) regression method is applied to determine the statistical significance of each factor and its relationship with ROA and ROE. This method allows for the identification of which variables play a substantial role in enhancing or detracting from bank performance. Two distinct models are developed to structure the analysis.

Model 1 focuses on evaluating how asset size, shareholders' equity, employee count, number of branches, and customer deposits influence ROA, as represented in Equation 1:

$$ROA = \alpha + \beta 1\ lnTA + \beta 2\ lnTSE + \beta 3\ lnNE + \beta 4\ lnNBB + \beta 5\ lnCD \quad (1)$$

Model 2 explores the impact of these factors on return on equity (ROE) as outlined in Equation 2:

$$ROE = \alpha + \beta 1\ lnTA + \beta 2\ lnTSE + \beta 3\ lnNE + \beta 4\ lnNBB + \beta 5\ lnCD + \beta 6\ lnTL + \beta 7 LR + \varepsilon \quad (2)$$

The variables examined in this study are presented in Table 1.

Table 1: Variables under study

ROA	Return on Assets
ROE	Return on Equity
TA	Total Assets
TSE	Total Shareholders' Equity
NE	Number of Employees
NBB	Number of Bank Branches
CD	Customers Deposits
TL	Total Loans
LR	Leverage Ratio

Equation 1 is set to examine the following hypotheses

1. **$H1_0$:** There is no statistical significant relation between TA and ROA and ROE.
2. **$H2_0$:** There is no statistical significant relation between TSE and ROA and ROE.
3. **$H3_0$:** There is no statistical significant relation between NE and ROA and ROE.
4. **$H4_0$:** There is no statistical significant relation between NBB and ROA and ROE.
5. **$H5_0$:** There is no statistical significant relation between CD and ROA and ROE.
6. **$H6_0$:** There is no statistical significant relation between TL and ROA and ROE.
7. **$H7_0$:** There is no statistical significant relation between LR and ROA and ROE.

Data and Empirical Results

This research aims to investigate how factors such as asset size, shareholders' equity, employee count, number of branches, customer deposits, loans, and leverage ratio influence the financial performance of Kuwaiti banks, measured by return on assets (ROA) and return on equity (ROE). The descriptive statistics outlined in Table 2, provide an overview of the key financial and structural characteristics of Kuwaiti banks during the 2010 to 2021 period, highlighting both trends and variability within the sector.

The analysis reveals that the average ROA across the banks was 0.19 (19%), indicating that, on average, banks generated a 19% return on their assets during the study period. However, the standard deviation of 0.31 shows considerable variation in performance between different banks in terms of asset returns. The average ROE was 0.07 (7%), reflecting a relatively stable return on shareholders' equity, with a standard deviation of 0.04, suggesting less variability in equity returns compared to asset returns. The skewness values for ROA (0.85) and ROE (0.17) indicate that the distributions are slightly positively skewed, meaning that most banks performed below the mean, while a few exhibited higher-than-average returns.

In terms of structural characteristics, the average total assets (TA) of the banks amounted to 7166.62 million Kuwaiti Dinar (KWD), with a high standard deviation of 7214.47, indicating significant disparities in the size of the banks. Similarly, total shareholders' equity (TSE) averaged 913.33 million KWD, with a standard deviation of 966.83, further demonstrating differences in capital structures across the sample. The banks had an average of 1159 employees, 85 branches, and a leverage ratio of 7.99. High standard deviations for employee count (699.71) and branch count (122.38) suggest wide variability in the operational scale of different banks.

Table 2: Descriptive Analysis

	ROA	ROE	TA	TSE	NE	NBB	CD	TL	LR
Mean	0.19	0.07	7166.62	913.33	1159.82	85.30	4462.64	4435.51	7.99
SD	0.31	0.04	7214.47	966.83	699.71	122.38	4074.18	4296.87	1.75
Kurtosis	1.88	7.12	2.60	3.41	-0.38	5.82	3.23	2.16	1.77
Skewness	0.85	0.17	1.82	2.00	0.94	2.56	1.86	1.72	-0.39
Count	119	119	119	119	119	119	119	119	119

The kurtosis values for certain variables, such as ROE (7.12) and customer deposits (5.82), indicate more extreme values than typically expected in a normal distribution. On the other hand, the skewness of customer deposits (1.72) and total loans (1.86) shows that a few banks hold disproportionately larger amounts of deposits and loans compared to the rest of the sample. The leverage ratio, with a mean of 7.99 and a skewness of -0.39, suggests that most banks had leverage ratios close to the average, with a few outliers skewed toward lower ratios.

Overall, the descriptive statistics highlight substantial variability in both financial and operational metrics across Kuwaiti banks, emphasizing the importance of analyzing individual factors that contribute to differences in bank performance.

The results from the Ordinary Least Squares (OLS) regression analysis, as presented in Table 3, reveal important insights into the relationship between bank-specific variables and financial performance, measured by return on assets (ROA) and return on equity (ROE). Despite the significance F value of 0, indicating that both models are statistically appropriate and can be considered a good fit, the explanatory power of the models remains limited. The adjusted R-squared values for the ROA and ROE models are 0.168 and 0.214, respectively, suggesting that the independent variables account for 16.8% of the variation in ROA and 21.4% of the variation in ROE. While these values indicate relatively low explanatory power, the primary focus of this study is on the individual effects of each factor on ROA and ROE, rather than on the overall model fit.

Table 3: OLS Regression Analysis Output

ROA					ROE				
Regression Statistics					**Regression Statistics**				
R Square	0.217				R Square	0.261			
Adj R Square	0.168				Adj R Square	0.214			
F	4.407				F	5.593			
Significance F	0.000				Significance F	0.000			
Observations	119				Observations	119			
	Coefficient	SE	t Stat	P-value		Coefficient	SE	t Stat	P-value
Intercept	-0.41	0.17	-2.39	0.02	Intercept	-0.025	0.024	-1.036	0.302
TA	-0.0002***	0.00	-2.58	0.01	TA	0.000	0.000	-1.135	0.259
TSE	0.0009***	0.00	3.05	0.00	TSE	0.00009**	0.000	2.136	0.035
NE	0.0002***	0.00	3.25	0.00	NE	0.000	0.000	0.528	0.598
NBB	0.00	0.00	0.20	0.84	NBB	0.000	0.000	1.061	0.291
CD	0.00	0.00	-0.65	0.52	CD	0.000	0.000	0.646	0.520
TL	0.00	0.00	-1.44	0.15	TL	0.000	0.000	-0.477	0.634
LR	0.0864***	0.02	3.64	0.00	LR	0.00912***	0.003	2.785	0.006

***, **,* represents the confidence level at 99%, 95%, and 90% confidence level respectively

In the ROA model, the analysis shows that several variables have a statistically significant relationship with return on assets. Shareholders' equity (TSE), employee count (NE), and leverage ratio (LR) all exhibit a significant positive relationship with ROA. Specifically, the coefficients for these variables indicate that increases in shareholders' equity, employee count, and leverage ratio are associated with higher returns on assets. On the other hand, total assets (TA) demonstrate a significant negative relationship with ROA, implying that larger asset sizes are linked to lower asset returns. The remaining variables, including the number of branches (NBB), customer deposits (CD), and total loans (TL), do not show a significant impact on ROA.

For the ROE model, shareholders' equity (TSE) and leverage ratio (LR) again have statistically significant positive relationships with return on equity. This suggests that higher levels of equity and leverage are correlated with improved financial performance in terms of equity returns. However, similar to the ROA model, total assets (TA) and other factors such as employee count, branch count, customer deposits, and total loans do not show statistically significant effects on ROE.

Overall, the regression analysis highlights the importance of shareholders' equity and leverage ratio in driving financial performance for Kuwaiti banks, while other factors like total assets and operational variables have mixed or negligible effects. These results suggest that focusing on equity management and maintaining an optimal leverage ratio could be key strategies for improving both ROA and ROE in the banking sector.

Conclusion

The primary objective of this study was to investigate the influence of various bank size-related factors on financial performance, measured by return on assets (ROA) and return on equity (ROE), in the context of Kuwaiti banks. Using data from 10 banks over the period from 2010 to 2021, and employing the Ordinary Least Squares (OLS)

regression method, the analysis reveals several significant findings. Shareholders' equity, employee count, and leverage ratio all demonstrated a positive and statistically significant relationship with ROA, whereas total assets showed a negative correlation, suggesting that larger banks may face inefficiencies in asset utilization. Other variables, including the number of branches, customer deposits, and total loans, were not found to have a significant impact on ROA.

In terms of ROE, the results indicate that only shareholders' equity and leverage ratio had a significant positive effect, highlighting their importance in driving equity returns. The other factors, such as total assets, employee count, branch count, customer deposits, and total loans, did not exhibit any notable relationship with ROE.

In conclusion, this study provides important insights into the relationship between bank size and financial performance in Kuwaiti banks, particularly in terms of ROA and ROE. The positive correlation between shareholders' equity, leverage ratio, and both ROA and ROE emphasizes the critical role these factors play in enhancing bank profitability. However, the inverse relationship between total assets and ROA suggests that larger banks may encounter challenges related to increased operational complexity and reduced efficiency. These findings underscore the need for banks to focus not only on growth in asset size but also on optimizing equity and leverage to improve financial performance.

Overall, the study highlights the nuanced relationship between bank size and financial outcomes, indicating that larger institutions are not necessarily more profitable. Future research could further explore these dynamics by incorporating macroeconomic variables, or by examining the effects in different geographical regions, to provide a more comprehensive understanding of how bank size influences financial performance across various contexts.

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