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Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: in Jordan from 2009 -2019

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ABSTRACT

The banking industry has seen considerable changes in its operating environment throughout the world during the previous two decades. Despite a growing tendency toward bank disintermediation in many countries, banks continue to play a critical role in funding country's economic activities in general and certain market sectors in particular. This research aims to investigate the bank-specific and macroeconomic determinants of the banks' profitability in Jordan from 2009 to 2019. Profitability has been taken as an indicator of bank-specific and macroeconomic determinants by measuring the Return on assets (ROA) and Return on Equity (ROE). Secondary data were used to balance the panel data set. The result reveals that the amount of the bank's assets and non-interest income has a positive and substantial effect on its profitability. However, the size of the credit portfolio and loans under review has a considerable negative influence on the profitability of the bank. Only the real interest rate positively affects banks' performance concerning macroeconomic variables. These results suggest that banks can improve their profitability through increasing bank size and non-interest income, decreasing the credit/asset ratio. In addition, a higher real interest rate can lead to higher bank profitability.

INTRODUCTION

In the last two decades, banks have become one of the major financial pillars in the economy. With time, the banks' structure and operating environment have changed significantly by getting influenced by

domestic and international circumstances. Banks can help the economy by providing a whole payment system, achieving equilibrium of demand and supply in financial markets and many more. Banks continue to play a critical role in the financial activities of the economy in general and specific market segments in particular. Banks efficiency plays a significant role in developing the country's economic growth. However, bankruptcies might lead to a systemic catastrophe. Profitable and healthy banking industry can achieve better financial stability and fewer negative shocks. As a result, academic researchers, financial markets, bank supervisors and bank management are very interested in the factors that influence bank performance. While many studies demonstrate the possibility of measuring and analyzing the banks' profitability, several concerns remain unaddressed. Most of the literature focuses on drivers of profitability at the bank and/or industry level, with variable selections that are not always consistent, while the influence of the macroeconomic environment has not been thoroughly investigated. The factors of profitability in the banking sector may alter as the macroeconomic and legal environment changes (Pakurár et al., 2020; Sufian and Fakarudin, 2012)

The banking sector in Jordan has long played a vital role in the Jordanian financial system; it is plausible to infer those recent political changes due to the hosting of a high number of refugees have provided significant difficulties to Jordanian banks since the environment in which they function has changed rapidly, which influenced the drivers of profitability of Jordanian banks. Knowledge of variables that influence commercial banks' profitability would be helpful in assisting regulatory authorities and bank management in formulating future strategies to increase the profitability of the Jordanian financial industry. A sequence of queries kicked off the paper. What factors contribute to the success of some commercial banks over others? What are the factors that influence bank performance in Jordan? The answers to these questions will assist in determining the characteristics of successful commercial banks so that policies may be developed to increase their profitability in the future. Therefore, this study aims to determine the factors that influence commercial bank profitability in Jordan from 2009 to 2019. The following is a breakdown of the paper's structure. Section 2 provides the current literature. Section 3 shows the adopted methods for the study. Empirical results are provided in section 4. Finally, the conclusion and discussion are presented in section 5.

1. LITERATURE REVIEW

In recent years, the banking sector's performance has attracted much attention. There is currently a substantial body of research examining resource management's role in determining bank success. It is widely acknowledged that effective resource management is the most critical element influencing bank success. Short (1979) and Bourke (1989) have performed studies on banks' profitability. External and internal determinants can measure bank profitability. Internal determinants of profitability are linked to bank management and are referred to as micro or bank-specific drivers of profitability (Athari, 2021). However, variables that are unrelated to bank management but represent the regulatory environment and the economy and impact the financial institutions' operations and performance are called the external determinants. According to the goal and nature of each study, a variety of variables have been suggested for both groups. Financial ratios indicating capital sufficiency, cost efficiency, liquidity, asset quality, and size are internal determinants. External variables are that impact bank profitability might include inflation, economic growth, market interest rates, and ownership.

Previous studies have examined banking systems' profitability, either within a specific country or across multiple countries. Studies such as (Badola and Verma, 2006; Heffernan and Fu, 2008;Dietrich and Wanzenried, 2009; Ramlall, 2009; Javaid et al., 2011; Lui and Wilson, 2010; Sufian, 2011) have focused on finding the bank profitability across one country. The studies mentioned above look at external and internal factors that influence bank profitability. Because the datasets and settings differ, the empirical outcomes vary substantially. However, certain standard features among the determinants allow for further classification between 1990 and 2005, the profitability determinants and the structure of expenditure-income banks in Turkey have been examined (Atasoy 2007). According to Atasoy, ROA is affected positively by the ratio of equity to total assets and the inflation rate. In contrast, the banking sector asset size ratio to national income, concentration ratio in the banking sector, and the ratios of fixed assets and special provisional costs to total assets negatively impact ROA.

Although many studies have looked at banks' profitability in developed nations, few have looked at the banks' profitability in developing nations, notably in Arab countries. In these many studies, various models and methodologies were employed (parametric approaches, non-parametric approaches, fixed or random effect models). During the period 1980 to 2000, Horobet et al., 2021) investigated the influence of the characteristics of the bank, the financial structure, and macroeconomic variables on the net interest margin and profitability of Tunisian banks. They claim that banks with a large capital base and more overhead expenditures have a more considerable net-interest margin and profitability, but the size of the bank has a negative influence on the bank's profitability. They discovered that the stock market development has a favourable influence on bank profitability across the research period. According to empirical data, private banks appear to be more lucrative than their state-owned counterparts. The findings show that macroeconomic factors have little influence on the profitability of Tunisian banks.

A study performed by Al-Harbi (2019) has measured the determinants of banks' profitability in OIC countries, by using an imbalanced panel data set from 1989 to 2008 of all conventional banks operating in OIC nations (52 countries including from 57), the author employs an ordinary least squares fixed-effects model. The study revealed that banks' profitability could be increased in the long run by the development and loans of the banking sector. However, the study showed that the profitability is unaffected by the size of the bank, GDP per capita and market capitalization.

Furthermore, various quantitative and qualitative factors have always been affecting bank profitability. Several elements operating simultaneously explain the profitability of banks. Non-traditional banking operations can impact the efficiency and performance of a bank (Puspitasari et al., 2021). Banking performance is likely influenced by other factors like governance and bank management. In the case of European banks, particularly domestic banks, the profitability of the bank as expressed by the ROA (net income compared to total assets) has a positive relationship with the following external and internal variables: liquidity, capitalization, GDP growth, market capitalization to total bank assets, inflation, and the ratio of market capitalization to total bank assets have been found (Gorton and Ordonez, 2021) However, the bank size, operational expenditures compared to the result, banking sector concentration, and total assets of the banks compared to GDP all show a negative relationship with profitability.

While many studies have explored the determinates of commercial banks' profitability, little has explored the profitability in Jordanian banks. Alshatti (2016) determined the most critical bank-specific characteristics by combining 130 data from thirteen Jordanian banks (2005-2014). The variables of capital adequacy, capital, and leverage have a positive impact on bank profitability, whereas the variable of asset quality has a negative impact on bank profitability (Alshatti, 2016) Macroeconomic factors such as GDP and inflation have frequently yielded contradictory results regarding their effect on banks profitability. The presence of a positive link between bank profitability and economic growth has been confirmed by several types of research (Al-Harbi, 2019; Singh et al., 2021; Olalere et al., 2021). They believe that all economic activities in the country are influenced by national wealth. Also, national wealth has a beneficial impact on the banking sector's development and pushes innovations done by banks and management practices and technology upgrades.

Because of the differences in the environment and data used in the analyses, the conclusions of the investigations differ significantly. Several academics have discovered similar elements that influence profitability. According to multiple research findings, various indices of costs are often adversely connected with earnings. Greater profitability has been linked to the size of the bank, greater reliance on loans for income, higher market concentration, stronger growth of GDP, and a more significant percentage of equity capital to assets. More liquidity, higher loan loss provisions, and a larger reliance on debt all of this have been linked to a drop in bank profits (Olson and Zoubi, 2011).

Generally, the available studies give a fairly thorough assessment of the impact on bank profitability by internal and industry-specific drivers but do not properly address the effect of the macroeconomic environment. In most empirical studies, the time dimension of the panels employed to capture the effect of control variables relevant to the macroeconomic environment is too small. Lastly, there are situations when variables overlap because several of them proxy the same profitability determinant. As a result, research on the profitability analysis of the banking sector should better address the mentioned difficulties for developing a better knowledge of the situation of the elements that affect banks' profitability.

2. METHODOLOGY

2.1 Data Collection

This study employed panel data which consists of yearly financial ratios for publicly listed commercial banks in Jordan. The financial ratios are Return on assets, return on equity, capital adequacy, assets quality, liquidity, deposit, net interest margin, and assets size. The sample of this study consists of 12 commercial banks, which were collected using disclosed financial statements in the Amman stock exchange over the period 2009 to 2019. The macroeconomic variables were gathered from the central bank of Jordan. Table 1 presents the variables employed in this study.

Table 1. Definitions and notation of all variables.

Variables	Measurement	Acronym
Dependent Variables		
Profitability	Return on Assets = net income divided by average total assets	ROA
	Return on Equity = net income divided by average total Equity	ROE
Independent Variables		
Banks' Specifications	Assets size = The natural logarithm of total assets at the end of the year	Logga
	Capital adequacy = equity divided by total assets	CA
	Assets quality = loans divided by total assets	LA
	Liquidity =Liquid assets divided by total assets	LQD
	Deposit = Customers Deposits assets divided by total Assets	DP
	Net Interest Margin = Net Interest Income divided by total Assets	NIM
Macroeconomic	Economic Activity= Annual Real Gross domestic product Growth Rate	GDP
	Inflation = Annual Inflation Rate (Consumer Price Index, CPI)	CPI
	Real Interest Rate	AIR

Source: own

2.2 Research Design and Hypotheses Development

This study has analyzed nine variables of the profitability determinants; the profitability was measured via two financial ratios, namely return on assets and return on Equity; the profitability ratios are considered dependent variables. The dataset is divided into two main groups, the bank-specific and the macroeconomic determinants, consisting of nine indicators considered independent variables.

In general, the measurements of the banks' profitability are the Return on assets and return on Equity. The Return on asset ratio represents an index of how well an organization employs its assets in terms of profitability. The Return on Equity (ROE) is a ratio that expresses the organization's profitability regarding the shareholders' Equity. ROE can be calculated by divisive net income on average total Equity in a specific year. Due to the shareholders' Equity being equal to an organization's assets subtracting its debt, ROE has deemed the Return on net assets.

2.2.1 Bank-Specific Independent Variables

Many indicators have been considered internal factors that are in line with the banks' goals and policy that express the Bank specific determinants such as capital adequacy, assets quality, liquidity, deposit, net interest margin, and assets size.

Capital adequacy is the ratio of equity to total assets, considered one of the basic ratios for capital strength. It is expected that the higher this ratio, the lower the need for external funding and the higher

the bank's profitability. It shows the ability of the bank to absorb losses and handle risk exposure with the shareholder. The equity to total assets ratio is expected to have a positive relationship with performance that well-capitalized banks face lower costs of going bankrupt which reduces their costs of funding and risks (Berger, 1995; Bourke, 1989; Hassan and Bashir, 2003). Hence, the following hypothesis was developed to investigate the effect of the capital adequacy ratio on Jordan banks' performance.

H1: There is a significant and positive relationship between capital adequacy and banks' performance in Jordan.

We follow (Gorton and Ordonez, 2021), who measure asset quality by dividing loans by total assets (LA). The loan to total assets ratio is a measure of the income source of banks, and it is expected to affect profitability positively unless the bank takes on an unacceptable level of risk. The higher the ratio, the poorer the quality and, therefore, the higher the risk of the loan portfolio will be. Hence, the following hypothesis was developed to investigate the effect of asset quality ratio on Jordan banks' performance.

H2: There is a significant and positive relationship between asset quality and banks' performance in Jordan.

In this research, the ratio of liquid assets to total assets (LQD) is employed to quantify liquidity. This proportion increases as the bank's liquidity increases. One of the primary causes of bank collapse is a lack of liquidity. However, retaining liquid assets comes at the expense of better returns. According to Bourke (1989), there is a considerable positive relationship between bank liquidity and profitability. However, banks may choose to increase their cash holdings to mitigate risk in times of instability. Unlike Bourke (1989), Molyneux and Thorton (1992) conclude a negative correlation between liquidity and profitability levels. Hence, the following hypothesis was developed to investigate the effect of liquidity ratio on Jordan banks' performance.

H3: There is a significant and positive relationship between liquidity ratio and banks' performance in Jordan.

Deposits: Deposits are the primary source of financing for banks and have the lowest cost of funds. The greater the number of deposits converted into loans, the greater the interest margin and profit. Akbar (2021) found that the deposit ratio positively relates to banks performance. Therefore, the following hypothesis was developed to investigate the effect of the deposit ratio on banks' performance in Jordan.

H4: There is a significant and positive relationship between the deposit ratio and banks' performance in Jordan.

The net interest margin (NIM) ratio is employed regarding the income-expenditure structure. The net interest margin is a ratio of net interest revenue to total assets that indicates a bank's net interest spread. The net interest margin is a key indicator of a bank's efficiency since it is focused on the profit produced on interest operations. Puspitasari et al., (2021). discovered that the net interest margin ratio has a positive relationship with banks performance. Therefore, the following hypothesis was developed to investigate the effect of the net interest margin ratio on banks' performance in Jordan.

H5: There is a significant and positive relationship between the net interest margin ratio and banks' performance in Jordan.

Concerning the asset size, it is considered as a global financial index that is used as an alternative for bank size. It could be expressed by using the natural logarithm of the total assets (log A). According to Hersugondo et al. (2021). Who declared that the size of the assets is positively linked with organizations' performance. Therefore, the following hypothesis was developed to investigate the effect of asset size on banks' performance in Jordan.

H6: There is a significant and positive relationship between asset size and banks' performance in Jordan.

Furthermore, Banks profitability is expected to be sensitive to macroeconomic variables. In the literature in terms of external determinants, generally, three macroeconomic variables are used: Annual real gross domestic product growth rate (GDP), annual inflation rate (INF) and real interest rate (RI). The annual real GDP growth rate is a broad indicator of economic activity that is adjusted for inflation. It is expected to have an impact on a number of factors linked to the demand and supply for bank deposits and loans. According to studies on the link between economic growth and banking sector profitability, GDP growth is anticipated to rise. positively affect bank profitability (Singh et al., 2021). In this scenario, we anticipate a positive correlation between bank profitability and GDP growth as lending demand grows (decreasing). Therefore, the following hypothesis was developed to investigate the effect of gross domestic product growth rate on Jordan banks' performance.

H7: There is a significant and positive relationship between gross domestic product growth rate and Jordan banks' performance.

The Annual inflation rate measures the overall percentage increase in Consumer Price Index (CPI) for all goods and services. Inflation affects the real value of costs and revenues. The relationship between inflation and profitability may positively or negatively affect profitability depending on whether it is anticipated or unanticipated (Perry, 1992). If an inflation rate is anticipated, banks can adjust the interest rate to increase revenues rather than costs. On the contrary, if the inflation rate is not anticipated, banks can not make proper adjustments of interest rate that costs may increase faster than revenues. However, most studies observe a negative impact between inflation and profitability (Bourke, 1989; Hassan and Bashir, 2003; Akbar, 2021). Therefore, the following hypothesis was developed to investigate the effect of the consumer price index on banks' performance in Jordan.

H8: There is a significant and negative relationship between the consumer price index and banks' performance in Jordan.

Finally, the interest rate causes a faster increase in bank costs than bank revenues, consequently negatively affecting bank profitability. Also, the higher the interest rate, the less likely clients are to borrow from banks, reducing their capacity to repay their loans (Gordon and Bradford, 1980). Therefore, the following hypothesis was developed to investigate the effect of interest rates on banks' performance in Jordan.

H9: There is a significant and negative relationship between interest rate and banks' performance in Jordan.

2.3 An Overview of Panel Data Estimation

There are three main models in panel data analysis: pooled OLS model, Fixed Effect (FE) model, and Random Effect (RE) model; the major difference between them is the unobserved effects or individual effects. In the pooled OLS model, the individual effects are assumed to be absent; however, either fixed effect or random effect is suitable if the individual effects are present. Moreover, if the individual effects are associated with other regressors in the model, the fixed effect model is appropriate. The random effects are suitable when there is no association between regressors and individual effects. Three statistical tests will be conducted to select the most appropriate model, namely F-test, Breusch-Pagan Lagrangian Multiplier (LM) test, and Hausman specification test. The F-test is employed to compare between pooled OLS and fixed-effect model. The Breusch-Pagan Lagrangian Multiplier (LM) test compares pooled OLS and the random-effects model. Finally, the Hausman specification test compares the fixed-effect and random-effects models.

3. RESULTS AND DISCUSSION

The data used in this research are panel data. Table 2 summarizes the descriptive statistics for the underlying determinants of banks' profitability. The table shows the minimum, maximum, mean, and standard deviation values.

Table 2. Descriptive Statistics for the Dependent and Independent Variables

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera
CA	0.136024	0.219640	0.075048	0.026140	0.104125	2.745509	11.012***
CPI	2.488000	6.500000	-0.900	2.485594	-0.161	1.678998	23.925***
DP	29.64676	81.69000	0.572468	36.73760	0.482459	1.243750	68.430***
GDP	0.025773	0.045000	0.019400	0.007420	1.533040	4.443591	80.326***
LA	0.024783	0.130429	0.000000	0.028354	1.537216	5.007276	38.166***
LOG_A	21.46250	23.99392	19.52122	0.959291	1.111687	4.209225	3.8097***
LQD	0.302937	0.500000	0.120000	0.082144	0.227608	2.342603	0.5773***
NIM	0.030417	0.044004	0.011162	0.006538	-0.153	3.052968	20.191***
RIR	5.012727	7.040000	0.550000	2.102528	-0.881	2.466899	3.1974***
ROA	1.190350	2.510000	-0.170	0.483184	-0.365	2.945698	1.5718***
ROE	8.672587	16.87000	-1.450	3.378209	-0.169	3.386541	11.012***

*** express significance at the 0.999 level

The results showed that the highest average profitability ratio is found in Return on Equity, where recodes a value of 8.76, whereas the average value for Return on assets is 1.19 with slandered deviation values of 3.37 and 0.48, respectively. The maximum value for the determinants of banks' profitability is for deposit ratio, where recodes a value of 81.69 where the minimum value is recorded for NIM which is 0.04. Concerning the macroeconomic factors, the results show that the highest average value is found for the real interest rate, which recodes an average value of 5.01 following by the consumer price index, which recodes a value of 2.48. In contrast, the lowest average value among macroeconomic factors is the gross domestic product, which recodes 0.025 with a slandered deviation of 2.10, 2.48 and 0.007, respectively. The normality distribution was analyzed for each variable using (Jarque-Bera (J-B)), the results showed that all variables are normally distributed. The relationship between the variables is presented in Tables 3 and 4. Table 3 shows the relationship between the determinants and return on assets, and table 4 shows the relationship between the determinants and return on Equity.

Table 3. The Relationship between the Determinants and Return on Assets

	ROA	RIR	GDP	CPI	CA	DP	LA	LOG_A	LQD	NIM
ROA	1.000									
AIR	0.148	1.000								
GDP	0.111	-0.126	1.000							
CPI	-0.088	-0.595	-0.254	1.000						
CA	0.336	-0.189	0.136	0.090	1.000					
DP	0.342	0.003	0.003	-0.005	0.087	1.000				
LA	0.023	0.207	-0.277	0.049	0.039	-0.238	1.000			
LOG_A	0.064	0.160	-0.151	-0.054	-0.082	0.468	-0.263	1.000		
LQD	0.234	-0.237	0.342	0.010	0.289	0.352	-0.251	0.361	1.000	
NIM	0.606	-0.104	0.006	0.038	0.257	0.394	-0.086	-0.030	0.053	1.000

The results of the correlation analysis are shown in table 3 and 4. Results have shown the degree of association between the variables used in the study; it can be seen that the values of the correlation matrix between all variables employed in this study do not support the existence of multicollinearity problem, according to Almansour (2020), who declared that the multicollinearity problem exists when the value of correlation between two variables exceed 0.80 which is not found in the results above.

Table 4. The Relationship between the Determinants and Return on Equity

	ROE	RIR	GDP	CPI	CA	DP	LA	LOG_A	LQD	NIM
ROE	1.000									
AIR	-0.099	1.000								
GDP	0.115	-0.126	1.000							
CPI	-0.043	-0.595	-0.254	1.000						
CA	0.075	-0.189	0.136	0.090	1.000					
DP	0.375	0.003	0.003	-0.005	0.087	1.000				
LA	0.060	0.207	-0.277	0.049	0.039	-0.238	1.000			
LOG_A	0.094	0.160	-0.151	-0.054	-0.082	0.468	-0.263	1.000		
LQD	0.162	-0.237	0.342	0.010	0.289	0.352	-0.251	0.361	1.000	
NIM	0.556	-0.104	0.006	0.038	0.257	0.394	-0.086	-0.030	0.053	1.000

3.1 Regression Analysis

The results on the relationship between specific and macroeconomic determinants of banks profitability in Jordan are presented in table 5. The results present two regression models; the first model is related to the determinants of banks profitability when Return on assets is considered. The second model is related to the determinants of banks profitability when Return on Equity is considered. Before doing the regression analysis, this research evaluated all of the assumptions of multiple linear regressions, which support the employment of linear regression models to investigate the drivers of bank profitability.

Table 5. The Determinants of Banks Profitability

	ROA		ROE	
	Coef.	P-value	Coef.	P-value
Assets Size	0.00098	0.013*	0.00103	0.050*
Capital Adequacy	0.00602	0.050*	0.01148	0.023*
Gross Domestic Product	0.10476	0.025*	1.38508	0.001***
Consumer Price Index	-0.0001	0.036*	-0.0038	0.006**
Real Interest Rate	0.01599	0.040*	-0.0179	0.009**
Assets Quality	0.02280	0.017*	0.24873	0.007**
Liquidity	0.00461	0.034*	0.10065	0.013*
Deposit	0.0006	0.009**	0.25246	0.000***
Net Interest Margin	0.45316	0.000***	2.89221	0.000***
Constant	0.02571	0.106	-0.2536	0.001
R^2	0.64		0.72	
F-Statistic	14.20 ***		17.6***	
DW	1.82		1.95	
Observation	143		143	

This table reports parameters and log-likelihood values for the two regression models over the whole period of analysis (2009 - 2019). The variables definitions are provided in Table 1.

Significance codes: *** express significance at the 0.999 level, ** at 0.99, * at 0.95.

Concerning model one, the random-effects regression model is appropriate for this research as suggested by the adopted F-test and Breusch and Pagan Lagrangian test. The regression model shows that the asset size, capital adequacy, gross domestic product, consumer price index, real interest rate, assets quality, liquidity, deposit and net interest margin are statistically significant since the probability values are less than 0.05. The result indicates a positive and significant correlation with Return on assets regarding the asset size. The asset size has a considerable beneficial influence on profitability. This implies that bigger banks generate a greater ROA, while (Anbar and Alper, 2011) found that the other bank-specific factors, including liquidity, deposit volume, capital adequacy, and net interest margin, do not affect bank profitability. Furthermore, the findings show a positive and significant association between capital adequacy and return on assets. Capital adequacy has a beneficial effect on the profitability of banks in Jordan as assessed by ROA. Increased shareholder interest in portfolio management results from a high degree of capital adequacy, which increases profitability. That was confirmed by (Alshatti, 2016) and contradicted by (Anbar and Alper, 2011), which have found no effect between capital adequacy and profitability by using ROA as a dependent variable. Furthermore, the results show a positive and significant linkage between assets quality and return on assets knowing that asset quality is defined as the ratio of loans to total assets (LA). A loan to total assets ratio is a measure of a bank's revenue stream and is anticipated to improve profitability as Anbarc and Alperc's study. However, Saleh and Winarso, (2021) have stated that the asset quality variable has a negative effect on both profitability measures, whereas the remaining independent factors do not affect the profitability of Jordanian banks.

Moreover, the result shows a positive and significant linkage between liquidity and return on assets; this indicates that the bank is more liquid. Thus, one of the primary reasons for bank collapses is a lack of liquidity. However, there is an opportunity cost associated with earning a greater rate of Return on liquid assets, and hence the analysis discovers a significant positive correlation between bank liquidity and profitability which agrees with (Sufian and Habibullah, 2009). Regarding the deposit ratio, it is found that there is a positive and significant linkage between the deposit ratio and Return on assets. Deposits are the primary source of revenue for banks. And are the most cost-effective source of capital—the greater the conversion of deposits to loans, the bigger the interest margin and profit. As a result, deposits have a beneficial effect on the profitability of banks (Saleh and Winarso, 2021), which has estimated the profitability and the ratio of allocation of funds (or resources) measured by the loan/deposit ratio maintain a positive relationship, thus confirming the complementarity between credit policies and bank deposits while it disagrees with (Anbar and Alper 2011) who found that the other bank-specific factors, including liquidity, deposit volume, capital adequacy, and net interest margin, have little effect on bank profitability. Finally, the result shows a positive and significant association between net interest margin and asset return. Net Interest Margin (NIM) measures a bank's profitability. It is calculated as the ratio of net interest earned to the value of earning assets. A higher percentage indicates superior asset management excellence in profitably using the assets. According to (Noman, et al., 2015) while (Anbar and Alper, 2011) finds that Other bank-specific characteristics, such as liquidity, deposit volume, capital adequacy, and net interest margin, have little effect on bank profitability.

For the macroeconomic variables. The results indicate a positive and significant relationship between gross domestic product, real interest rate and Return on assets, whereas there is a negative and significant relationship between the consumer price index and Return on assets. Gross domestic product (GDP) is a widely used macroeconomic metric for assessing an economy's entire economic activity. The GDP is likely to affect several variables affecting the supply and demand for loans and deposits. Favorable economic circumstances will increase demand for and supply of banking services but will have an effect on bank profitability levels in either a favorable or negative way as (Sufian and Habibullah, 2009) while (Anbar and Alper, 2011) found Macroeconomic factors have NO discernible effect on banks' Return on assets.

Regarding model two, the pooled regression model is appropriate for this research as suggested by the adopted F-test and Breusch and Pagan Lagrangian test. The regression model shows that the asset size, capital adequacy, gross domestic product, consumer price index, real interest rate, assets quality, liquidity, deposit and net interest margin are statistically significant since the probability values are less than 0.05. The result indicates a positive and significant correlation with Return on Equity regarding the asset size. When ROE is utilized as the dependent variable, asset size has a positive and substantial

association with profitability. Furthermore, the findings show a positive and significant association between capital adequacy and return on Equity. Capital sufficiency has a strong positive influence on Return on Equity. The consequence is that increasing the capital of chosen banks increases Return on Equity, implying that banks employ shareholder funds to create more returns and enhance performance. This is congruent with findings from a study by (Kenny, et al., 2014), while (Anbar and Alper, 2011) find Return on Equity does not seem to be affected by other bank-specific characteristics. Furthermore, the result shows a positive and significant linkage between assets quality and return on Equity; this implies that both asset quality and roe are inversely connected. When Asset quality is improved, and ROE increases as the ratio of non-performing loans decline while (Alshatti, 2016) find that Banks must reevaluate their asset quality to help reduce credit risk, as the researcher thinks it is a consequence of the structure of their assets. As a result, banks must improve their asset quality. Moreover, the result shows a positive and significant linkage between liquidity and return on Equity, and liquidity has a correct but weakly significant impact on ROE. As a result, profitability ROE improves by roughly 8.5 per cent if liquidity rises by 1 per cent as (Olalere et al., 2021) finds, while (Anbar and Alper, 2011) find Other bank-specific characteristics seem to have no discernible influence on Return on Equity. Regarding deposit ratio, it is found that there is a positive and significant linkage between deposit ratio and Return on Equity; this implies that deposit ratios remain positive, demonstrating the complementarity of credit policies and bank deposits. However (Olalere et al., 2021) finds other bank-specific variables: bank size, loan to asset ratio, deposits volume, and net interest margin, show no significant impact on profitability. Finally, the result shows a positive and significant association between net interest margin and return on Equity. Our study shows that the higher the net interest margin, the greater ROE, this result is in line with (OLI, 2021) while its difference with (Anbar and Alper 2011) who found that the bank-specific factors seem to have no discernible influence on Return on Equity.

For the macroeconomic variables. The results indicate a positive and significant relationship between gross domestic product and return on Equity. There are negative and significant relationships between consumer price index, real interest rate and Return on Equity. This means the Gross Domestic Product (GDP) is a metric used to describe a country's entire economic activity. It is considered that GDP growth has a beneficial effect on bank profitability which is in line with (Rahman, et al., 2015) while its deference with (Anbar and Alper, 2011) who found The only macroeconomic variable identified to have a meaningful impact on ROE at the 5% level of significance is real interest rate. There is no link between ROE and the rate of real GDP growth or inflation. Based on the analysis and findings, the results can be summarized in Table 6.

Table 6. Summary of Results and Hypotheses Testing

Hypotheses	Decision
There is a significant and positive relationship between capital adequacy and banks' performance in Jordan	Accepted
There is a significant and positive relationship between asset quality and banks' performance in Jordan	Accepted
There is a significant and positive relationship between liquidity ratio and Jordan banks' performance.	Accepted
There is a significant and positive relationship between the deposit ratio and Jordan banks' performance.	Accepted
There is a significant and positive relationship between net interest margin ratio and banks' performance in Jordan	Accepted
There is a significant and positive relationship between asset size and banks' performance in Jordan.	Accepted
There is a significant and positive relationship between gross domestic product growth rate and banks' performance in Jordan	Accepted
There is a significant and negative relationship between the consumer price index and banks' performance in Jordan.	Accepted
There is a significant and negative relationship between interest rates and Jordan banks' performance.	Accepted

CONCLUSION

This study contributes significantly to the empirical literature on the factors that influence Jordan's banks' profitability. The findings indicate that capital adequacy, assets quality, liquidity, deposit, net interest margin, and assets size play a significant role in determining Jordanian banking sector profitability. Furthermore, the macroeconomic factors, gross domestic product, consumer price index, and real interest rate, contribute significantly to Jordan banks' profitability. The results indicate several implementations to decision-makers; firstly, the deposit plays a vital role in determining banks' profitability. Therefore, decisions makers should inspire investors to open banks accounts. Secondly, it is evidence that the banks' profitability is significantly affected by macroeconomic factors. Therefore, the government should pay attention to the factors that positively influence gross domestic product, consumer price index, and real interest rate, affecting the banks' profitability significantly. Finally, the size of the assets is found to have a significant and positive association with banks profitability; this means that banks managers should spotlight increasing the size of assets, and hence the profitability of the bank will continuously increase. Future research may consider other profitability determinants and other macroeconomic factors to investigate these determinants comprehensively.

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