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The Influence of Capital Structure, Bank Size on Profitability: Comparative Evidence from KSA and UAE Banks

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ABSTRACT

In essence, the banking industry's financial performance is a vital, all-encompassing indicator of a bank's ability to meet the demands of key stakeholders, including regulators, depositors, and shareholders, while preserving financial stability and fostering long-term, sustainable growth. This study examines how bank size, leverage, and Tier 1 capital affect the profitability of banks in the United Arab Emirates and Saudi Arabia from 2015 to 2024. With a total of 190 observations gathered over a 10-year period, the research study examined a sample of 19 chosen banks, including 10 banks from the Kingdom of Saudi Arabia (KSA) and 9 banks from the United Arab Emirates (UAE). Leverage ratios, TDTA, Tier 1 capital ratios, and bank size are the explanatory variables, whereas ROA, ROE, and EPS are the measuring variables for profitability. It is possible to determine that size has a substantial impact on accounting for the determinants in the profitability metrics in both systems by looking at the multiple regression analysis results. Furthermore, the results of the multiple regression model have shown that TDTA has a significant negative impact on accounting for the profitability measurements in KSA banks when compared to other variables; that is, an increase in debt has a direct negative impact on returns generated for shareholders. However, when it comes to UAE banks, the findings show that while Tier 1 capital has a small impact, size has a considerable impact on accounting for the profitability measurements as reflected by the model in comparison to other variables. To sum up, these results emphasise how important size is for increasing profitability in banking institutions. Furthermore, these results imply that capital structure and leverage have different implications for banks in the UAE and Saudi Arabia. Lastly, this study discovered that, in terms of KSA and UAE banks, size is thought to have a major impact on profitability based on comparative comparison. Leverage and debt, on the other hand, have varied and restricted effects, especially with regard to UAE banks. While highlighting the importance of operational scale in boosting bank profitability, the study shows that the effects of capital structure and debt management vary by nation. When developing methods to enhance the financial performance of banks, policymakers and bank management can benefit from these ideas.

Keywords: Return on Equity, Return on Assets, Profitability, Earning per Share, Leverage, Capital structure
JEL Classifications: G21, M40, M41

1. INTRODUCTION

In the sector of banking, the financial foundation consisting of shareholder equity, accumulated profits, and different types of debt financing, forms the essential monetary backbone that allows financial institutions to facilitate loan operations, address liquidity requirements, and to meet mandated capital standards. Yasin et al. (2025) demonstrated that both financial structure and market volatility have substantial negative effects on banking institution performance. The ratio of debt to equity, commonly known as the financial or ownership composition, has a direct bearing on a bank's monetary resilience, capacity to absorb losses, and potential to deliver consistent profits to investors (Abor, 2005). This is an achieving ideal financial structure holds particular importance for banking institutions, as it guarantees sufficient protection against lending risks, market fluctuations, and operational hazards while reducing total financing costs and fostering sustained profitability. Throughout recent decades,

comprehensive empirical studies have investigated the connection between financial structure and operational success within the banking industry across various economic, regulatory, and institutional settings.

This research findings suggest that financial structure choices in banking are heavily dependent on specific circumstances and are shaped by factors including institutional size, portfolio characteristics, required capital ratios, economic climate, and competitive pressures (Rajan and Zingales, 1995; Bokpin, 2009). Regulatory standards, such as Basel II and Basel III accords, have established more stringent capital sufficiency, encouraging banks to strengthen their capital foundations and decrease dependence on excessive borrowing.

In the research study of Odhiambo (2025) examined how leverage influences financial performance, emphasizing both its potential benefits and the risks associated with excessive borrowing. Leverage, defined as the proportion of debt financing relative to equity, plays a fundamental role in banking activities, since banks naturally maintain higher leverage ratios than non-financial companies due to their intermediary function. Nevertheless, elevated leverage intensifies financial risks including insolvency threats and liquidity constraints establishing leverage management as a critical priority for bank management and regulatory authorities. Therefore, establishing optimal leverage levels continues to present substantial difficulties for banking organizations attempting to balance risk exposure, ensure regulatory adherence, improve operational effectiveness, and secure long-term stability (Modigliani and Miller, 1958). Although the basic theory proposed by Modigliani and Miller suggests that capital structure is irrelevant in ideal market conditions, subsequent scholars have argued that market inefficiencies such as taxes, bankruptcy costs, and information asymmetry make debt a crucial component in valuing the firm (Myers, 1984; Frank and Goyal, 2009). A higher leverage level increases fixed financial expenses and thus financial risk, but it can also improve performance if properly optimized through tax benefits and increased return on equity.

The basic theoretical frameworks, such as the Trade-Off Theory, measure the capacity of firms to strike a balance between the tax benefits of debt and the costs of financial distress (Kraus and Litzenberger, 1973). The pecking order theory, on the other hand, implies that equity is the most preferred source of funding, followed by debt, while equity is the last resort for financing (Myers and Majluf, 1984). A great deal of empirical work has been done using these theoretical frameworks to test the relationship between capital structure and profitability, asset returns, market value, and efficiency of operations.

Although businesses with capital structure imbalances (over-leveraging) are more vulnerable to financial risk, recent research confirms that a socially balanced capital structure can have a superior performance outcome (Titman and Wessels, 1988). As a result, leverage and capital structure theory are still important when making financial decisions. Modigliani and Miller's (1958) financial decision theory established that corporate debt/equity structure is unrelated to the business's value; consequently, capital structure considerations do not take management concerns into account when making capital structure-related decisions. The irrelevance hypothesis has been refuted by additional data based on the actual dynamics of international financial markets, even though this theoretical viewpoint has been shown to be unsuccessful in practical settings (Ahmed et al., 2012; Bagais and Aljaaidi, 2020). One important component of modern corporate financial management strategies that aim to maximise firm value and guarantee financial stability is the debt to equity ratio. As a result, businesses are working to attain the ideal debt to equity ratio, which would aid them in making long-term asset investment decisions. Modigliani and Miller's later model (Modigliani and Miller, 1963) considered corporate taxes and showed how greater financial leverage can raise a firm's value, despite the fact that their original capital structure model (Modigliani and Miller, 1958) suggested that financial leverage is irrelevant in a perfect market with no taxes and costs. Since interest paid on debt is a big component of the banking industry and offers substantial tax benefits, this concept is crucial to banks. The agency cost theory, the trade-off theory, and the pecking order theory are conceptual theories other than the MM theories that can provide more practical insights. According to the trade-off argument, banks prioritise the benefits of the tax shield over the costs associated with financial crisis. The agency cost argument is predicated on the idea that management's objectives differ from those of depositors. According to the pecking order theory, banks prioritise internal funding sources, loan funding, and stock issuance at lower rates because of information asymmetry.

There is a corresponding increase in terms of increased efficiency, scale advantages, and overall profitability associated with the increased income streams while these banking institutions are expanding. In this regard, banking's financial performance is a crucial component in determining how well financial institutions can handle a wide range of demands, including customer, regulatory, and general financial demands.

While numerous recent studies investigating the financial performance, profitability, and efficiency of banks in both KSA and UAE, as well as separate comparisons between Islamic and conventional banks in the GCC countries, there remains a scarcity of comparative research specifically focused on banks in KSA and UAE. Previous research has yielded inconsistent results concerning the effects of leverage and bank size on profitability. Consequently, this comparative study aims to provide insights into how capital structure and bank size influence bank profitability in these two prominent Gulf countries.

1.1. Banking Sectors in Kingdom of Saudi Arabia (KSA)

Based on this, with reference to the banking sector within the Kingdom of Saudi Arabia (KSA), which is dominated and regulated by the central bank of Saudi Arabia known as "SAMA," this shows that there is a strong relationship that links leverage with profitability levels, and this is largely based on its stable capital base, good asset qualities, and correctly developed and set up liquidity base. In terms of capital and leverage ratio measures,

the Saudi banks have moderately favorable capital and leverage ratio measures and are generally very high, implying that there is a stable financial position of the company with ever-increasing credit to corporate, retail, and small and medium-sized enterprise customers. Research findings indicate that leverage measures combined with sound cost control and diversification of sources through conventional Islamic banking have a positive influence on profitability, measured on the basis of both ROA and ROE, for financial institutions within Saudi Arabia. The gradual growth in the assets and net income of the banking sector is a sign of a proper management of the leverage in keeping with the long term economic to pull the organization on the path to profitability through increased capitalization and risk management in consideration of the vision 2030 which enhances increased capitalization and risk management.

1.2. Banking Sectors in United Arab Emirate (UAE)

The banking system and governed by the Central Bank of UAE has good interdependence between leverage and profitability, and this is explained through operating excess capitalization. Financial services that are diversified with good market rivalry contribute to this relationship. Generally, UAE banks have adequate capitalization. In that respect, these banks have strategized on leverage to maximize their returns through corporate lending, real estate financing, and trade-related services. Research shows that leverage ratio has substantial significance on profitability measured through ROE and ROA with reference to cost efficiency and asset qualities. In this respect, leverage is expected to positively influence earnings with minimized credit risk (Ghosh, 2020). The expansion of the asset base, high level of liquidity and the emphasis on the innovations of the digital banking is the reason why stable profitability is made, but the regulatory changes and capital standards related to risks are the factors that make sure that the leverage is used within reasonable limits to provide long-term financial sustainability in one of the most competitive industries in the context of banking.

1.3. Research Objectives

- To examine the evidence of bank size on profitability indicators (ROA, ROE, and EPS) in KSA and UAE banks.
- The study is to examine the impact of leverage on the profitability of KSA and UAE banks.
- To determine the extent to which Tier 1 capital is relevant in determining the bank profitability.
- To find out the comparison of the determinants of profitability between KSA and UAE banks.
- To offer evidence-based advice to the bank management and policymakers on growth, capital management and financial strategy.

2. LITERATURE REVIEW

Bank performance has traditionally been measured by profit ratio metrics such as return on assets (ROA), return on equity (ROE), and earnings per share (EPS). Asmar et al. (2026) examined what affects bank profitability in developing countries and found that the following factors negatively impacted a developing country commercial bank's ROA: Non-debt tax shields, tangible assets, inflation, capital adequacy, and leverage. Alper and Anbar (2011) show that leverage and capital adequacy have an enormous effect on ROA and ROE in the developing banking sector. Similarly, Dietrich and Wanzenried (2011) found a positive relationship between bank size and profitability, explaining that this relationship is because of economies of scale and efficiency. Leverage and bank profitability relationship have been a highly researched area in finance literature. The leverage, which is generally measured by total debt to equity ratios and capital adequacy ratios, assumes that it has a central role in the determination of financial performance, efficiency, and risk behavior in the banking sector. Modigliani and Miller (1958) said that capital structure is irrelevant in an ideal market; however, a large amount of empirical evidence contradicts this hypothesis, and the leverage is a major factor in determining the value of the firm and its profitability in the real banking context. Ahmed et al. (2012) and Bagais and Aljaaidi (2020) argued that leverage is a strategic tool used by financial institutions to maximize profitability, as well as, to make optimal trade-offs between risk and profit.

The banking systems in the gulf cooperation council (GCC) countries have some special characteristics that are shaped by oil economies, robust regulatory frameworks, and risk aversion models. The empirical studies on the Saudi Arabian market and the United Arab Emirates (UAE) markets reveal that high leverage ratios can be employed to maximize profits because of enhanced tax advantages, but at the expense of rising financial risks (Al-Tamimi and Hassan, 2010). Moreover, the Tier 1 capital ratio, which is employed to measure financial strength, has been found to have a significant role in the stability and performance of banks. The findings of the research work carried out by Hakim and Neaime (2021) reveal that well-capitalized banks in the GCC countries maintain high levels of profitability during the period of economic instability. The results of Hakim and Neaime's research study from 2021 make it abundantly evident that the GCC region's well-capitalized banks are able to sustain high levels of profitability even in the face of economic volatility. According to Saudi Arabian research studies, the Saudi Central Bank's strong control over the leverage ratio and debt-to-asset ratio has a significant impact on profitability (SAMA, 2022). Additionally, the study shows that the various variables of profitability and debt to equity ratio have a positive correlation; the total debt equity ratio has a non-significant negative correlation with EPS and a positive correlation with ROA and ROE; the Tier 1 capital ratio also shows a non-significant negative correlation with EPS and a positive correlation with ROA and ROE (Shaik and Sharma, 2021). However, in the highly globalised and diverse environment in which UAE banks operate, competition, liquidity availability, and global financial integration all have an impact on capital structure choices (UAE Central Bank, 2023). According to comparison research, Saudi banks have stable local markets and a robust capital buffer, while UAE banks have greater ROE because of their high leverage ratio and degree of diversification. The results of the literature that is currently available about the effect of leverage on profitability are not entirely uniform. While high leverage can be useful in improving profitability, excessive leverage can be risky. The aforementioned contradictory results need a comparative analysis of banks in the United Arab Emirates (UAE) and the Kingdom

of Saudi Arabia (KSA) that will look at the effects of capital structure, bank size, and leverage on profitability. The modified Modigliani-Miller Theory (1963), which contends that leveraging increases a company's worth by providing a tax shield for interest expenditures, is the foundation for the relationship between leverage and corporate success.

In the banking sector, the leverage is always higher than that of non-financial firms, as banks rely on deposits and borrowed funds as the primary sources of funds. Moderate leverage enhances the system of return on equity (ROE) by allowing banks to enhance their lending and investment activities at a lower cost through debt (Abor, 2005). However, high leverage heightens the risk on the balance sheet and the potential losses, particularly in a fluctuating economic scenario (Bokpin, 2009). This theoretical dualism justifies the need for an empirical analysis to identify to what extent the leverages have made a significant impact on the ROE of KSA and UAE banks in the capital-intensive and highly regulated operating environment.

2.1. H_{01}: Leverage (LEV) has a Significant Effect on ROE

According to the Trade-Off Theory (Myers, 1984), businesses balance the advantages of debt against the risks of bankruptcy. However, there is a good chance that the company will be in trouble whenever the total debt exceeds the assets, which would ultimately reduce profitability. The banking industry is highly dependent on borrowed funds, as seen by the high total debt/total assets (TDSA) ratios. As a result, the profitability of equity (ROE) would decrease if the cost of money exceeds the returns on the assets that yield interest. Numerous research have demonstrated that the unsustainable debt causes banks in the GCC and emerging markets to lose money (Al-Tamimi and Obeidat, 2013; Ahmed et al., 2018). The profitability of equity (ROE) in the banks of Saudi Arabia and the United Arab Emirates, where the capital adequacy ratio limits excessive risk-taking, may therefore be adversely affected by the total debt/total assets ratio.

2.2. H_{02}: Total Debt-to-Total Assets (TDTA) has a Significant Negative Effect on ROE

Trade-off theory and regulations provided in the Basel III emphasize the importance of Tier 1 Capital, putting two things into focus: Core capital is key in maintaining financial stability. A high Tier 1 Capital ratio acts to decrease insolvency risk and permits banks to absorb unexpected loss, a resultant of better resilient performance. However, an excessive height of capital buffers would impede loaning operations, decreasing profitability through reduction of risk-taking ability (Rime, 2001). Tier 1 Capital is one of the most important regulatory indicators in the banking framework of both KSA and UAE. Its correlation with ROE is therefore theoretically justified and relevant to the context.

2.3. H_{03}: Tier 1 Capital (Tiercap) has a Significant Effect on ROE

According to Jensen and Meckling's 1976 agency theory, there is a positive correlation between bank size and profitability when considering economic scale. Large banks have higher returns on their shares than smaller banks because of their advantages, which include operation efficiencies, broad portfolios, access to capital markets, and market power dominance. Additionally, as seen in the United Arab Emirates and the Kingdom of Saudi Arabia, larger banks are frequently backed by the government and have a variety of revenue streams, which has a big influence on return on equity. Empirical research consistently demonstrates a favourable relationship between bank size and profitability, the profitability of banks is undoubtedly linked to income diversification, while the size of the bank has a detrimental effect (Sufian and Habibullah, 2010). This empirical analysis indicates that the size of the bank will have a major effect on the return on equity.

2.4. H_{04}: Bank Size has a Significant Effect on ROE

However, earnings per share (EPS) directly indicates the returns accessible to shareholders. When EPS is combined with return on assets (ROA) and return on equity (ROE), it provides a more thorough assessment of bank performance, as it encompasses operational efficiency, equity utilization, and shareholder returns collectively.

3. RESEARCH METHODOLOGY

The reasons behind the inclusion of Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE) in the selected countries could be linked to their position as market leaders with significant influences on the financial and banking environment in the Gulf region, and most importantly, the availability of information specifically on these countries relative to the analysis objectives, which were available on the Refinitiv data source platform. The two countries are known to possess the leading and most divergent banking systems with the largest share of total banking assets and capital base across the region, a factor emphasized by both institutions such as Al-Tamimi and Hassan (2010) and the International Monetary Fund (2023) likewise. The Saudi Arabian banking system is recognized as stable with a regulated environment, leverage approaches, etc., making it robust even with economic challenges (SAMA, 2022). The banking system of the Emirates can be characterized by terms such as the international nature of the sector, openness to innovation and diversification of loan portfolios, etc., a leading financial system not just within the region, the Gulf, but also on a global scale (UAE Central Bank, 2023).

An opportunity to compare these two countries provides for a meaningful analysis since it varies considerably in several ways, despite their similarities in different aspects related to macroeconomic determinants that play a crucial role in influencing their revenue streams, i.e., oil prices, as highlighted by Hakim and Neaime (2021). Such a situation provides for a better ability to evaluate how far leverage, debt, or capital ratios differ or are similar in their institutional settings. It is worth pointing out that financial disclosures by both countries are quite easy to acquire, trustworthy, and stable, thus providing much strength for the analysis carried out based on the application of secondary data, as highlighted by World Bank (2023). Therefore, it is safe to suggest that a comparison between these two countries provides a strong opportunity to evaluate leverage profitability within a broader GCC setting.

The propositions of Modigliani and Miller were the first and had the greatest influence as a theoretical base for understanding the concept of leverage. Under their propositions, the first proposition is that leverage would have zero impact or no value for the worth of the firms operating under perfect conditions with no taxation (Modigliani and Miller, 1958). However, the propositions were modified by acknowledging that leverage actually increases the worth of the firm as a result of the interest payment tax deductions (Modigliani and Miller, 1963). The banking institutions in KSA and UAE may opt for this kind of leverage with the motive of increasing their profits with regards to taxation. However, the degree of leverage can also result in increasing risks for the firm; thus, the impact of this concept may remain ambiguous and should be explored.

Following trade-off theory, it is suggested that firms can engage in a rational decision to arrive at an most appropriate leverage position by balancing out tax advantages of debt financing against costs of financial distress (Kraus and Litzenberger, 1973). Banks may gain from higher levers both in KSA & UAE; on the other hand, financial distress costs like fines & lower credit. It Increased leverage can be an advantage to Banks in KSA and UAE, however, financial distress costs which include regulatory fines and lower credit ratings may decrease profitability. This theory is used to explain why not all banks take leverage advantage even when they have a high capital adequacy ratio.

Based on the aforementioned theories, the study posits the following conceptual relationship:

- Leverage ratio → profitability (ROA, ROE, EPS): Theory supported by MM, Trade-Off, and agency
- Debt-to-assets ratio → profitability: Theory supported by Linked to financial risk and leverage efficiency
- Tier 1 capital ratio → profitability: Theory explained by Basel regulatory framework and risk-management theories
- Bank size → profitability: Theory explained by economies of scale theories, suggesting larger banks may earn higher returns.

The effects of bank size, leverage, and capital structure on the profitability of certain banks in the Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE) are examined in this study using a quantitative research design. In order to investigate the correlations between dependent and independent variables over a given period of time, the study focuses on secondary data collected from the Refinitiv database and analysis.

3.1. Population and Sample

All commercial banks that operate in the Kingdom of Saudi Arabia and the United Arab Emirates make up the study's population. To choose banks with comprehensive and reliable financial data for the years 2015-2024, a purposive sampling technique was used. Ten banks from Saudi Arabia and nine banks from the United Arab Emirates make up the sample, which produces a total of 190 observations across ten years.

The sample selection procedure for banks operating in the Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE) over the period of 2015-2024 is provided in Table 1. To begin with, 11 banks were selected from each country. However, after considering the criteria for sample selection and taking into consideration the availability of data as well as its consistency over the period of study, one bank from KSA was eliminated, leading to a final sample of 10 banks from KSA. Likewise, in the case of UAE, two banks were eliminated from the initial sample, leading to a final sample of 9 banks from UAE. The final sample, therefore, consists of balanced observations over a period of 10 years (2015-2024).

3.2. Variables of the Study

- Dependent variables: Profitability metrics assessed through return on assets (ROA), return on equity (ROE), and earnings per share (EPS).
- Independent variables: Financial factors including total debt-to-total equity (LEV), total debt-to-total assets (TDTA), Tier 1 Capital Ratio (Tiercap), and Bank Size (quantified as the natural logarithm of total assets).

Financial data were gathered from the Refinitiv Eikon database as well as the annual financial statements of banks in KSA and UAE. Descriptive Statistics were utilized to encapsulate central tendencies. Correlation analysis was conducted to investigate the strength and direction of relationships between profitability and financial indicators. Multiple regression analysis was employed to evaluate the influence of leverage, capital structure, and bank size on ROA, ROE, and EPS. Distinct regression models were formulated for banks in KSA and UAE to facilitate comparative analysis. The statistical significance of the variables was assessed through t-tests and ANOVA.

3.3. Model Specification

The regression models for each dependent variable were formulated as follows:

$$ROA = \beta_0 + \beta_1 (LEV) + \beta_2 (TDTA) + \beta_3 (Tiercap) + \beta_4 (Size) + \varepsilon \quad (1)$$

$$ROE = \beta_0 + \beta_1 (LEV) + \beta_2 (TDTA) + \beta_3 (Tiercap) + \beta_4 (Size) + \varepsilon \quad (2)$$

$$EPS = \beta_0 + \beta_1 (LEV) + \beta_2 (TDTA) + \beta_3 (Tiercap) + \beta_4 (Size) + \varepsilon \quad (3)$$

Where:

Table 1: Sample selection KSA and UAE banks

Sample criteria	Initial selection	Final samples (selected banks-KSA & UAE)	Years (2015-2024)
Initial selected KSA Banks	11	10	10
Dropped observations - KSA	1		
Initial selected UAE banks	11	9	10
Dropped observations - UAE	2		

Table 2: Descriptive statistics of KSA banks

Variable	Mean	Standard error	Standard deviation	Sample variance	Range	Minimum	Maximum	n
ROA	0.02	0.00	0.00	0.00	0.03	0.00	0.03	100
ROE	0.13	0.00	0.04	0.00	0.28	0.00	0.28	100
EPS	0.45	0.03	0.26	0.07	1.76	−0.52	1.23	100
LEV	0.49	0.06	0.64	0.41	3.00	0.00	3.00	100
TDTA	0.06	0.01	0.10	0.01	0.36	0.00	0.36	100
Tiercap	0.16	0.01	0.06	0.00	0.23	0.00	0.23	100
Size	24.72	0.07	0.71	0.50	3.07	23.34	26.41	100

Table 3: Correlation metrix: (KSA banks)

Variable	ROA	ROE	EPS	LEV	TDTA	Tiercap	Size
ROA	1						
ROE	0.7777	1					
EPS	0.6694	0.5532	1				
LEV	−0.1198	−0.0972	−0.1905	1			
TDTA	−0.0825	−0.1606	−0.2023	0.9457	1		
Tiercap	0.0910	0.0893	0.2224	0.0372	0.0332	1	
Size	0.5567	0.4037	0.7696	−0.1356	−0.1496	0.2879	1

Table 4: Model statistics (ROA dependent variable)

Regression statistics	
Statistics	**Values**
Multiple R	0.57803
R^2	0.33412
Adjusted R^2	0.30608
Standard error	0.00413
Observations	100

Table 5: ANOVA analysis (ROA dependent variable)

Source	df	SS	MS	F	Significance F
Regression	4.00	0.00	0.00	11.92	0.00
Residual	95.00	0.00	0.00		
Total	99.00	0.00			

Dependent variables:

- ROA: Return on assets
- ROE: Return on equity
- EPS: Earning per share.

Independent variables:

- LEV: Total debt to total equity
- TDTA: Total debts to total assets
- Size: log of total assets.
- β_0 = Intercept
- β_1–β_4 = Coefficients of independent variables
- ε = Error term.

4. ANALYSIS AND INTERPRETATION OF KSA BANKS

First, eleven banks from the Kingdom of Saudi Arabia (KSA) were chosen. Ten banks from the Kingdom of Saudi Arabia were chosen for the study period of 2015-2024 after the criteria for sample selection were applied. One bank was omitted owing to data unavailability. The table below displays the descriptive statistics for the selected KSA banks, which include the distribution, dispersion, and central tendency of the dependent and independent variables for 100 observations. The data provides a picture of the Saudi banking industry's size, capital position, leverage situation, and profitability across the research period.

From the descriptive statistics (Table 2) of the sampled Saudi banks, it is evident that the profitably, leverage, and capital structure are different, varying in stability and spread across the 100 observations. The very low standard deviation with the mean ROA of 0.02 suggests that banks have a tendency to generate similar returns on assets each period; this ranges from 0.00 to 0.03. While the average ROE is 0.13, indicating good equity returns, the upper end of the range reaches 0.28 to show some variation in bank performance. EPS is more dispersed: While it averages 0.45, the standard deviation stands at 0.26, with a wide spread from −0.52 to 1.23, which indicates large differences in the shareholders' earnings but even losses for some banks. Leverage indicators have also seen some remarkable changes. LEV averages 0.49 but carries a big standard deviation of 0.64, reaching its maximum leverage of up to 3.00.

The total debt to total assets ratio (TDTA) is also low with a mean of 0.06, which is an indication of good solvency but the variation of 0.36 is an indication of average variation in the use of debt among the banks. The Tier 1 Capital ratio is 0.16 with small variation, which means that all the Saudi banking sectors are well capitalized and have been so in the past. Finally, the size of the bank with a mean of 24.72 and moderate variation indicates that the sample size is relatively small with similar sizes of assets they handle. Generally, the descriptive statistics reveal the existence of stable profitability and capital position but variability in the leverage and earnings of KSA banks.

The correlation coefficients (Table 3) provide a summary of the correlation strengths and directions of linear relationships between profitability variables, including ROE, ROA, and EPS and independent variables, such as LEV, TDTA, Tiercap, and size associated with KSA banks. Correlation coefficients > |0.50| reflect strong positive associations; whereas those that are < |0.50| reflect weaker positive associations. The relationship between ROA and ROE reflects a strong positive correlation; i.e., 0.7777 indicates that banks that generate higher assets in terms of profitability have

Table 6: Coefficients analysis (ROA dependent variable)

Variable	Coefficients	Standard error	t statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−0.082	0.015	−5.419	0.000	−0.111	−0.052	−0.111	−0.052
LEV	−0.003	0.002	−1.644	0.104	−0.007	0.001	−0.007	0.001
TDTA	0.021	0.013	1.578	0.118	−0.005	0.047	−0.005	0.047
Tiercap	−0.006	0.008	−0.846	0.399	−0.022	0.009	−0.022	0.009
Size	0.004	0.001	6.559	0.000	0.003	0.005	0.003	0.005

Table 7: Hypothesis testing (ROA dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	ROA->LEV	0.104	P>0.05	Not statistically significant
H_{02}	ROA->TDTA	0.118	P<0.05	Doesn't have significant effect
H_{03}	ROA->Tiercap	0.399	P>0.05	Doesn't have significant effect
H_{04}	ROA->SIZE	0.0001	P<0.05	Positively significant

Table 8: Model statistics (ROE dependent variable)

Regression statistics	
Statistics	**Value**
Multiple R	0.4469
R^2	0.1997
Adjusted R^2	0.1660
Standard error	0.03972
Observations	100

Table 9: ANOVA analysis (ROE dependent variable)

ANOVA					
Source	**df**	**SS**	**MS**	**F**	**Significance F**
Regression	4	0.038	0.009	5.930	0.000
Residual	95	0.150	0.002		
Total	99	0.188			

higher rates of return on equity (ROE). Correlation between ROA and EPS also reflects moderate to modest positive correlations (0.6694), CMS, and size (0.5567). Generating higher asset profitability tends to yield a higher EPS and thus generates asset profitability; whereas producing larger banks or banks generating greater shares of earnings generally has greater asset profitability. Correlation results indicate that ROE displays a mild positive correlation with EPS (0.5532) and a weak positive correlation with Tier 1 capital ratio (0.0893), which indicates banks with better ROE tend to hold greater amounts of Tier 1 capital.

$$ROA = \beta0 + \beta1\ (LEV) + \beta2\ (TDTA) + \beta3\ (Tiercap) + \beta4\ (Size) + \varepsilon \quad (1)$$

Having found that the Table 4 Multiple R coefficient was equal to 0.5780, this indicates a moderate/high positive correlation on predicting actual and predicted ROAs for determining the accuracy of the prediction model for ROAs in KSA banks. Based on the R^2 = 33.41%, this shows that the variability in the ROA measurement can be explained to a certain extent with just the 4 independent variables used in this study, they are; leverage, capital ratio and the size of the bank all together, therefore they may be significant to predict the profitability of the bank's assets in KSA and these 3 variables will give us some indication of how well the bank will do. The Adjusted R^2 = 0.3061, which is relatively close to the R-squared value when using additional variables in the calculation. Therefore, this indicates that we do not have the potential problem of overfitting our model and that these are important variables with regard to measuring ROA.

The prediction model for ROAs for KSA banks has a standard error of 0.00413, indicating that the model predicts the ROAs of the banks with very small residual error values, therefore this would be very high accuracy in predicting the ROAs of the banks. Using a dataset of 100 observations, it was found that leverage, debt to equity ratio, Tier 1 capital, and Size of the Bank are somewhat significant in explaining the ROA. However, approximately 66% of the total variability of ROA is explained by factors that were excluded from the original analysis and may include asset quality, liquidity management, cost efficiency, market conditions, and regulatory issues.

The following conclusions on the final equations are based on Table 5, ANOVA analysis of variance: "the model used for this study is significantly related to the banks' profitability or return on assets" is further supported by ANOVA output. The final regression output provided an F-statistic of 11.92 and df of 4 with P = 0.00, indicating that the independent variables as a group account for a large portion of the variation in ROA among the banks sampled. The remaining unexplained variance (i.e., residual SS) was computed for 95 degrees of freedom, and the total SS represented the division between explained and unexplained variance. In conclusion, the findings support the validity of the ANOVA outputs and demonstrate that the independent variables (predictors) had a large collective influence on profitability over the period of study.

Our regression analysis Table 6 shows that the size of a bank is the only statistically significant predictor of return on assets (ROA) for Saudi banks. Although we examined other factors such as leverage and capital structure, their influence on profitability was not significant. In contrast, a larger bank size exhibited a strong and positive correlation with ROA, indicating that economies of scale and operational efficiencies lead to increased profitability in larger institutions. Table 7 shows findings highlight the crucial importance of scale compared to leverage or capital structure in influencing profitability within the banking sector we studied.

4.1. Return on Equity (ROE)

$$ROE = \beta_0 + \beta_1\ (LEV) + \beta_2\ (TDTA) + \beta_3\ (Tiercap) + \beta_4\ (Size) + \varepsilon \quad (2)$$

The observation is a moderate positive correlation between the predicted value and the observed value of our dependent variable.

Table 10: Coefficients analysis (ROE dependent variable)

Variable	Coefficients	Standard error	t statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−0.4676	0.1451	−3.2218	0.0017	−0.7557	−0.1795	−0.7557	−0.1795
LEV	0.0337	0.0191	1.7623	0.0812	−0.0043	0.0717	−0.0043	0.0717
TDTA	−0.2567	0.1270	−2.0205	0.0461	−0.5089	−0.0045	−0.5089	−0.0045
Tiercap	−0.0178	0.0739	−0.2410	0.8101	−0.1646	0.1289	−0.1646	0.1289
Size	0.0241	0.0060	4.0364	0.0001	0.0123	0.0360	0.0123	0.0360

Table 11: Hypothesis testing (ROE dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	ROE->LEV	0.0812	P>0.05	Not statistically significant
H_{02}	ROE->TDTA	0.0461	P<0.05	Negatively significant
H_{03}	ROE->Tiercap	0.8101	P>0.05	Not statistically significant
H_{04}	ROE->SIZE	0.0001	P<0.05	Positively significant

Table 12: Model statistics (EPS dependent variable)

Regression statistics	
Statistics	**Values**
Multiple R	0.7747
R^2	0.6002
Adjusted R^2	0.5833
Standard Error	0.1680
Observations	100

Our model Table 8 explains 19.97% of the total variability in the dependent variable, while an adjusted R^2 of 16.60% represents only a slight percentage of explanation given the model's complexity. Although the results from the regression analysis are statistically significant, there remains a large portion of variability unexplained in our dependent variable; hence we would recommend that you add additional variables to your analysis to achieve a better understanding of your dependent variable dynamics.

The Table 9, ANOVA results show that during the analysis of the regression model, a large proportion of the variance of the ROE remains unexplained, however the regression model is statistically significant as a whole. The statistically significant F-statistic value ($F = 5.930$, $P < 0.001$) indicates that leverage, TDTA, Tier 1 capital and bank size explain the variations in ROE together, above what would occur by random chance. This can be further confirmed through testing of the individual regression coefficients, as these results are a measure of the strength of each independent variable in relation to the dependent variable.

Table 10 indicates the positive and statistically significant coefficient of Bank Size indicates that larger banks represent an economy of scale as well as a larger cornering of the market. The positive but not statistically significant coefficient of Leverage (LEV) indicates a weak effect of leverage on a bank's ROE.

The regression analysis results demonstrate that the final regression model was statistically significant ($F = 5.93$; $P = 0.000$), indicating that leverage, total debt-to-total assets, Tier 1 capital, and bank size jointly affect the profitability of KSA banks (ROE). Although the combined effect Table 11 indicates the independent variables can be determined from this regression, the individual influence of each independent variable differs. For example, while total debt-to-total assets has a large and statistically significant negative correlation with ROE, it indicates that higher levels of debt decrease bank's profitability, bank size has a large and positive correlation with ROE, representing the scale and operational efficiencies associated with large banks. Therefore, this analysis supports the hypothesis regarding the combined effect of Total Debt to Total Assets and Bank Size, but not the hypotheses regarding Leverage and Tier 1 Capital.

4.2. Earnings per Share (EPS)

$$EPS = \beta_0 + \beta_1 (LEV) + \beta_2 (TDTA) + \beta_3 (Tiercap) + \beta_4 (Size) + \varepsilon \quad (3)$$

Earnings per share (EPS) regressions of the KSA banking sector show a very strong statistical relationship between Leverage, Total debt-to-total assets, Tier 1 Capital and Size of Bank. The combined significance of these variables for EPS is indicated by the very high values for F and p-value for the overall model ($F = 35.65$, $P < 0.001$). The overall model explains approximately 60% of the variation in EPS, based on the R-squared statistic of 0.6002. When looking at the individual variable effects on EPS, the only variable which has a statistically significant effect is Size of Bank (coefficient = 0.2767, $P = 0.000$), showing that larger banks are generating more EPS because they obtain the benefits of economies of scale, diversification of operations and greater operational efficiencies. All other variables, including Leverage, total debt-total assets and Tier 1 Capital, do not appear to have a statistically significant effect on EPS, as shown by the P-values for these variables, which are all >0.05 (Leverage $P = 0.8639$; total debt-total assets $P = 0.7751$; Tier 1 Capital $P = 0.9008$). The intercept value is also statistically significant and has a negative value (−6.3804, $P = 0.000$), implying that EPS, without the effect of any of the above variables, would have a negative value. In conclusion, the data supports the hypothesis that there is a very strong positive association between size of bank and EPS. There appears to be little or no association between leverage, total debt-to-total assets and tier 1 capital in relation to EPS within the Saudi Banking Industry.

Table 12 explain the regression model with EPS as the dependent variable is statistically significant at the 0.000 level, according to the ANOVA analysis findings shown in Table 13. The conclusion that the Independent Variables (leverage ratio, total debt to total assets ratio, tier 1 capital ratio, and bank size) have a significant

impact on earnings per share is strongly supported by the F-value of 35.651.

There is a high level of variation in the EPS explained by the model, as demonstrated by the regression sum of squares being greater than the residual sum of squares. With 99 degrees of freedom, it can be determined with relative certainty that the model describes the data well and that the independent variables, working together, provide an effective means for predicting EPS for the sample of banks from Saudi Arabia and the United Arab Emirates.

Table 14, the analysis of coefficients results indicate that the most important predictor of EPS in Saudi Arabia is Bank Size. The TDTA and Leverage (LEV) variables demonstrate virtually no statistical relationship with EPS, which suggests that TDTA and LEV have little impact on Bank's profitability through earnings per share. Hence, Table 15 explain the findings in this study show that the greatest predictor of EPS is bank size, whereas Leverage and Tier 1 Capital are of much lesser importance.

4.3. Analysis of UAE Banks

In the UAE, two banks were removed from the original selection, resulting in a final group of nine banks. Initially, 11 banks were chosen, but 2 were excluded from the analysis due to missing data. Consequently, the dataset of nine banks includes balanced observations spanning a 10-year period from 2015 to 2024.

Table 13: ANOVA analysis (EPS dependent variable)

ANOVA					
Source	df	SS	MS	F	Significance F
Regression	4	4.0238	1.0059	35.6510	0.0000
Residual	95	2.6806	0.0282		
Total	99	6.7043			

Table 16 explains the 90 observations of selected UAE banks provide an overview for the descriptive statistics for the financial performance of these banks. The average ROA is 1.7% and the standard deviation is 0.013; this suggests a moderate range of variation in the profitability of these banks. The average ROE is 13.5%, and the standard deviation is 0.098, which indicates that there are a significant number of banks operating with a wide range of efficiencies and also experiencing a wide range of market exposures, from a high of 77.4% to a low of −20.1%. The EPS was calculated at an average of 0.205, and the standard deviation was found to be 0.175, which suggests a wide variation in earnings to shareholders. In terms of leverage, the LEV was calculated at an average of 0.681 with a high standard deviation of 0.409, while the TDTA was calculated at an average of 0.088 with a low level of debt and a moderate level of debt for this ratio. The average capital tier 1 ratio is 0.150, indicating a low level of variability, suggesting consistency in capitalization and that the average total asset ln is 24.361 with a standard deviation of 1.391, indicating a wide range in the size of the banks in the UAE, with considerable differences in their levels of capital adequacy, asset utilization and leverage ratios and lower profitability and larger bank size among the banks in the UAE.

Table 17 illustrate the pattern of correlation among banks in the UAE demonstrates a high degree of positive association between profitability and both the return on asset (ROA) ratio and the return on equity (ROE) ratio, which indicates highly productive use of assets and equity. However, while both ROA and ROE have a weak level of positive correlation with earnings per share (EPS), this would suggest that EPS is influenced by factors outside of ROA and ROE alone. Conversely, there are also negative correlations for the leverage measures in relation to profitability, with a negative correlation between total debt/equity and total debt/assets ratios

Table 14: Coefficients analysis (EPS dependent variable)

Variable	Coefficients	Standard error	t-statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−6.3804	0.6128	−10.4116	0.0000	−7.5969	−5.1638	−7.5969	−5.1638
LEV	−0.0139	0.0808	−0.1719	0.8639	−0.1742	0.1465	−0.1742	0.1465
TDTA	−0.1537	0.5364	−0.2865	0.7751	−1.2186	0.9112	−1.2186	0.9112
Tiercap	0.0390	0.3121	0.1250	0.9008	−0.5806	0.6586	−0.5806	0.6586
Size	0.2767	0.0252	10.9726	0.0000	0.2267	0.3268	0.2267	0.3268

Table 15: Hypothesis testing (EPS dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	EPS->LEV	0.8639	P>0.05	Not statistically significant
H_{02}	EPS->TDTA	0.7751	P>0.05	Doesn't have significant effect
H_{03}	EPS->Tiercap	0.0390	P>0.05	Doesn't have significant effect
H_{04}	EPS->SIZE	0.0000	P<0.05	Highly Significant

Table 16: Descriptive statistics of UAE banks

Variables	Mean	Standard error	Standard deviation	Sample variance	Range	Minimum	Maximum	n
ROA	0.017	0.001	0.012	0.000	0.122	−0.024	0.098	90
ROE	0.272	0.143	1.361	1.852	13.211	−0.201	13.010	90
EPS	0.197	0.018	0.169	0.029	0.992	−0.010	0.982	90
LEV	0.684	0.043	0.408	0.166	1.540	0.000	1.540	90
TDTA	0.091	0.005	0.045	0.002	0.169	0.004	0.174	90
Tiercap	0.149	0.003	0.027	0.001	0.131	0.113	0.244	90
Size	24.282	0.159	1.512	2.286	7.863	18.660	26.523	90

and ROA and ROE, which means that as debt/equity and debt/assets increase, profitability decreases. The Tier 1 capital ratio also has a very low level of correlation with profitability, indicating the Tier 1 capital ratio has little effect on ROA, ROE or EPS. Larger banks also show a moderate correlation to EPS and a weaker correlation to ROA and ROE, likely due to economies of scale. Therefore, the size of banks in UAE increases profitability and an increase in leverage decreases profitability and Tier 1 capital has little effect on either profitability.

ROA is dependent variable, Total debts to total equity, total debts to total assets, tier 1 capital and bank size are independent variable

The information shown in Table 17 demonstrates that only a small portion of variability in bank profitability can be measured using Regression Analysis with ROA as the dependent variable. R^2 (0.149) indicates that approximately 14.9% of the variation in ROA is due to the independent variables in the regression model. Adjusted R^2 (0.109) indicates that the amount of variability explained by independent variables is slightly less than would be expected given the number of predictors in the model. Multiple R (0.385) indicates a weak positive correlation between the independent variables and ROA. Standard error (0.011) indicates the average deviation from the predicted ROA value and the predicted ROA value based on the regression equation can account for some variability but does not provide a complete understanding of the effect of independent variables on ROA. The results suggest that independent variables contribute to ROA but not to a sufficient extent to yield an accurate prediction of ROA based on independence. Therefore, using regression analysis with independent variables as predictors will yield limited results for the independent variables' effect on ROA at best.

Table 19 provide analysis of variance in the model that predicted return on assets (ROA) supports the claim that this model was statistically reliable with an alpha of 0.05. The F statistic (3.708), along with the significance value (0.008), demonstrates that on the whole, the model's independent variables collectively affect ROA (although not a lot), even though they do explain some degree of variability in ROA. However, the model does explain only a small portion of that variability relative to the amount of residual variability. While there are 71 observations available, this information indicates that the predictors have some power in determining ROA but that the overall model still has a relatively low predictive power.

Co-efficient from the regressions done to determine the influence that "Return on Assets" ("ROA") is made available in "Table 19." The intercept is negative and statistically significant at ($\beta = -0.052$, $P = 0.021$) indicating that when all predictor variables have been held constant "ROA" will start from a negative value (Table 20). The "Leverage" factor had a negative coefficient ($\beta = -0.006$) which is not statistically significant at $P = 0.425$, suggesting that as "Leverage" is increased or reduced there will be no impact on the levels of "ROA" from the banks operations maximise asset profitability. The same is true for "Total Debt to Total Assets Ratio" (TDTA) which also showed a negative and insignificant relationship with "ROA" ($\beta = -0.033$, $P = 0.636$), indicating that banks with a higher "TDTA" will not have an increased return on assets. In contrast to both of those variables, "Tier 1 Capital" (Tiercap) has a positive and statistically significant coefficient that shows a beneficial effect to bank's ROA from good capital adequacy ($\beta = 0.094$, $P = 0.046$) indicating that banks with a high level of capital can expect to achieve a greater return on their assets than those without. Table 21 highlights the results of this study suggest that both "Capital Adequacy" and "Bank Size" have a positive effect on ROA, while the remaining variables, i.e., "Leverage" and "Debt Structure" have a lesser impact on bank's profitability from an asset perspective.

Overall, the findings indicate that capital adequacy and bank size are important determinants of banks' asset profitability, while leverage and debt intensity do not exert a significant influence.

Table 17: Correlation metrix: (UAE banks)

Variable	ROA	ROE	EPS	LEV	TDTA	Tiercap	Size
ROA	1						
ROE	0.978	1					
EPS	0.258	0.299	1				
LEV	−0.263	−0.246	0.148	1			
TDTA	−0.233	−0.225	0.107	0.922	1		
Tiercap	0.053	−0.034	−0.024	0.177	0.276	1	
Size	0.165	0.230	0.663	0.223	0.189	−0.173	1

Table 18: Model statistics (ROA dependent variable)

Regression statistics	
Statistics	**Values**
Multiple R	0.385
R^2	0.149
Adjusted R^2	0.109
Standard error	0.011
Observations	90

Table 19: ANOVA analysis (ROA dependent variable)

ANOVA					
Source	**df**	**SS**	**MS**	**F**	**Significance F**
Regression	4	0.002	0.000	3.708	0.008
Residual	85	0.010	0.000		
Total	89	0.012			

4.4. Return on Equity (ROE)

Table 21 contains the statistical output from the regression analysis where the dependent variable is return on equity (ROE). The Multiple R value of 0.225 indicates that the independent variables explain a very small amount of the variance in ROE with only a 2.25% correlation. The R^2 value of 0.051 indicates that 5.1% of the variance in ROE is explained by the independent variables. The adjusted R^2 value of 0.006, which is lower than the R^2 value, reflects the fact that as more variables enter into our model to predict ROE, there will be less ability for those variables to explain ROE because there are so many variables that confound our ability to explain ROE. The standard error of 1.357 indicates that the residuals fit relative to the predicted values are fairly spread out. Therefore, with 90 observations, we can conclude that while there is some relationship reflected by the model, most of the variance in ROE will be due to variables that were not included in this analysis.

Table 20: Coefficients analysis (ROA dependent variable)

Variable	Coefficients	Standard error	t statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−0.052	0.022	−2.356	0.021	−0.096	−0.008	−0.096	−0.008
LEV	−0.006	0.008	−0.801	0.425	−0.021	0.009	−0.021	0.009
TDTA	−0.033	0.069	−0.475	0.636	−0.169	0.104	−0.169	0.104
Tiercap	0.094	0.046	2.026	0.046	0.002	0.186	0.002	0.186
Size	0.003	0.001	3.031	0.003	0.001	0.004	0.001	0.004

Table 21: Hypothesis testing (ROA dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	ROA->LEV	0.425	P>0.05	Doesn't have significant effect
H_{02}	ROA->TDTA	0.636	P>0.05	Doesn't have significant effect
H_{03}	ROA->Tiercap	0.046	P>0.05	Significant
H_{04}	ROA->SIZE	0.003	P<0.05	Highly significant

Table 22: Model statistics (ROE dependent variable)

Regression statistics	
Statistics	**Values**
Multiple R	0.225
R^2	0.051
Adjusted R^2	0.006
Standard error	1.357
Observations	90

Table 23: ANOVA analysis (ROE dependent variable)

ANOVA					
Source	**df**	**SS**	**MS**	**F**	**Significance F**
Regression	4	8.350	2.088	1.134	0.346
Residual	85	156.470	1.841		
Total	89	164.821			

Table 22 provides the ANOVA results for ROE as the dependent variable in this model. The regression sum of squares (SS) is 8.350 whereas the residual SS is 156.470, suggesting that the independent variables in the model only account for a small portion of the total variability in ROE. The F-statistic is 1.134 and is not statistically significant (P = 0.346) meaning that it appears that the coefficients from the individual variables do not significantly affect ROE. Thus, leverage, total debt-to-total assets, Tier 1 capital and bank size do not jointly impact ROE for this sample of banks.

The coefficient estimates of the regression model that assessed the factors influencing a firm's return on equity (ROE) have been summarized in Table 23. The intercept of the regression equation is negative; however, the associated P > 0.05 (β = −3.573; P = 0.193), suggesting that there is no statistically significant baseline effect present in the relationship between the dependent variable and the independent variables. The leverage (LEV) ratio has a negative coefficient (β = −1.140), but the P-value associated with that coefficient is >0.05 (P = 0.225), so the negative relationship is not significant, indicating that firms with higher levels of leverage do not realize a significant increase in shareholder returns compared to firms with lower levels of leverage (LEV). The total debt-to-total asset (TDTA) ratio is positive (β = 11.458).

However, the P-value associated with the coefficient is >0.05 (P = 0.178); therefore, the positive relationship is not significant, meaning that the variations in the intensity of debt have no significant influence on ROE (Table 24). The Tier 1 capital ratio (Tiercap) has a negative coefficient (β = −2.838), which is not statistically significant at conventional levels (P = 0.619); consequently, the adequacy of a bank's capital does not have a statistically significant impact on the explanation of the equity return in this model. The size of a bank shows a positive coefficient (β = 0.165); however, again, this coefficient is not statistically significant at conventional levels (P = 0.114). Therefore, none of the independent variables have a statistically significant individual effect on ROE; this is consistent with the previous ANOVA results that indicated no overall significance in the model.

Table 25 presents a summary of the relationship between the independent variables and the dependent variable (ROE).

4.5. Earnings per Share (EPS)

A large portion of the variance in EPS is accounted for by the regression model, according to the regression statistics. According to the R Square statistic of 0.465, 46.4% of the variance in EPS is explained by the independent variables, and the Adjusted R square value of 0.440 indicates strong predictive capabilities after accounting for the number of independent variables. According to Table 26 the multiple R statistic of 0.682, there is a moderately strong positive correlation between the independent variables and EPS. Using this model for EPS prediction, a standard error of 0.126 suggests that predictions will be made with an adequate level of precision, which is to be expected given that there were 90 observations used in the analysis.

Table 27 provide the ANOVA results for the EPS regression analysis confirm that the overall model is statistically significant. An F-value of 18.493 and a Significance F of 0.000 indicate that the independent variables considerably and significantly affect EPS when measured together. The regression sum of squares (0.990) is large compared to the residual sum of squares (1.182), so the model accounts for a good deal of the variability of EPS. The results of the analysis confirm that the independent variables used improve the model's predictive ability for EPS variance for the banks included in the sample by 89 observations.

Table 28, which presents the Analysis of Coefficients results, reveals that the primary predictor of EPS in Saudi Arabia is Bank

Table 24: Coefficients analysis (ROE dependent variable)

Variable	Coefficients	Standard error	t statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−3.573	2.725	−1.311	0.193	−8.990	1.845	−8.990	1.845
LEV	−1.140	0.933	−1.221	0.225	−2.996	0.716	−2.996	0.716
TDTA	11.458	8.437	1.358	0.178	−5.318	28.234	−5.318	28.234
Tiercap	−2.838	5.687	−0.499	0.619	−14.145	8.470	−14.145	8.470
Size	0.165	0.103	1.595	0.114	−0.041	0.371	−0.041	0.371

Table 25: Hypothesis testing (ROE dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	ROE->LEV	0.225	P>0.05	Insignificant effect
H_{02}	ROE->TDTA	0.178	P>0.05	Positively insignificant
H_{03}	ROE->Tiercap	0.619	P>0.05	Negative insignificant
H_{04}	ROE->SIZE	0.114	P<0.05	Insignificant effect

Table 26: Model statistics (EPS dependent variable)

Regression statistics	
Statistics	**Values**
Multiple R	0.682
R^2	0.465
Adjusted R^2	0.440
Standard error	0.126
Observations	90

Table 27: ANOVA analysis (EPS dependent variable)

ANOVA					
Source	**df**	**SS**	**MS**	**F**	**Significance F**
Regression	4	1.182	0.296	18.493	0.000
Residual	85	1.359	0.016		
Total	89	2.541			

Size. The TDTA and Leverage (LEV) variables show almost no statistical correlation with EPS, indicating that TDTA and LEV exert minimal influence on a Bank's profitability as measured by Earnings Per Share. Banks assessed based on stability measures and findings suggest that stability has a positive and statistically significant correlation with bank profitability. Overall, the results of this research support previous literature findings that capital adequacy ratio (CAR) is a good predictor of profitability in finance industries. Through a regression analysis of the total number of observations across different territories and markets, this study demonstrates that the combination of several capital adequacy ratios has a higher correlation with profitability compared with capital ratios on their own; however, the size of a bank and its market size appears to be more significant than capital ratios when determining bank profitability. Banks are expected to be capitalized to grow within the financial industry by expanding into new markets through mergers and acquisitions or organic growth. Therefore, if a bank does not capitalise and has a smaller size and is more heavily concentrated on a small market, they will not perform well over the long term.

Table 29 highlights the results of hypothesis testing that investigates the connection between EPS and various selected variables. The results suggest that EPS exhibits a positive yet insignificant correlation with leverage (LEV) and a negative insignificant correlation with total debt to total assets (TDTA), as their p-values are greater than 0.05. Conversely, EPS demonstrates a positive and significant relationship with Tier capital (Tiercap) at the 10% significance level.

5. RESULTS AND DISCUSSION

Size is consistently one of the most significant factors influencing profitability across all profitability metrics, according to regression analysis done on banks in the Kingdom of Saudi Arabia. With an F-value of 11.92 (P = 0.000) and an R-square value of 33.41% (R^2 = 0.3341), the Return on Assets (ROA) model demonstrates statistically significant evidence, meaning that the variables in this model account for 33.41% of the variation in ROA. Size and ROA have a high positive association, with a value of 0.004 (P = 0.000). Although they have little effect on ROA, other elements like leverage (as determined by total debt-to-total assets, or TDTA) and Tier 1 capital may nevertheless have an impact on ROE through their effects on TBTA. According to ROE results, there is a statistically significant relationship between size and ROE (F = 5.930, P = 0.000), R^2 = 19.98%. This means that larger banks exhibit higher levels of ROE due to a significant positive relationship with a coefficient of.0241 (P = 0.0001), while TDTA has a significant negative impact on ROE (−0.2567, P = 0.0461), suggesting that banks with higher levels of debt have lower returns on their equity. Once more, ROE is largely unaffected by leverage ratios and Tier One Capital. With an F-value of 35.651 (P = 0.000) and an R-square value of 60.02%, the earnings per share (EPS) model has very substantial significance, suggesting that EPS is the primary factor influencing bank size. The hypothesis that larger banks typically outperform smaller banks in all three-profitability metrics: ROA, ROE, and EPS, that increases in TDTA reduce banks' capacity to produce returns on their equity, and that metrics like leverage and capital ratios are typically insignificant in their capacity to explain the performance of banks in the Kingdom of Saudi Arabia are all supported by these metrics.

This study looks at how different independent factors affect commercial banks' profitability. The ability of a bank to produce net income, as shown by return on average assets (ROAA), return on average equity (ROAE), and earnings per share (EPS), was evaluated in relation to leverage, total debt-to-assets ratio (DTAR), Tier 1 capital ratio (T1CR), and bank size. According to the analysis, the tier 1 capital ratio (T1CR) and Bank Size have a significant and favourable impact on return on average assets (ROA), suggesting that larger and better-capitalized banks may

Table 28: Coefficients analysis (EPS dependent variable)

Variable	Coefficients	Standard error	t statistic	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	−1.802	0.254	−7.097	0.000	−2.307	−1.297	−2.307	−1.297
LEV	0.041	0.087	0.475	0.636	−0.132	0.214	−0.132	0.214
TDTA	−0.611	0.786	−0.777	0.439	−2.174	0.952	−2.174	0.952
Tiercap	0.891	0.530	1.681	0.096	−0.163	1.945	−0.163	1.945
Size	0.078	0.010	8.092	0.000	0.059	0.097	0.059	0.097

Table 29: Hypothesis testing (EPS dependent variable)

Hypothesis	Relationship	P-value	Decision rule	Interpretation
H_{01}	EPS->LEV	0.636	P>0.05	Positive insignificant
H_{02}	EPS->TDTA	0.439	P>0.05	Negative insignificant
H_{03}	EPS->Tiercap	0.096	P>0.10	Positive significant
H_{04}	EPS->SIZE	0.000	P<0.05	Highly significant

generate higher returns on their trained assets. Leverage and total debt to total assets (DTAR), on the other hand, have a negative (insignificantly negative) impact, indicating that raising debt does not boost asset-based profitability. The model has no statistical significance since the analysis of return on average equity (ROAE) revealed that none of the independent variables had a meaningful impact on ROAE. Furthermore, ROAE volatility is not taken into account by capital structure or leverage. Bank size has a considerable positive link with earnings per share (EPS), making it the strongest driver. However, Tier 1 capital has almost the same effect (positive but not as strong). Therefore, these results show that the most significant factors influencing bank profitability as determined by ROA and EPS are greater capital and larger bank size, while leverage and DTAR have less of an impact.

5.1. Comparisons between KSA and UAE Banks

The study describes and assesses the patterns in the return generation of banks in Saudi Arabia (KSA) and the United Arab Emirates (UAE). The results demonstrate that every bank in the Kingdom of Saudi Arabia has steady returns, adequate capital, and a high degree of operational and profit-returning volatility. In contrast, banks in the United Arab Emirates typically exhibit moderate levels of consistent capital utilisation and operational efficiency; nevertheless, their size and return patterns vary significantly. According to the analysis, there is a positive correlation between return on assets (ROA), earnings per share (EPS), and bank size in the Kingdom of Saudi Arabia. This suggests that larger banks are typically more effective at making money off of their assets. Additionally, banks in the United Arab Emirates have demonstrated minimal link between bank size, profitability, leverage, and Tier 1 capital, but banks in Saudi Arabia had a favourable relationship between ROE and EPS. It is reassuring to see the overwhelming evidence that KSA banks are more sensitive to the detrimental impacts of excessive borrowing on ROE and profitability. Nonetheless, the majority of UAE banks exhibit minimal, if any, sensitivity to the majority of typical performance indicators seen on a balance sheet. The size of a bank has the biggest impact on profitability (EPS) for both areas. However, since Tier 1 capital does not significantly boost profitability, growing in size is essential to raising profitability throughout the Gulf Cooperation Council (GCC) region, especially when it comes to how leverage affects KSA banks' profitability in comparison to UAE banks.

6. CONCLUSION

This study analyzed how various attributes related to the size of banks, leverage, and capital structure impacted decrements in the ability to create a profit amongst a specific subset of Saudi Arabian and UAE banks from 2015 to 2024 via traditional indicators such as: ROA, ROE & EPS. The research concluded that the size of the bank was the key factor influencing overall profitability. Large-sized banks have significantly more Return on Assets than small-sized banks due to economies of scale and increased operational efficiencies. For the Saudi Banks studied, total debt-to-assets negatively impacted the Return on Equity; however, leverage and Tier 1 Capital had minimal influence. Leverage ratios and debt to equity ratios exhibited similar characteristics for the UAE Banks studied. The study highlights to the important relationship between growth and operational efficiencies and overall profitability for GCC Banks. Additionally, the study indicates that the impact brought on by debt and capital adequacy efficiencies were not the same across the two countries, enabling bank managers and regulators to develop strategic decisions based on these findings.

It is recommended for banks in Saudi Arabia to implement more stringent leverage and debt management policies, while also enhancing the monitoring of debt ratios and promoting sustainable financing practices to mitigate risk. Given that larger banks in KSA exhibit superior profitability and efficiency, policymakers should advocate for strategic expansion, digital transformation, and improvements in economies of scale and long-term profitability. Furthermore, it is suggested that banks in the UAE concentrate on enhancing the effectiveness of capital utilization. Management can foster performance-based allocation and operational optimization strategies. Additionally, management can encourage innovation, diversification of banking services, and technology-driven growth to boost profitability, especially since bank size remains a significant factor influencing EPS performance.

Several directions for further research are suggested in light of the study's findings:

- As future research efforts continue, it is anticipated that findings from the current study will be further bolstered through the addition of a much larger and more diverse group of banks within the Gulf Cooperation Council (GCC) or throughout the Middle East. Upon gathering a sufficient

quantity of this bank representation, future researchers will have the capacity to identify whether the same relationships exist between bank size, leverage, capital structure, and profitability when compared among countries with differing banking regulations and systems.

- Future researchers will likely examine many more variables in relation to bank profitability. In accumulation to size, leverage, and capital structure, variables such as operational efficiency, non-performing loans, interest rates, liquidity ratios, and macroeconomic conditions will likely be examined to comprehensively evaluate bank profitability.
- Additionally, future research may broaden this scope by incorporating a greater number of GCC and Middle Eastern banks to enhance the generalizability of findings across various regulatory and banking systems. The study could utilize advanced econometric methods such as GMM to tackle endogeneity and the dynamic relationship between capital structure and profitability. Furthermore, future investigations might also consider macroeconomic variables, including oil prices, inflation, and GDP growth, to analyze external economic impacts on bank performance.

These directions can help academics and practitioners better understand the complex interactions between bank structure, financial strategy, and profitability in the GCC banking sector.

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