

Determinants of Accounting -Based and Value- Based Performance Indicators: The Case of the Saudi Banks

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Abstracts: The study aimed to investigate determinants of both Accounting -Based and Value- Based Performance Indicators of the Saudi banks listed on the Saudi capital market during 2013-2022. The study used the panel data methodology for least squared regression models and fixed effect regression model to test the robustness of the results. The study used ROA, ROE, and EPS as proxies for accounting- based profit indicators, while the study used MVA, EVA, and Tobin's Q as proxies for value -based performance indicators. The study used bank -specific, industry-specific and macroeconomic -specific determinants. The results of the study were mixed and more sensitive to model choices. The least squared regression models worked better than fixed effect regression models in terms of explanatory power and capturing several determinants for value -based performance indicators. However, fixed effect regression models worked better than least squared regression models as they captured the impact of risk measured by Z score as a proxy for forward-looking risk as banks with greater scores had better profits. In addition, the results showed that all independent variables were good determinants except for capital adequacy ratio and market share. In addition, there were common determinants for both types of indicators such as operating efficiency, financial leverage, and bank size. ROE was better than ROA in terms of explanatory power. In addition, the study revealed that Weak correlations were found between accounting -based and value- based indicators, and therefore, they were complementary not alternatives. The results of the study will be useful to many stakeholders such as bank management, shareholders, policy maker and external auditors.

Keywords: Operational Efficiency – Financial Leverage – Capital Adequacy Ratio-Z Score- Loan Quality –Oil Revenues.

1. INTRODUCTION

Banks play a vital role in the economic development by financing borrowers in various economic sectors to drive the economic growth and increase the supply of goods and services. Banks also contribute to stimulating the demand side through various types of financing for individuals to increase their purchasing power. Therefore, banks are the backbone of the economy. The stability of the economic activities depends largely on the stability of banks. The sustainable profitability is a guarantee of the stability of banks especially Saudi banks work with higher financial leverage. **Javaid1& Alalawi (2018)**. Considering the importance of banks, the issue of the determinants of bank profitability has recently received great attention from researchers.

Previous studies have indicated that bank profitability is dependent on bank - specific variables and macroeconomic-specific variables. These studies used size of the bank, liquidity, credit quality, capital, and the economic growth rate independent variables and used proxies for bank profitability such as return on assets (ROA) and return on equity (ROE) as dependent variables however, the results of the these studies were Contradictory. The discrepancy in the results might be due to using different profitability measures, different methodologies, different explanatory variables, and sometime using explanatory variables as dependent variables. Where **Mehta, Bhavani)2017) Raza, Hena (2019)** used net interest margin indicator as a proxy for profitability despite it is one of drivers of the profitability. **AL-Najjar, Assous (2021)** used total deposits, as a dependent variable despite it is not a profit indicator. All previous studies investigated determinants of accounting -based profit indicators and none of them addressed value based performance indicators.

The use of financial ratios goes back to 1890s, as the current ratios were used to measure the solvency of the organizations to serve creditors. **Beaver (1966)**. Then the management used financial ratios to analyze profitability and to predict default and bankruptcy. **Altman (1968) Beaver (1966)**. In addition, financial ratios have been used in rating bonds to determine the risk premium **Ingram & Copeland (1984)**. However, accounting -based performance

measures did not reflect risks **Sikdar, (2013) and** accounting -based performance indicators were subject to earnings management practices. **Poorzamani, Otari (2015) Oraby, (2023)**

Although financial ratios were widely used in evaluating performance of banks, Criticisms of financial ratios have demonstrated the need for performance indicators that reflect risks and capture shareholder wealth maximization. Therefore, in the 1970s, **Stern Stewart & Co** developed the concept of maximizing shareholders' wealth through cash dividends to shareholders and increasing share price. Since accounting –based indicators did not succeed in measuring the change in shareholders' wealth; the need for alternative indicators has emerged to address the deficiencies in accounting-based indicators. Therefore, several value-based indicators have emerged, such as economic value added (EVA), Market value added (MVA) (Tobin's Q). Several Previous studies dealt with value-based performance measures and accounting- based performance indicators but from value relevance perspectives such as **Chen and Dodd (1997) (O'Byrne, 1996) Sikdar (2013) (Mediations, et al. (2009) Bhattacharyya and Phani (2004).**

1.1. Study Problem

Previous literature did not address the determinants of both accounting –based and value-based performance indicators in an integrated manner. In addition, the results of previous studies varied and relied on a single methodology and sometimes used irrelevant indicators as determinants of performance. On the other hand, this study considered the first that addresses this issue on banks in Saudi Arabia and covers the study period. Therefore, the study fills the gap in the current literature by providing empirical evidence on the determinants of banks' performance.

- a. Are there common determinants of both accounting- based profit indicators and value-based performance indicators?
- b. Are the results sensitive to model choices?
- c. Which model is better in capturing the relationship?
- d. Is EPS better than ROE as a profit indicator?
- e. Do value-based performance indicators complement or replace accounting-based performance indicators?

1.2 Study objective

The study aims to examine determinants of both accounting –based profit indicators and value-based performance indicators and study the relationship between them to determine whether they are complementary to each other or alternatives to each other.

2. Literature Review and Hypotheses Development

This section dealt with previous studies related to the research topic and the development of research hypotheses based on results of previous studies.

2.1 Literature Review

This section addressed previous studies severally to get a full picture on variables used, methodologies, countries of the studies, samples, periods of the studies and detailed results. Then the study summarized independent variables and dependent variables used in the previous studies and the results.

Saif-Alyousfi (2022) conducted a study on the impact of bank-specific variables and macroeconomic- specific variables on the profitability of 2446 banks in 47 Asian countries during the period 1995-2017. The results indicated that banks that relied on non-traditional activities had a low interest margin but achieved a high return on assets and equity before taxes. The results also indicated that the high opportunity cost, capital adequacy, and market risks contributed to better profits. The results also indicated that non-performing loans had a negative impact on profits.

As for macroeconomic- specific variables, the results indicated that the high economic growth rate, high inflation, and high interest rates contributed to better profits.

AL-Ardah, Al-Okdeh (2022) conducted a study on impact of the liquidity risk on the financial performance of 13 banks registered on the Jordan Stock Exchange. The study used liquidity ratios, net working capital, ratios of cash and investments to total deposits as independent variables, in addition to the size of the bank as an additional independent variable. The study used Return on assets as a proxy for profit. The results of the regression model indicated that liquidity indicators had an impact on ROA and bank size was statistically significant.

Ekaterina et al. (2021) conducted a study on the determinants of the profitability of major commercial banks owned by the State of China during the period 2007-2019. Using fixed and random effect regression models, the results of the study indicated that bank -specific variables, such as size of assets, credit quality, and liquidity, had positive impacts on the profitability of banks, while GDP had a negative impact on return on ROE on ROA s proxies for bank profitability.

AL-Najjar, Assous (2021) conducted a study to rank Saudi banks using CAMEL system and investigate the impact of these rankings on the total deposits of 11 banks registered on Saudi financial market during the period 2014-2018. The study used regression models that included financial ratios that reflect five aspects of CAMEL system, which were capital adequacy, asset quality, management quality, earnings quality, and liquidity as independent variables and total deposits as a dependent variable. The results indicated that capital adequacy ratio, efficiency ratios, ROA , and loan-to-deposit ratio had positive and statistically significant impacts on total deposits, but the ratio of net interest income to net revenues had negative and statistically impacts on total deposits and the rest of variables related to asset quality and liquidity ratio were statistically insignificant.

AlZou'bi, et al, (2021) conducted a study to examine the relationship between traditional performance indicators and the modern performance indicators. The study was conducted on 13 commercial banks registered on the Amman Stock Exchange during the time 2013-2018. The study used the ROA, ROE, and EPS as proxies for traditional performance indicators, while the study used economic value added, market value added, and value added to shareholders as proxies for the modern indicators. Except for earnings per share, the results of the correlation analysis indicated that there were weak and significant correlations between most of traditional and modern performance indicators.

Hidayat, e t al., (2021) conducted a study to determine whether Islamic banks achieve a balance between risks, efficiency, and performance in their business models. This study was conducted on 12 Islamic banks and 34 conventional banks operating in the Gulf Cooperation Council countries during 2011-2018. The results of regression models indicated that there was a difference in the performance of traditional and Islamic banks in terms of efficiency, profitability, and risks. The results indicated that the impact of credit risk was low on ROA and ROE. In addition, the results indicated that the lower cost-to-income ratio as a proxy of operational efficiency improved the ROA and ROE, and this may be due to higher non-interest income and the adherence to Islamic Sharia.

Trung (2021) conducted a study to evaluate the performance of 35 banks in Vietnam during the 2009-2020 by using financial ratios that reflect five aspects of CAMEL as independent variables and the Tobin's Q as the dependent variable. The results indicated that there were positive and statistically significant impacts of Capital adequacy ratio, non-performing loans /total loans, total cost / total income on ROE. In addition, Loans/ deposits, Inflation rates, GDP growth rate had positive and statistically significant impacts on Tobin's Q. However, there were negative and statistically significant impacts of non-performing loans/ total assets / total assets of the banking system; ownership structure–dummy on Tobin's but the financial leverage was insignificant.

Kuknor, Rastogi (2021) conducted a study on the impact of the capital adequacy ratio and non-performing loans as determinants of the profits of 30 public and private banks in India during 2015-2019. The results of the study indicated that the capital adequacy ratio had a positive impact on the net profit margin, while non-performing loans had negative impacts on the net profit margin.

Khan, et al. (2020) Conducted a study on the determinants of capital structure in Saudi banks listed on the stock exchange during 2010-2017. The study used least squares regression models with fixed and random effects to study the relationship between financial leverage as a dependent variable and some independent bank -specific variables. The results indicated that earnings fluctuations and the size of the bank were positively related to financial leverage, while profitability indicators had an inverse relationship with financial leverage. .

Raza, Hena (2019) conducted a study on the impact of bank-specific variables on profitability of 34 banks in Pakistan during 2006-2016. The study used least squares regression models, where the model included the interest margin added to the prime interest rate and the ratio of net interest income to total assets as dependent variables to measure bank profitability. On the other hand, the model included Bank size, capital, loans, and deposits as independent variables. The results indicate that the size of assets had a negative and statistically significant impact on bank profits. Loans had positive impacts on the performance, capital had a positive impact on the ratio of net interest income to total assets, but it had a negative impact on the interest margin, while deposits had no impact profitability indicator.

Yüksel, et al. (2018) conducted a study on the determinants of banks' profits in 13 countries during 1996-2016. The results of the study indicated that loans, non-interest income and economic growth were among the most important determinants of the profitability of banks under study, while there was an inverse relationship between loans and GDP growth.

Javaid & Alalawi (2018) conducted a study on the determinants of the profitability of 11 Islamic countries in the Kingdom of Saudi Arabia during 2000-2013. The study used fixed-effect regression models that included bank -specific variables, industry – specific variables and the macroeconomic -specific variables as independent variables and profitability indicators as a dependent variable. The results of the study indicated that the capital adequacy ratio had a positive impact on profitability indicators and banks operate with high financial leverage.

Obeidat, Darkal (2018) conducted a study on the impact accounting -based performance indicators and value-based performance indicators on share price, i.e., the value relevance for each of them, for industrial companies registered on the Abu Dhabi Stock Exchange during 2014-2016. The study used multiple linear regression models, as the first model included ROA, ROE, and EPS as proxies for the accounting-based indicators, serve as independent variables, and share price as a dependent variable. While the second model included EVA, MVA as proxies for value-based performance as independent variables and share price as the dependent variable. The results indicated that both value -based and accounting -based performance indicators had positive impacts on the stock price.

Mehta, Bhavani (2017) conducted a study on determinants of profitability of banks operating in the United Arab Emirates over the period 2006 to 2013. The study used bank -specific variables and industry- specific variables as well as macroeconomic - specific variables as independent variables. ROA, ROE, and net interest margin were used as dependent variables. Based on the results of regression models, cost-to-income ratio as a proxy of the operational efficiency, non-interest income/gross income, and the asset quality ratio were the most influential on the profit indicators.

Almaqtari, et al. (2017) conducted a study on the determinants of banks profitability in India during 2008-2017 on 69 banks. The study used ROA and ROE as proxies for profitability. The study also used bank size, asset quality, liquidity, operational efficiency, deposits, financial leverage, asset management, number of branches as bank variables- specific, in addition to macroeconomic- specific variables including GDP, interest rates, and exchange rates as independent variables. The study used fixed effect regression model, the results indicated that the size of the bank, number of branches, quality of assets, operating leverage, and financial leverage were the most influential determinant of ROA.

Al Karim, Alam (2013) conducted a study to analyze the performance of private banks listed on the Bangladesh Stock Exchange during 2008-2012. The study used capital adequacy ratio, credit growth, credit concentration, non-performing loans, liquidity gap analysis, and liquidity ratios as independent variables and ROA, Tobin, Q and EVA

as dependent variables. The results indicated that bank size, credit risk, operational efficiency, and asset management had a significant impact on the performance of banks in Bangladesh.

Summary of literature Review

<p>Trung (2021)</p>	<p>Independent variables: Capital adequacy ratio, non-performing loans/total loans as a proxy for credit risk, total cost / total income as a proxy for operational efficiency, loans/ deposits, total assets/ total assets of the banking system as a proxy for completion, Inflation rates, GDP growth rate, total liabilities/total assets as a proxy for financial leverage, ownership structure –dummy</p> <p>Dependent variables: Tobin's Q</p> <p>Results: Capital adequacy ratio, loans/total loans, total cost / total income, return on equity, Loans/ deposits, Inflation rates, GDP growth rate were plosive and significant. Non-performing loans/total loans, Total assets/ total assets of the banking system, Ownership structure–dummy were negative and significant. Total liabilities/Total assets were insignificant.</p>
<p>Mehta, Bhavani (2017)</p>	<p>Independent variables: Impaired loans to gross loans as a proxy for credit risk, tier 1 regulatory capital ratio, cost to income ratio as a proxy for operational efficiency, GDP, equity to total liabilities as a proxy for financial leverage. Non-interest income/ gross income as a proxy for income diversification.</p> <p>Net interest income/ average assets, rate of inflation, liquid assets/ deposits, loans / total deposits as a proxy for liquidity, total assets</p> <p>Dependent variables: Net interest margin, return on average assets, return on average equity.</p> <p>Results: Cost to income ratio had an inverse relationship with all dependent variables. Non-interest income to gross income had a positive relationship with all dependent variables. Some variables were significant in relation to net interest margin and insignificant in relation to return on assets and return on equity and vice versa</p>
<p>Almaqtari, et al. (2017)</p>	<p>Assets management, leverage ratio, and bank size had Statistically significant impacts on return on assets. Assets management, assets quality ratio, and bank size had a positive and statistically significant impact on return on equity. Leverage ratio and operating efficiency ratio had a negative impact on ROE</p>
<p>Al Karim, Alam (2013)</p>	<p>Independent variables: Total assets as a proxy for bank size, allowance for loan losses / total loans as a proxy for credit risk, total operating expense / net Interest income as a proxy for operational efficiency, operating income / total assets as a proxy for management quality.</p> <p>Dependent variables: ROA, Tobin's Q, Economic, Value Added</p> <p>Results: Operating Income / total assets as a proxy for assets management had a positive impact on return on assets. Credit risk had a negative impact on the return on assets. Total Assets as a proxy for bank size had a negative impact on Tobin's Q.LOG of Total Assets as a proxy for bank size had a positive impact on the economic value added.</p>
<p>AlZou'bi, et al. (2021)</p>	<p>Weak correlation between EVA, MVA, TSR and ROI ROA ROE. Average correlation between EVA, MVA, TSR and EPS</p>
<p>Raza, Hena (2019)</p>	<p>Independent variables: Total assets, capital, loans, deposits</p> <p>Dependent variables: Interest margin, ratio of interest, income to total assets</p> <p>Results: Total assets had a negative impact. Capital has a positive impact. Loans had a positive impact. Deposits had no impact.</p>
<p>MBEKOMIZE, MAPHARING (2017)</p>	<p>Independent variables: Loans to total assets as a proxy for liquidity, equity / total assets as a proxy for capital adequacy, allocation for loan losses / total loans as a proxy for credit risk, total assets as a proxy for bank size, deposits / total assets as a proxy for profit opportunity in the market. Non-interest expenses / total income as a proxy for operational efficiency, non-interest income / total income as a proxy for income diversification, inflation rate as a proxy for macroeconomic variable. Bank interest rate.</p> <p>Dependent variables: Return on assets, Return on equity, Net interest income /total assets.</p> <p>Results:</p>

	Inflation, operational efficiency, liquidity, credit risk, diversification had impacts on return on equity.
Kuknor, Rastogi (2021)	<p>Independent variables: Capital adequacy ratio as proxy for bank regulation, non-performing loans as proxy for credit risk.</p> <p>Dependent variables: Net profit margin</p> <p>Results: Capital adequacy ratio had a positive impact on net profit margin. Non -performing loans had a negative impact on net profit margin.</p>
Yüksel, Mukhtarov, Mammadov, Özşarı (2018)	<p>Independent variables: Capital adequacy ratio, inflation rate, ratio of loans / deposits, GDP, size, non-interest income/ interest income, interest rates.</p> <p>Dependent variables: Return on equity.</p> <p>Results: Size had a negative impact on return on equity. The inflation rate had a positive impact on return on equity. Ratio of loans / deposits had a positive impact on return on equity. Capital adequacy ratio had no impact on return on equity. Ratio of loans / deposits. GDP had no impact on return on equity. Interest rates had no impact on return on equity. GDP had no impact on return on equity. Non-interest income/ interest income had a positive impact on return on equity.</p>
Ekaterina, Jigeers, Miao, Angi Skhvediani (2021)	<p>Independent variables: Net loans/ total assets, non-performing loans/ total assets as a proxy for credit risk, allocation for loan losses / total assets as a proxy for assets quality, cash, and cash equivalent / total assets as a proxy for liquidity, deposits/ total assets, GDP.</p> <p>Dependent variables: Return on equity, return on assets.</p> <p>Results: Model (1) fixed effect model ROA. Net loans/ total assets had no impact. Non-performing loans/ total assets had negative impacts. Allocation for loan losses / total assets had negative impacts. Cash and cash equivalent / total assets had positive impacts. Deposits/ total assets had no impact. GDP had negative impacts. Model (2) fixed effects model ROA. Net loans/ total assets had no impact. Non-performing loans/ total assets had negative impacts. Allocation for loan losses / total assets had no impact. Cash and cash equivalent / total assets had no impact. Deposits/ total assets had positive impacts. GDP had negative impacts.</p>
Javaid & Alalawi (2018)	<p>Independent variables: Capital adequacy ratio measured by the accounting financial leverage =equity/ total assets, Assets quality measured by provisions for loan losses/ total loans, liquidity measured by cash/ total assets, management quality measured by operating expenses / total deposits, operational efficiency measured by operating expenses/ operating income, financial leverage measured by total liabilities/ equity.</p> <p>Dependent variables: Return on equity, return on assets.</p> <p>Results: The results of the two models were the same as all variables were significant but assets quality, management quality, liquidity, inflation, and GDP had an inverse relationship with return on assets and return on equity. The remaining variables had appositive relationships.</p>

2.2 Study Hypotheses

Based on the literature review and study objectives, the study developed the following hypotheses:

1. Bank -specific variables have a statistically significant impact on accounting- based and value -based performance indicators of Saudi banks.
2. Industry - specific variables have a statistically significant impact on accounting- based and value –based performance indicators of Saudi banks.
3. Macro-economic - specific variables have a statistically significant impact on accounting- based and value –based performance indicators of Saudi banks.
4. There are strong correlations between accounting-based performance indicators and value -based performance indicators.

3. METHODOLOGY AND ANALYSES OF RESULTS

3.1 Sample and Data Collection

The study included all 10 commercial and Islamic banks registered on the Saudi capital market during 2013 to 2022. The study relied on secondary data collected from the annual financial reports of banks under study and from the Saudi Capital Market website to measure bank -specific variables. The study collected the data required to measure the macroeconomics –specific variables from the Ministry of Finance website.

3.2 Research Method

The study used the quantitative approach for the pooled time-series, cross-sectional to test the study hypotheses and achieve its objectives. The study used descriptive statistics to describe the study variables, correlation analysis to determine the degree and direction of the relationship and least squared and fixed effect regression models to test research hypotheses.

3.3 Variables Measurement

Variables Proxy	Variable Measurement
Y1 ROA	The study used return on assets as proxy for profitability. It is calculated as net income after tax and zakat /total assets. This indicator reflects the profitability from the management perspective, and it was widely used in the previous studies such as Ekaterina, Jigeers, Miao, and Skhvediani. (2021) MBEKOMIZE, MAPHARING, (2017) Almaqtari, et al., (2017)
Y2 ROE	The study used return on equity as a proxy for profitability of banks. It is calculated as net income minus preferred dividends / outstanding common shares. This indicator reflects the profitability from the shareholder's perspective. It was widely used in the previous study. Such as Yüksel, Mukhtarov, Mammadov, Özsarı, (2018) MBEKOMIZE, MAPHARING, (2017) The relationship between return on assets and return on equity is expressed by $ROE = ROA \times (\text{Asset}/\text{Equity})$.
Y3 EPS	The study used earnings per share as a proxy for profitability. It is calculated as net income minus preferred dividends / outstanding common shares. The previous studies did not use that indicator even though the accounting standard require banks to mandatorily disclose it on the income statement...
X1 Size	The study used total assets, as proxy for bank size. It is the natural logarithm of total assets. This indicator was widely used in the previous studies such as MBEKOMIZE, MAPHARING (2017) Raza, Hena, (2019).
X2 FL	The study used the ratio of total equity / total assets as a proxy for financial leverage. It is the accounting financial leverage. The study used the leverage ratio that suits banks' activities by ratio of equity /total assets to compare it with the regulatory financial leverage-capital adequacy ratio. Some studies used liability/ total assets ratio as a proxy for financial leverage. Almaqtari, et al. (2017). Another study used equity / liabilities as a proxy for financial leverage Mehta, Bhavani (2017)
X3 CAR	The study used the capital adequacy ratio calculated as per Basel III because it is considered a risk – adjusted assets financial leverage. This indicator was widely used in the previous studies such as Yüksel, Mukhtarov, Mammadov, Özsarı, (2018) Kuknor, Rastogi, (2021) Almaqtari, et al., (2017)
X4 liq	The study used the ratio of total loans /total customer deposits as a proxy for liquidity. This indicator was used by AL-Najjar, Assous (2021) as a proxy for liquidity. Other studies such as Mehta1, Bhavani, (2017) used liquid assets / total deposits as a proxy for liquidity. Whereas Almaqtari, et al., (2017) used liquid assets / total assets as a proxy for liquidity.
X5 Di	The study used non-interest income/ total income as a proxy for income diversifications. As this indicator was used by MBEKOMIZE, MAPHARING (2017) Mehta1, Bhavani, (2017) Yüksel, et al. (2018). It is believed that banks with high non-interest income are more profitable.
X6 LQ	The study used non-performing loans/ total loans as a proxy for credit quality. This indicator refers to non - accrual loans that did not contribute to interest income. The study used it to account for its impact on profitability not as a proxy for credit risk as it is ex- post risk indicator while credit risk need ex -ante indicator. Mehta1, Bhavani (2017) used this indicator as a proxy for credit risk. Ekaterina, Miao, Angi Skhvediani (2021) used non-performing loans / total assets as a proxy for assets quality.
X 7 Z score	The study used Z-score as a proxy for forward-looking risk indicator for each bank. As this index measures the distance from the default area and the probability of insolvency. Insolvency exists when losses exceed the bank's capital. Z-score is calculated as $=ROA+CAR/\sigma ROA$. ROA stands for return on assets, CAR stands for equity/ assets, and σROA stands for the standard deviation of return on assets. This indicator has been used in several studies such (Hunjra et al., 2020) Hafeez, et al. (2022) Laeven, Levine. (2009) Roy (1952). Z-score is interpreted as the higher Z-score the less risk. See appendix (4)

X8 OE	The study used non-interest expenses / total income as a proxy for operational efficiency. As this indicator used by Al Karim, Alam (2013). While Almaqtari, et al. (2017). Other studied used non-interest expenses / interest income as a proxy for operational efficiency.
X9 MS	The study used Bank's total assets/ total assets of all banks as a proxy for market share. This indicator reflects the degree of completion in the banking industry. Previous studies did not use this indicator.
X10 GDP	The study used GDP Growth Rate as a proxy for macroeconomic indicator. This indicator was widely used in the previous study such as Ekaterina, et al. (2021) Almaqtari, et al. (2017)
X11 OR	The study used yearly Oil revenues as a proxy for macroeconomic indicator. Oil revenues still represent the largest percentage of the Kingdom's total revenues. Therefore, the study expects that oil prices have impacts on banks' profits. This variable never used in the previous studies on determinants of profitability of banks.
Y1 EVA	The study used the economic value added as a proxy for value- based performance indicator. It is calculated as net income-(cost of capital * equity). The study calculated the cost of capital by sharp model (1964) Which was used in several studies such as Al Karim, and Alam, (2013) Botosan. Plumlee (2002) Elbannan, Elbannan (2015) See appendix (1)
Y1 MVA	The study used the market value added as proxy for value- based performance indicator. The study calculated MVA as the difference between the share price and the book value per share at the end of the financial year. The book value of equity reflects the residual interest in banks assets after excluding liabilities while the market value reflects investor's valuation of future earnings and growth potential. The value is created to shareholders when share price is greater than the book value per share. (Rondo, Leliaert, 2003) See appendix (2)
Y3 Tobin's Q	The study used Tobin's Q as a proxy for value -based performance indicator. The concept of Tobin's Q emerged by Tobin, Brainard (1968) Tobin, (1978) Tobin, (1969). Tobin's Q is defined as the market value of the company divided by the cost of replacing the company's assets. Since it was difficult to determine the cost of replacing assets, a simple equation was used to calculate Tobin's Q, if the market value of company's liabilities equals the book value of company's liabilities, the Tobin's Q= market value of equity +book value of equity. Several studies used Tobin's Q such as Al Karim, Alam (2013) Fu et al. (2016) Butt et al. (2023) See appendix (3)

Source: Summary of the literature review

3.4 Models Specifications

$$ROA = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (1)$$

$$ROE = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (2)$$

$$\text{EPS} = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (3)$$

$$\text{MVA} = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (4)$$

$$\text{EVA} = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (5)$$

$$\text{Tobin's Q} = \beta_0 + \beta_1 \times \text{Size}_{it} + \beta_2 \times \text{FL}_{it} + \beta_3 \times \text{CAR}_{it} + \beta_4 \times \text{liq} + \beta_5 \times \text{Di}_{it} + \beta_6 \times \text{LQ}_{it} + \beta_7 \times \text{Z score}_{it} + \beta_8 \times \text{OE}_{it} + \beta_9 \times \text{MS}_{it} + \beta_{10} \times \text{GDP}_t + \beta_{11} \times \text{OR}_t + \mu_{it} \quad (6)$$

Where: i stands for individual bank, and t stands for time, μ_{it} stands for the error terms.

3.5 Analysis of Results

Table (1) showed the descriptive statistics of the independent and dependent variables as the standard deviation of the bank size variable recorded SAR 1.8 billion. This was due to the large discrepancy in the size of banks' assets during the study period, where the maximum and minimum assets were SAR 9.4 billion and SAR 1.8 billion respectively. The standard deviation of the oil revenues variable recorded SAR 196.8612 billion. This was due to

the large discrepancy in oil revenues during the study period, where the maximum and minimum assets were SAR 913Billion and SAR 324 billion respectively. The standard deviation of the Z SCORE variable recorded 1.817133. This was due to the large discrepancy in risk profiles of banks, as the maximum and minimum Z score were SAR 11.79701 and 1.752046 respectively. The standard deviation of the return on equity variable recorded 1.362446. This was due to the large discrepancy in return on equity, as the maximum and minimum return on equity were 6.34% and -2.01% respectively. While the standard deviation for the rest of the variables was less than one.

Table (1) Descriptive Statistics of the Study's Variables

	CAR	OE	Size	Z SCORE	FL	liq	DI
Mean	0.193532	0.401041	2.19E+08	4.933056	0.149524	0.886727	0.283162
Median	0.192	0.38	1.80E+08	4.930728	0.145986	0.868447	0.27
Maximum	0.28	0.614	9.45E+08	11.79701	0.267168	1.076422	0.56
Minimum	0.1405	0.261	36323308	1.752046	0.092527	0.64048	0.133
Std. Dev.	0.025524	0.087247	1.71E+08	1.817133	0.029017	0.083448	0.083421
Skewness	0.779319	0.79033	2.087711	0.594142	0.853457	0.302647	0.972567
Kurtosis	4.339037	2.752671	8.216423	4.332679	4.753212	3.340225	4.017125
Jarque-Bera	17.41729	10.55859	184.1615	13.15072	24.69764	1.988802	19.87463
Probability	0.000165	0.005096	0	0.001394	0.000004	0.369945	0.000048
	LQ	MS	GDP	OR	ROA	ROE	EPS
Mean	0.015317	0.099247	0.022492	598.5455	0.112572	2.383535	2.383535
Median	0.012631	0.089316	0.027	562	0.116536	2.05	2.05
Maximum	0.058342	0.301401	0.087	913	0.219083	6.34	6.34
Minimum	0.002699	0.022881	-0.0414	324	-0.0821	-2.01	-2.01
Std. Dev.	0.010043	0.067352	0.031969	196.8612	0.047654	1.362446	1.362446
Skewness	2.35296	1.151263	-0.02753	0.344471	-0.79886	0.497167	0.497167
Kurtosis	9.250921	3.448331	3.436282	1.727412	5.038986	3.923245	3.923245
Jarque-Bera	252.5313	22.69834	0.797664	8.638248	27.67944	7.594452	7.594452
Probability	0	0.000012	0.671104	0.013312	0.000001	0.022433	0.022433

Source: Eviews Software

Table (2) showed the results of correlation as the relationship between the independent variables ranged between the weak to moderate and therefore no autocorrelation between the independent variables. The correlation between the dependent variables and the independent variables supported the results of the regression models. The results also indicated that there was a complete correlation between return on equity and earnings per share, which indicated that one of them is sufficient as an indicator of profitability, but the results of the regression model showed that it captured additional information.

Table (2) Correlation Analysis of the Study's Variables

	CAR	OE	GDP	FL	SIZE	Z SCORE	OR	MS	LIQ	LO	DI	ROA	ROE	EPS
CAR	1	0.05	-0.15	0.56	0.01	0.32	-0.19	0.00	0.30	0.11	-0.45	-0.27	-0.21	-0.21
OE	0.05	1	-0.06	-0.28	-0.54	-0.15	-0.09	-0.10	-0.18	0.10	0.30	-0.37	-0.49	-0.49
GDP	-0.15	-0.06	1	-0.02	0.11	-0.00	0.59	0.47	0.12	-0.08	0.09	0.21	0.17	0.17
FL	0.56	-0.28	-0.02	1	0.04	0.47	-0.07	0.06	0.38	0.19	-0.31	-0.35	-0.27	-0.27
SIZE	0.01	-0.54	0.11	0.04	1	-0.01	0.04	0.14	-0.02	-0.00	-0.21	0.32	0.57	0.57
Z SCORE	0.32	-0.15	-0.00	0.47	-0.01	1	-0.01	0.00	0.46	-0.23	-0.22	0.05	-0.02	-0.02
OR	-0.19	-0.09	0.59	-0.07	0.04	-0.01	1	0.35	-0.08	0.05	0.08	0.11	0.08	0.08
MS	0.00	-0.10	0.47	0.06	0.14	0.00	0.35	1	0.24	0.09	-0.18	0.00	0.02	0.02
LIQ	0.30	-0.18	0.12	0.38	-0.02	0.46	-0.08	0.24	1	0.01	-0.37	-0.17	-0.28	-0.28
LO	0.11	0.10	-0.08	0.19	-0.00	-0.23	0.05	0.09	0.01	1	-0.18	-0.45	-0.25	-0.25
DI	-0.45	0.30	0.09	-0.31	-0.21	-0.22	0.08	-0.18	-0.37	-0.18	1	0.18	0.01	0.01
ROA	-0.27	-0.37	0.21	-0.35	0.32	0.05	0.11	0.00	-0.17	-0.45	0.18	1	0.81	0.812
ROE	-0.21	-0.49	0.17	-0.27	0.57	-0.02	0.08	0.02	-0.28	-0.25	0.01	0.81	1	1
EPS	-0.21	-0.49	0.17	-0.27	0.57	-0.02	0.0	0.02	-0.22	-0.25	0.01	0.8	1	1

Source: Eviews Software

Table (3) least squared regression model (1) ROA was statistically significant as per the value of F test 10.02548 and the model explained 0.645808 of the changes in ROA as per the Adjusted R-squared. The results showed that cost to income ratio as a proxy for operational efficiency had an inverse and statistically significant relationship with ROA as the lower the ratio the higher ROA. Non-interest income / total income as a proxy for diversification had a positive and statistically significant relationship with ROA as the higher the ratio the higher the ROA. Non-performing loans to total loans ratio as a proxy for loan quality had an inverse and statistically significant relationship with ROA as the lower the ratio the higher ROA. Total assets as a proxy for bank size had an inverse and statistically significant relationship with ROA as the smaller the bank's size, the lower ROA. GDP had a positive and statistically significant relationship with ROA as the higher the GDP the higher ROA. While least squared regression model (2) ROE was statistically significant as per the value of F test 21.18814 and the model explained 0.804689 of the changes in ROE as per the Adjusted R-squared. The results showed the same results for ROA in terms of loan quality, size and GDP. In addition, least squared regression model (3) EPS was statistically significant as per the value of F test 21.36690 and the model explained 0.804478 of the changes in EPS as per the Adjusted R-squared. The results showed the same results for ROE in terms of loan quality, size and GDP but the model captured the impact of diversification of income on EPS that was not supported by ROE.

Table (3) Results of the Panel Least Squares Regression Models

	ROA			ROE			EPS		
R-squared	0.717362			0.844548			0.843978		
Adjusted R-squared	0.645808			0.804689			0.804478		
S.E. of regression	0.028676			0.602120			0.603960		
Sum squared resid	0.064964			28.27877			28.81664		
Log likelihood	225.0611			-78.45099			-79.68299		
F-statistic	10.02548			21.18814			21.36690		
Prob(F-statistic)	0.000000			0.000000			0.000000		
	ROA			ROE			EPS		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
CAR	0.2312	1.09805	0.275	-4.12166	-0.9303	0.355	-3.804001	-0.85754	0.393
OE	-0.1727	-1.82758	0.071	-2.85461	-1.4324	0.156	-3.067541	-1.50507	0.127
Z score	-0.00267	-0.17611	0.860	0.0854	0.2679	0.789	0.063277	0.19816	0.843
OR	-5.73E-06	-0.26744	0.789	-0.0003	-0.74338	0.459	-0.000339	-0.75220	0.454
DI	0.1032	1.72714	0.088	2.0407	1.60203	0.113	2.302978	1.82863	0.071
LIQ	0.01998	0.29316	0.770	1.17909	0.82143	0.413	1.315255	0.91628	0.362
LQ	-1.46446	-3.64691	0.000	-24.155	-2.8567	0.005	-23.38210	-2.76467	0.007
FL	-0.54632	-1.02283	0.309	-8.8302	-0.78622	0.434	-8.099643	-0.72000	0.473
MS	0.0392	0.72470	0.470	1.23962	1.07560	0.285	1.010214	0.885788	0.378
SIZE	-1.27E-10	-2.81891	0.006	-2.57E-09	-2.72851	0.00	-2.57E-09	-2.72851	0.008
GDP	0.278284	2.048395	0.0438	5.872363	2.05052	0.043	6.181517	2.160400	0.033
C	0.229321	2.72654	0.007	4.478706	2.524791	0.013	4.332931	2.44604	0.016

Source: Eviews Software

Table (4) showed the results of panel fixed effect regression model (1) ROA as the model was statistically significant as per the value of F test 11.51438 and the model explained 0.538802 of the changes in ROA as per the Adjusted R-squared. The model showed the same results of the least squares regression model in terms of operational efficiency, diversification, loan quality and GDP. However, the fixed effects model captured new information on Z score as a proxy for risk as it had a positive and statistically significant relationship with ROA as the higher the score the higher ROA. In addition, the model captured the impact of the financial leverage measured by equity/ total assets as the lower the ratio the higher ROA. Therefore, the fixed effects model was better than the least square model. In addition, the results of panel fixed effects regression model (2) ROE showed that the model was statistically significant as per the F test value 15.54320 and the model explained 0.620118 of the changes in ROE as per the Adjusted R-squared. The model showed the same results of least squares regression model in terms of diversification, loan quality, bank size and GDP. However, the fixed effects model captured new

information on Z score as it contributed positively to ROE. In addition, the model captured the impact of the financial leverage and the operational efficiency on ROE. Therefore, the fixed effect model was more powerful than the least square model. The results of panel fixed effect regression model (3) EPS showed that the model was statistically significant as per the F test value 16.08453 and the model explained 0.626316 of the changes in EPS. The models showed the same results of ROE. Therefore, the EPS add nothing to ROE. The inverse relationship between oil revenues and accounting profitability indicators may be interpreted as banks resort to earnings management practices in years in which oil revenues witness noticeable increases. Especially oil revenues had positive impacts on MVA and therefore, it can be said value-based performance indicators were not subject to earnings management practices. On the other hand, accounting based -profit indicators were subject to earnings management practices. **Oraby (2023)**

Table (4) Results of the Panel Fixed Effects Regression Models

	ROA			ROE			EPS		
R-squared	0.590046			0.662758			0.667837		
Adjusted R-squared	0.538802			0.620118			0.626316		
S.E. of regression	0.032722			0.839737			0.834955		
Sum squared resid	0.094227			61.34875			61.34916		
Log likelihood	206.4671			-116.7869			-117.4644		
F-statistic	11.51438			15.54320			16.08453		
Prob(F-statistic)	0.000000			0.000000			0.000000		
	ROA			ROE			EPS		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
CAR	0.331421	1.75769	0.082	7.272199	1.50267	0.136	7.274268	1.5119	0.134
OE	-0.292576	-5.21921	0.000	-7.987180	-5.54814	0.000	-7.988509	-5.5849	0.000
Z Score	0.008058	3.30498	0.001	0.195902	3.11486	0.002	0.196056	3.1513	0.0022
OR	-2.71E-05	-1.19802	0.234	-0.001187	-2.04307	0.044	-0.001187	-2.0549	0.042
Di	0.114669	2.21356	0.029	0.874967	0.65315	0.515	0.870970	0.6589	0.511
LIQ	-0.125231	-2.46938	0.015	-6.154014	-4.67417	0.000	-6.158839	-4.7594	0.000
LQ	-0.785968	-1.98334	0.050	-2.186851	-0.21481	0.8304	-2.198146	-0.1738	0.828
FL	-0.963710	-5.48520	0.000	-22.21126	-4.90845	0.000	-22.22058	-4.9566	0.000
MS	0.015714	0.26624	0.790	-0.032653	-0.02130	0.983	-0.026999	-0.0179	0.985
SIZE	2.38E-11	0.966864	0.336	2.40E-09	3.79293	0.0003	2.40E-09	3.8153	0.000
GDP	0.338179	2.31048	0.023	11.01592	2.923743	0.004	11.00876	2.9476	0.0041
C	0.363010	5.713357	0.000	11.71849	7.10128	0.000	11.72464	7.2319	0.000

Source: Eviews Software

Table (5) showed that the standard deviation of MVA recorded 11.34154. The Maximum value recorded 61.70954 and the Minimum value recorded -10.26016.the standard deviations of the remaining variable were reasonable.

Table (5) Descriptive Statistics of Value Based Performance Indicators

	MVA	EVA	TOBINS_Q
Mean	5.188632	1623.580	1.261222
Median	3.441937	309.5000	1.198674
Maximum	61.70954	32543.00	3.304231
Minimum	-10.26016	-11507.00	0.493579
Std. Dev.	11.34154	5024.088	0.525705
Skewness	2.121840	3.745882	1.663214
Kurtosis	10.05968	22.70496	6.929050
Jarque-Bera	282.6995	1851.717	110.4273

Source: Eviews Software

Table (6) showed that Tobin's Q had strong correlation of 0.9523 with MVA. However, correlation coefficient of ROA, ROE, EPS and MVA, EVA and Tobin's Q were weak. Therefore, both indicators are commentary each other.

Table (6) Correlation between Accounting- Based and Value -Based Indicators

	ROA	ROE	EPS	MVA	EVA	Tobin's Q
ROA	1	0.817	0.8177	0.316	0.32	
ROE	0.817	1	0.9999	0.288	0.3637	0.1934
EPS	0.8177	0.999	1	0.288	0.363	0.1931
MVA			0.2821	1	0.2671	0.9523
EVA	0.326	0.363	0.3638	0.267	1	
TOBINS_Q	0.302	0.19341	0.	0.9523	0.2339	1

Source: Eviews Software

To calculate the Cost of Capital, the study used the Capital Asset Pricing Model (CAPM). The expected return on a security is a function of the following parameters: risk-free rate, marker rate, risk premium and beta. CAPM Formula = $RFR + \{(\text{Beta} (\text{MR} - \text{RFR}))\}$ Whereas, ER stands for cost of capital, RFR stands for Risk-free rate, Beta stands for stock risk factor, R = Expected return of the index of the market. Risk Premium = $(\text{MR} - \text{RFR})$. Beta is calculated as follows: Beta coefficient = $\text{Covariance} (\text{MR}, \text{RS}) / \text{Variance} (\text{MR})$.Whereas: RS stands for individual share return, MR stands for the return on the market index.

Table (7) showed results of the least squares regression model (4) MVA, as the model was significant according to the value of F test 9.564909, and the model explained 0.633738 of the change in MVA as per Adjusted R-Squared. The results indicated that the determinants of MVA were the financial leverage, bank size, oil revenues, and income diversification. Contrary to the results of accounting based -profitability indicators, there was a direct and statistically significant relationship between the size of the bank and MVA, as larger banks achieved greater MVA compared to small banks. On the other hand, there was a direct and statistically significant correlation between the Kingdom's oil revenues and MVA. The unexpected result was that income diversification had a negative impact on MVA. The results of least squares regression model (5) EVA showed that the model was significant according to the value of F test 2.564647, and the model explained 0.240174 of the change in EVA as per the adjusted R-Squared. The results indicated that the determinants of EVA were the operational efficiency, financial leverage and bank size as there was a direct and statistically significant relationship between the size of the bank and EVA , the larger the banks the greater EVA . The results of least squares regression model (6) Tobin's Q showed that the model was significant according to the value of F test 9.439901, and the model explained 0.630318 of the change in Tobin's Q as per the adjusted R-Squared. The results indicated that the determinants of Tobin's Q were the same of MVA. The results confirm that both MVA and Tobin's Q were correlated strongly. Therefore, either one replaces the other .

Table (7) Panel Least Squares Regression Models

	MVA			EVA			Tobin's Q		
R-squared	0.707730			0.393674			0.705002		
Adjusted R-squared	0.633738			0.240174			0.630318		
S.E. of regression	6.863857			4379.397			0.319636		
Sum squared resid	3721.890			1.52E+09			8.071224		
Log likelihood	-322.7347			-968.5744			-16.05060		
F-statistic	9.564909			2.564647			9.439901		
Prob(F-statistic)	0.000000			0.001626			0.000000		
	MVA			EVA			TOBINS_Q		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
CAR	48.06627	0.95344	0.343	39795.22	1.23720	0.2197	2.871294	1.22305	0.224
OE	-2.292820	-0.101317	0.919	51298.99	3.552842	0.0006	-0.551903	-0.53706	0.601
GDP	9.316675	0.28651	0.775	3449.135	0.16624	0.8684	0.620590	0.40982	0.683
FL	-293.5307	-2.29595	0.024	-136147.6	-1.66906	0.0991	-15.84714	-2.66178	0.009
SIZE	6.31E-08	5.86829	0.000	1.62E-05	2.35670	0.0209	2.03E-09	4.05114	0.0001
Z	2.781672	0.76650	0.445	1428.208	0.61681	0.5391	0.126974	0.75134	0.454

SCORE									
OR	0.013290	2.59315	0.011	-0.089977	-0.02751	0.9781	0.000703	2.94500	0.004
MS	-5.236326	-0.40400	0.687	7858.702	0.95030	0.3449	0.055137	0.09135	0.927
LIQ	3.573526	0.21905	0.827	-9119.584	-0.87617	0.3836	0.257961	0.33956	0.735
LO	-73.62591	-0.76600	0.446	-84578.73	-1.37916	0.1717	-1.887119	-0.42161	0.674
DI	-49.39244	-3.45093	0.000	-9014.782	-0.98715	0.3266	-2.728194	-4.09320	0.0001
C	17.24714	0.85672	0.394	-5795.291	-0.45118	0.6531	2.348430	2.50502	0.014

Source: Eviews Software

Table (8) showed the results of the Panel Fixed Effects Regression Model (4) MVA, as the model was significant according to the value of F test 9.225777, and the model explained 0.477527 of the change in market value as per Adjusted R-Squared. The results of Fixed Effects Regression Model showed same the determinants of least square regression model of MVA except the model did capture the impact of income diversification. Therefore, least square regression model was better than fixed effects regression model. The results of the Panel Fixed Effects Regression Model (5) EVA showed that the model was insignificant according to the value of F test 1.230901. The results of Panel Fixed Effects Regression Model showed that the model (6) Tobin's Q was significant according to the value of F test 6.964291, and the model explained 0.398568 of the change in Tobin's Q as per the adjusted R-Squared. The results indicated that the determinants of were the same as the results of least squares regression model. The results confirm that both MVA and Tobin's Q were correlated strongly. Therefore, either one replaces the other, but MVA had greater explanatory power than Tobin's Q model. Finally, least squared regression models were more powerful than Panel Fixed Effects Regression Model.

Table (8) Results of the Panel Fixed Effects Regression Models

	MVA			EVA			Tobin's Q		
R-squared	0.535580			0.133346			0.465394		
Adjusted R-squared	0.477527			0.025014			0.398568		
S.E. of regression	8.197926			4960.853			0.407695		
Sum squared resid	5914.128			2.17E+09			14.62694		
Log likelihood	-345.8903			-986.4355			-45.77860		
F-statistic	9.225777			1.230901			6.964291		
Prob(F-statistic)	0.000000			0.279005			0.000000		
	MVA			EVA			Tobin's Q		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
CAR	26.91861	0.569846	0.570	-17541.59	-0.61365	0.541	1.808237	0.76971	0.4435
OE	0.497562	0.03542	0.971	6727.070	0.79155	0.430	-0.274257	-0.39267	0.6955
GDP	-15.81944	-0.43141	0.667	8361.387	0.37681	0.707	-1.208193	-0.66252	0.5094
FL	-110.5137	-2.51075	0.013	-22790.35	-0.85563	0.394	-7.026662	-3.21001	0.0019
SIZE	3.86E-08	6.24644	0.000	9.79E-06	2.62011	0.010	1.27E-09	4.13418	0.0001
Z									
SCORE	-0.419372	-0.68655	0.494	699.4656	1.89230	0.061	-0.010294	-0.33885	0.7355
OR	0.017102	3.01560	0.003	-2.319467	-0.67587	0.500	0.000916	3.24908	0.0016
MS	-0.127934	-0.00865	0.993	1834.111	0.20497	0.838	0.367927	0.50033	0.6181
LIQ	42.10831	3.31425	0.001	-5696.972	-0.74098	0.460	2.247980	3.55778	0.0006
LO	-63.84112	-0.64303	0.521	24723.38	0.41520	0.681	-2.290995	-0.46401	0.6438
DI	-14.35094	-1.10578	0.271	-1009.006	-0.12847	0.898	-0.497502	-0.77081	0.4429
C	-32.29320	-2.02873	0.045	6092.321	0.63247	0.528	-0.533037	-0.67334	0.5025

Source: Eviews Software

DISCUSSION AND CONCLUSIONS

This study aimed to identify the determinants of both accounting – based profitability indicators and value-based performance indicators. The study was conducted on 10 banks registered on the Saudi capital market during 2013-2022. The study relied on the quantitative approach, where the study collected secondary data from the annual financial reports of banks and the website of both Saudi capital market and the ministry of finance. The study used 11 explanatory variables as the potential determinants for bank performance, including bank- specific, industry –

specific and macroeconomic -specific variables. The problem of the study is that previous studies dealt with the determinants of accounting profitability only without addressing the determinants of value-based performance indicators as well. Therefore, this study attempts to fill the gap in the current literature.

The results of least squares models showed ROE was the best profitability indicator in terms of explanatory power then ROA. However, ROE did not capture the impact of operational efficiency. In addition, earning per share did not add great value to ROE .However. All least squares models did not capture the impact of both risk and financial leverage on profit indicators. On the other hand, results of the Panel Fixed Effects Regression Models showed that these models captured the impact of risk, financial leverage, operational efficiency, and liquidity on accounting- based profitability. Therefore, fixed effect regression models considered better than least squares regression models in studying the determinants of accounting -based performance.

The results of value-based performance indicators using MVA and Tobin's Q using least squares regression models showed that the determinants were the financial leverage, bank size, oil prices, and diversification in income and Tobin's Q did not add great value to MVA. Whereas determinants of EVA were the operational efficiency, financial leverage and bank size. Therefore, the least squares regression models were better than fixed-effect regression models from the perspective of explanatory power and its ability to identify the determinants of EVA.

The results indicated that there were many common determinants for both types of performance indicators and the results were sensitive to the regression models used. Fixed-effect regression models were better than least squares regression models in the case of accounting -based profitability. However, Least squares regression models were better than Fixed-effect regression models in the case of value -based performance indicators. There was a complete correlation between EPS share and ROE, and therefore both were substitutes for the other. There was a weak correlation between both types of performance indicators, and therefore they were complementary to each other and not substitutes. The results of the study indicated that all independent variables were statistically significant as determinants of performance measures, except for capital adequacy ratio and market share. Therefore, the study accepted the alternative hypotheses 1, 2, 3 for all independent variable except for capital adequacy ratio and market share. In addition, the study rejected hypothesis 4 because the correlations between accounting based and value – based were weak.

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