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Internal Factors Affecting Commercial Banks Profitability in Jordan

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ABSTRACT

The research **aims** to look into the factors that influence Jordanian commercial banks profitability. A **sample** of 13 commercial banks out of 16 listed on the Amman Stock Exchange for 2011–2020 was selected to achieve this goal. The study variables were **analysed** using the E-Views software for descriptive analysis, correlation analysis, and simple and multiple linear regression analyses. The study **shows** that when the independent factors had integrated, they impacted the dependents factor, reflecting on Return on Assets. The net credit interest to net credit facilities ratio positively affects, in contrast, the net interest and commissions income to total income ratio, the provision for credit facilities and interest in suspense to net credit facilities ratio, the bank size negatively affect the profitability measured by return on assets in Jordanian commercial banks.

Keywords: banks; credit facilities; credit interest; net interest; return on assets

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1. INTRODUCTION

The financial position of any nation depends on performing its various economic sectors, and because the economic sector, especially the banking sector, is one of the most important of these sectors, as there is a substantial relationship between the development and strength of the financial sector's and economic growth and its continuity. As the banking sector preserves people's savings and provides funding to various parties [1].

Where R.G. Rajan and L. Zingales [2] pointed to the importance of studying the banking sector because of its prominent and substantial role in advanced economies because of the association between the economic growth and the soundness of the banking sector, and this confirms the significant role it plays in the states development's economy. Also, P.H. Saona [3] pointed out that an efficient financial system helps to raise the profitability of banks, achieved by raising the efficiency of services provided to customers and increasing the volume of lending. Besides the role, that plays as a financial intermediary between savers (Surplus units) by good using their money and the borrowers (Defect units) by providing and meeting their financing needs [4].

Y. Altunbas et al. [5] showed that banks faced significant changes in their operations during the past two decades because of globalization and technological developments, which led to the emergence of new challenges for the financial sector and has reflected in revenues and costs. Because the profitability is one of the important goals that companies seek to achieve to survive, grow, continuity, and protect against the effects of expected losses, besides being a key target for investors, a key indicator for stakeholders, and a metric for measuring a company's success in using its capital [6, 7].

Although profits have considered cheap sources of financing [8], banks sometimes face difficulty in achieving appropriate profitability because of internal factors or external factors [9], which poses risks of using capital to finance their operations, which affects the primary function of banks in mediating between borrowers and savers.

Investors and financial institutions use many financial ratios to evaluate their business and investments, such as profitability ratios, including the gross profit margin ratio, the operating profit margin ratio, the net income ratio, the return on equity, and the return on assets. Where A.L. Alhassan et al. [10], O.J. Akotey et al. [11], W.H. Greene, D. Segal [12] used the return on assets ratio as a measure of the efficiency of operating assets, which is a measure of profitability, and therefore in this study, the return on assets was used as a measure of profitability in Jordanian commercial banks.

The banking sector in Jordan consists of 24 banks distributed among 13 Jordanian commercial banks,

3 Jordanian Islamic banks, and eight branches of foreign banks operating in Jordan, including an Islamic bank branch (according to the Central Bank of Jordan).[1] Although several previous studies examined the factors affecting the profitability in banks in general, the studies on the factors affecting the profitability in Jordanian commercial banks, in particular, are still limited and few, so the problem still exists and is an open topic for research and discussion. In addition to the differences in previous studies, for the study population and the sample, the independent and dependent variables, the measurement method, the period of the study, all of this made it difficult to adopt the results of these studies for generalization Jordanian commercial banks.

We can clarify the study problem by answering the following question:

Is there an effect of the combined independent variables on Jordanian commercial banks profitability?

Furthermore, branched out from them, the following sub-questions:

1. Is there an effect of the net interest and commissions to total income ratio on Jordanian commercial banks profitability?

2. Is there an effect of the net credit interest to net credit facilities ratio on Jordanian commercial banks profitability?

3. Is there an effect of the provision of credit facilities and interest in suspense to credit facilities on Jordanian commercial banks profitability?

4. Is there an effect of the bank size on Jordanian commercial banks profitability?

Based on the preceding, this research aim is to determine the internal factors affecting profitability in the Jordanian commercial banks' sector. By analysing time series data for several factors that no local research has ever studied and examined according to the researcher's knowledge, as we expect that this research will provide increasing in knowledge, helping researchers and bank administrations in knowing the factors affecting profitability, and help investors in planning and developing their investment policies.

This study has organized: the second section reviews the previous literature and explains the independent and dependent variables. The third section is the methodology, which includes the study hypotheses, the population and sample of the study, and the mathematical model. The fourth section is statistical analysis, hypothesis testing, and discussion of results. Finally, the fifth section is conclusions, recommendations, and limitations.

2. THEORETICAL FRAMEWORK AND PREVIOUS STUDIES

Studies on the performance of banks during the late seventies to early eighties began by applying Efficiency Structure and Market Power theories to two industrial organizations [13]. A balanced portfolio theory has helped increase knowledge about bank profitability [14]. The relative-market-power hypothesis theory indicated that companies with a significant market share and a high and distinctive diversity in their products would possess sufficient power to price their products and achieve high profits. The efficient-structure hypothesis also indicated that companies with high efficiency could Increase their market share due to their high profits. N. Ayadi and Y. Boujelbene [15], C.K. Staikouras and G.E. Wood [16] they have indicated that Molyneux and Thornton (1992) were the first to examine the determinants of profitability in banks through their study on banks in 18 European countries from 1986–1989.

There is a difference in profitability between one bank and another, and this may be due to many reasons, including the difference in the size of the bank, the efficiency of asset and liability management, the bank's location and geographical distribution, and other reasons [17]. A significant decline in profitability leads to the decline of shareholders and depositors from carrying out banking activities, which decreases their ability to attract the capital needed to do business. Also, high profitability may be an indication of market strength, especially by large banks, which may be an obstacle for banks to exercise their role as financial intermediaries, as banks that have substantial market power will impose high-interest rates on facilities and, in return, grant low rates of return on deposits [18].

Evaluating the financial performance is done by analysing, interpreting and comparing the financial statements to follow up the company's activities, its economic and financial conditions, and the extent of their impact on it to help take the appropriate decision at the right time. There are many financial ratios used to evaluate financial performance, including return on

[1] Central Bank of Jordan. URL: https://www.cbj.gov.jo/ (accessed on 04.01.2022).

assets. Concerning the factors that affect the profitability, some focus on the operational aspect, others focus on the budget structure and others on organizational factors.

Furthermore, C.K. Staikouras and G.E. Wood [16] divided the determinants of banks profitability into internal determinants that can be controlled through bank management and external determinants related to the industry and the economy that cannot be controlled. While D. Yazdanfar [19] classified the variables that explain company's profitability into three variables. The first of which are variables related to the company's characteristics, secondly, variables related to the sector in which the company operates, and finally, variables related to the market, but the relationship between these factors and the banks profitability may differ due to the difference in banking environments [20].

2.1. Previous studies

Many parties, including researchers, academics, investors, managers and others, have conducted many studies and research in several countries and for various sectors and periods to determine the factors affecting the bank's profitability. Identifying these factors is an important matter to ensure the success and continuity of the bank [13]. Also, E. Sharma and M. Mani [21] indicated that the banks' performance had become a source of concern for policymakers and economic planners because the efficiency of banks in managing their assets and providing their services is reflected in the state's economy and on all parties who have interests in the company.

T. Shanko et al. [22] indicated in their study of the Ethiopian banks for 2010–2017 found that current deposit, loan and advance have a positive relationship, while market fixed-deposit has a negative relationship with banks profitability. M.A. Islam et al. [4] indicated in their study of 11 banks in Bangladesh for 2014–2015 that there is a positive impact of asset size and capital adequacy on profitability. A.S. Alshatti [23] indicated in his study on Jordanian commercial banks for 2005–2014 to the negative impact of asset quality, while there is no effect of the size of assets on the return on equity. Abel Sanderson and Le. Roux Pierre [24] as indicated in their study of 18 banks in Zimbabwean for 2009–2014, bank size negatively impacts profitability. M. Alalaya and S.A. Al Khattab [25] indicated in their study on 13 Jordanian commercial banks for 2002–2014 the negative impact of loans and size of the return on assets. M.K. Al-Jafari and M. Alchami [26] indicated in their study of 17 commercial banks in Syria for 2004–2011 that bank size has a positive impact on the ROAA. X. Zhang and K. Daly [27] indicated in their study on 124 banks in China for 2004–2010 that there is a positive effect of size and a negative effect of loan loss provision to total loan and non-interest expenses to total assets on profitability. A.M. Alkhazaleh and M. Almsafir [28] indicated in their study on 14 Jordanian commercial banks in 1999–2013 that there is a negative impact of size on return on assets. C. Staikouras and G. Wood [29] indicated in their investigation of the performance of a sample of banks operating in 13 EU banking markets in 1994–1998 that return on assets is inversely related to loans to assets ratio and the proportion of loan loss provisions. H.A. Khrawish [30] indicated in his study of Jordanian commercial banks for 2000–2010 that there is a positive relationship between the return on equity, and the bank size and the net interest margin.

What distinguishes this study from previous studies?

Many previous studies studied several internal or external factors and determined their impact on the commercial banks profitability for different periods. Examples of internal factors addressed in previous studies are liquidity ratios, ownership ratio and debt ratio, while external factors include inflation and output gross domestic product and market share. However, what distinguishes this study is that it deals with a set of internal factors that have not previously been studied collectively or independently in any of the previous studies, according to the researcher's knowledge.

2.2. Study variables

Dependent variables

Y: Return on assets

Return on assets is an indicator that appears in the form of a percentage that helps the investor, analyst, or management to indicate the company's profitability from its total assets, meaning the efficiency of the company's management in using its assets to generate profits [31]. So that the higher this ratio, the more this indicates the company's efficiency in managing its assets and are calculated by many equations, for example:

ROA = Profit margin on sales * assets turn over;

ROA = (net income/revenues) / (revenues/total assets).

In agreement with many previous studies, the following equation was adopted:

ROA = net income / total assets.

Independent Variables:

X1: Net Interest and Commissions Income to Total Income ratio

The bank's income from net interest and commissions depends on the structure of the bank's assets and the maturity of liabilities and deposits in addition to changes in interest rates on loans and deposits, as the higher the sensitivity of the bank's assets to changes in interest rates, the higher the risks that the bank may be exposed to [32].

Because of technological and economic development, profitability decreased in traditional banks, which prompted them to diversify their activities to achieve more profits [33]. P.S. Rose and S.C. Hudgins [1] indicated that part of the bank's revenue comes from traditional services, such as commissions linked to accounts, prepayment commissions for loans, commissions for using various credit cards and other commissions for many services. Interest income is a significant source of operating income, and the increase in non-interest income leads to a decrease in the risks associated with achieving the return.

In addition, R. DeYoung and T. Rice [34] pointed to the increase in banks' exploitation of non-traditional activities to obtain income, reflecting the diversity in non-traditional activities and ways of obtaining income.

X2: Net Credit Interest to Net Credit Facilities ratio

Credit interest represents a source of income for banks, which appears in the income statement and is considered taxable income. Whereas, when individuals deposit funds with banks to invest and obtain interest, the banks, in return, use part of these funds in lending operations to various parties in return for a particular interest. This process depends mainly on the banks' operational processes and lending policies, changes in interest rates, and economic and political changes. For example, whereas in the case of economic recovery, banks raise interest rates and reduce restrictions and conditions on borrowing, which leads to a rise in income derived from interest on loans, in contrast, in the case of an economic downturn, banks work to tighten up in granting loans due to the high risk of failure to pay, which reduces the interest obtained from loans.

X3: Provision for Credit Facilities and Interest in Suspense to Credit Facilities

This ratio reflects the efficiency of asset management in the sense of the quality of loans granted by the bank, as the bank's revenues will rise as more loans are granted, and better customer deposits are employed, but this depends on the ability of customers to repay. Hence, banks allocate a percentage of these loans as doubtful loans, which affects profitability. So that the higher this ratio, i.e., the higher the value of the doubtful assets, increases the allowances for expected credit losses, which means a decrease in the quality of the loans granted, which raises the risks and reduces the profitability. E. Menicucci and G. Paolucci [17] pointed out S.M. Miller, and A. Noulas. L.J. Mester [35] that the more banks spend on the resources allocated to credit control, there will be fewer problems with loans, but at the same time, this will lead to higher operating costs. Moreover, S.M. Miller and A. Noulas [36] indicated that the higher the risks, the higher the percentage of outstanding loans, which leads to a decrease in profitability.

X4: Bank size

According to researchers in economics, finance and business, size is considered one of the essential features of firms in explaining profitability. R. Elsas et al. [37], M. Kosak, M. Cok [38], B. Jónsson [39] indicated that the company's size could express through total assets, sales, and employees. Moreover, the larger the company size, the greater the chance of obtaining better resources and greater diversity in its products, and thus more excellent sales are reflected in obtaining more significant profits. Also, F. Allen [40] indicated that large banks could achieve higher profits because they can impose a high lending rate and bear lower borrowing costs in return. Consistent with J.A. Niresh and T. Velnampy [41], M. Doğan [42], M. Pervan and J. Višić [43] measured the bank size by the natural logarithm of total assets.

3. METHODOLOGY

3.1. Study hypothesis

Main hypothesis:

H_0: There is no effect of the combined independent factors on Jordanian commercial banks profitability.

We derived the following sub-hypotheses:

H_{01}: There is no effect of the net interest and commission income to total income ratio on Jordanian commercial banks profitability.

H_{02}: There is no effect of the net credit interest to net facilities ratio on Jordanian commercial banks profitability.

H_{03}: There is no effect of the provision of credit facilities and interest in suspense to credit facilities ratio on Jordanian commercial banks profitability.

Table 1

Variable symbols and measurement

Symbol	Description
Dependent variable	
Y	Return on assets = (net income / total assets) of the fiscal year *i* for bank *t*
Independent variables	
*X*1	Net Interest and Commissions Income to Total Income of the fiscal year *i* for bank *t*
*X*2	Net Credit Interest to Net Credit Facilities of the fiscal year *i* for bank *t*
*X*3	Provision for Credit Facilities and Interest in Suspense to Net Credit Facilities of the fiscal year *i* for bank *t*
*X*4	Bank Size = the natural Logarithm of the total assets of the fiscal year *i* for bank *t*

Source: compiled by author.

H_{04}: There is no effect of bank size on Jordanian commercial banks profitability.

3.2. Study population and sample

The study population consists of 24 Jordanian banks listed on the Amman Stock Exchange from 2011–2020, while the study sample was limited to 13 Jordanian commercial banks. An exception was made for 3 Jordanian Islamic banks, and eight branches of foreign banks operating in Jordan, including an Islamic bank branch.

The research sample met the preceding criteria:

1. Access to all data needed to evaluate the parameters.
2. There was no merger of the bank.
3. Each year contract ends on December 31.
4. For the period under investigation and review, the financial reports of the sample population are available.
5. The bank's listings on the Amman Stock Exchange are still active throughout the investigation phase.

We got all data from the annual financial reports of Jordanian commercial banks listed on the Amman Stock Exchange.

3.3. Mathematical model

In line with several previous studies and line with the study hypotheses, formulated of the mathematical model has been:

$$Y_{it} = a0 + a1X1_{it} + a2X2_{it} + a3X3_{it} + a4X4_{it} + e_{it} \quad (1)$$

And the sub-mathematical model:

$$Y_{it} = a0 + a1X1_{it} + e_{it} \quad (1.1)$$

$$Y_{it} = a0 + a1X2_{it} + e_{it} \quad (1.2)$$

$$Y_{it} = a0 + a1X3_{it} + e_{it} \quad (1.3)$$

$$Y_{it} = a0 + a1X4_{it} + e_{it,} \quad (1.4)$$

where Y_{it} represents the dependent variable, and the $X1, X2, X3, X4$ are the independent variables defined in *Table 1*, e_{it} represents the error term. The study uses the Cross-section fixed model.

4. STATISTICAL ANALYSIS

In order to achieve the research objectives and test its hypotheses, data entered and variables were prepared for analysis using Microsoft Excel, then the E-views program was used to analyse the study data. Several tests have been used:

1. Descriptive statistics, such as the arithmetic mean and the standard deviation.
2. Autocorrelation test between errors in the regression equation, expressed in the value of Durbin-Watson, where [44, 45] indicated that multicollinearity problems appear if the value of the correlation coefficient between the variables reaches 80% or more.
3. Pearson Correlation Matrix to measure the strength and direction of the relationship between variables.
4. A simple and multiple linear regression analysis test to study the effect of independent variables on the dependent variables.

4.1. Descriptive Analysis

It appears from (*Table 2*) that the average return on assets amounted to 0.011780, and this indicates a low return on assets for Jordanian commercial banks for the study period. The maximum was 0.106000, which means some banks within the sample achieved a good return on assets at a rate of 0.106000 JOD for every dinar invested in assets, indicating good investment in

Table 2

Descriptive statistics of the study variables

	Y	*X*1	*X*2	*X*3	*X*4
Mean	0.011780	0.864401	0.108163	0.078859	9.376386
Median	0.011450	0.869850	0.105700	0.068250	9.334260
Maximum	0.106000	0.968700	0.156600	0.552000	10.43439
Minimum	–0.001700	0.666300	0.084700	0.014600	8.557470
Std. Dev.	0.009811	0.053496	0.015619	0.064643	0.396862
Observations	130	130	130	130	130

Source: compiled by author.

Note: Y is the return on assets; *X*1 is the net interest and commission income to total income ratio; *X*2 is the net credit interest to net credit facilities ratio; *X*3 is the provision for credit facilities and interest in suspense to net credit facilities ratio; *X*4 is the bank size.

assets and efficiency of operating assets. In contrast, the minimum amount was –0.001700, which means some banks within the study sample did not achieve a good return. However, the return on assets has decreased significantly due to inefficiency in the exploitation and operation of assets, meaning that every dinar invested in assets achieved losses of –0.001700 dinars. Thus, this requires them to improve the assets management and operation to raise the rate of return on assets. While the standard deviation was 0.009811, which indicates a low variation in the rate of return on assets between the study sample banks for the study period.

As for the net interest and commission income to total income ratio, the average was 0.864401, and the median was 0.869850, indicating a higher net interest and commission income in Jordanian commercial banks. Furthermore, the standard deviation value of 0.053496 indicates an average variation in the net interest and commission's income received by Jordanian commercial banks, which means similarities and convergence in the commissions and interests obtained by Jordanian commercial banks because there is a convergence between net interest and commission income imposed by commercial banks on various types of transactions and facilities.

Also, the net credit interest to net credit facilities ratio, the average amounted to 0.108163, and the median was 0.105700, and this indicates a high percentage of credit interests obtained by banks. At the same time, the standard deviation reached 0.015619, and this indicates a decrease in the discrepancy between credit interest rates charged by commercial banks and this is related to the interest rates imposed by banks on various types of facilities, meaning that there is a convergence between credit interest rates in Jordanian commercial banks.

As for the provision of credit facilities and interest in suspense to net credit facilities ratio, the average was 0.078859. On the other hand, the median was 0.068250, and this indicates a low percentage, which indicates the quality of loans and facilities granted and the quality of credit policies followed by banks, which reflect on the absence of a high percentage of non-performing loans, which leads to a decrease. The risk of non-payment and the high ability of banks to collect their debts.

Also noted, the bank size had the highest mean, median, and standard deviation (9.376386; 9.334260; 10.43439), respectively, which indicates a large size of assets in the Jordanian commercial banks.

4.2. Correlation Analysis

In order to verify multicollinearity problems between the study variables, we used the Pearson correlation matrix, as shown in *Table 3*, the correlation analysis process results for the study variables during the study period 2011–2020.

Table 3 shows no correlation coefficient value over 0.80; hence, there is no multicollinearity problem between the study variables, confirming that the model used is valid and reliable [44, 45].

Table 3 shows a weak positive correlation between profitability measured by return on assets and the net credit interest to net credit facilities ratio by 0.260023, indicating that the net credit interest to net credit facilities ratio has a weak effect on return on assets.

Also, profitability measured by return on assets has a weak negative correlation with the net interest and commissions income to total income ratio; the provision of credit facilities and interest in

Table 3

Pearson correlation matrix among the study variables

	Y	*X*1	*X*2	*X*3	*X*4
Y	1.0000				
*X*1	−0.251782	1.0000			
*X*2	0.260023	−0.155275	1.0000		
*X*3	−0.053026	−0.130298	0.100829	1.0000	
*X*4	−0.064577	−0.015265	−0.324159	−0.144863	1.0000

Source: compiled by author.

Note: Y is the return on assets; *X*1 is the net interest and commission income to total income ratio; *X*2 is the net credit interest to net credit facilities ratio; *X*3 is the provision for credit facilities and interest in suspense to net credit facilities ratio; *X*4 is the bank size.

suspense to net credit facilities ratio; the bank size by −0.251782, −0.053026, −0.064577, respectively.

While, the net interest and commissions income to total income ratio has a weak negative correlation with the net credit interest to net credit facilities ratio; the provision of credit facilities and interest in suspense to net credit facilities ratio; the bank size by −0.155275, −0.130298, −0.015265 respectively.

The net credit interest to net credit facilities ratio has a weak positive correlation with the provision of credit facilities and interest in suspense to net credit facilities ratio by 0.100829 and a weak negative correlation with the bank size by −0.324159.

Finally, the provision of credit facilities and interest in suspense to net credit facilities ratio has a weak negative correlation with the bank size by −0.144863, indicating that the bank with a larger size will have a lower provision for credit facilities and interest in suspense ratio.

4.3. Hypothesis Testing

By applying multiple and simple linear regression, if the probability is less than 0.05, reject the null hypothesis and accept the alternative one. Also, the R^2 shows the ability to explain the change in the dependent variables by the independent variables.

Table 4 shows the correlation coefficient among the profitability measured by return on assets and independent variables as follows:

(1) The correlation coefficient with the X1 is the net interest and commission income to total income ratio is −0.057852, and the probability is 0.0036, which indicates a negative impact on the profitability measured by return on assets.

(2) The correlation coefficient with the X2 is the net credit interest to net credit facilities ratio is 0.085468, and the probability is 0.3312, which indicates a positive impact on the profitability measured by return on assets.

(3) The correlation coefficient with the X3 is the provision of credit facilities, and interest in suspense with net credit facilities ratio is −0.019407, and the probability is 0.2325, which indicates a negative impact on the profitability measured by return on assets.

(4) The correlation coefficient with the X4 the bank size is −0.012348, and the probability is 0.3670, which indicates a negative impact on the profitability measured by return on assets.

(5) The R^2 is 0.376241, indicating the ability of the independent variables to explain the changes in the profitability measured by return on assets by 37.6241%. Finally, the Durbin-Watson value is 2.455361, approving that no multicollinearity problem exists.

(6) The Prob (F-statistic) of independent variables 0.000627, so we rejected the main null-hypothesis and accepted the alternative one, which is that the combined independent variables impact Jordanian Commercial banks profitability.

Sub-hypothesis Testing

As shown in *Table 5*:

(1) The R^2 of the net interest and commission income to total income ratio is 0.356836, indicating the ability of the net interest and commission income to total income ratio to explain the changes in the profitability measured by return on assets by 35.6836%. The Durbin-Watson value is 2.394050, approving that no multicollinearity problem exists. The probability value was 0.0033, indicating that the net interest and commissions income to total income ratio negatively impact the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange. The assets are not the main activity of commercial banks. Thus, the effect of interest and

Table 4

Results of the multiple linear regression (Panel Least Squares- fixed-effect method) of Eq. (1)

Independent variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.169855	0.135749	1.251241	0.2137
*X*1	–0.057852	0.019449	–2.974461	0.0036
*X*2	0.085468	0.087539	0.976345	0.3312
*X*3	–0.019407	0.016159	–1.201058	0.2325
*X*4	–0.012348	0.013630	–0.905982	0.3670

Source: compiled by author.

Notes: implies significance at 5%; R^2 = 0.376241; Adj. R^2 = 0.226229; F-stat. = 2.509240; D.W. = 2.455361; Prob (F-statistic) = 0.000627. Y is the return on assets; X1 is the net interest and commission income to total income ratio; X2 is the net credit interest to net credit facilities ratio; X3 is the provision for credit facilities and interest in suspense to net credit facilities ratio; X4 is the bank size.

commissions is very low or negative. In addition, the return on assets ratio is computed based on net income, while the net interest and commissions income to total income ratio is computed based on the total income. So, in this case, the profit items may affect the relationship between these two accounts. However, this result can be considered a new addition to this topic. Hence, we rejected the first null sub-hypothesis and accepted the alternative one.

(2) The R^2 of the net credit interest to net credit facilities ratio is 0.31775, indicating the ability of the net credit interest to net credit facilities ratio to explain the changes in the profitability measured by return on assets by 31.7755%. The Durbin-Watson value is 2.324871, approving that no multicollinearity problem exists. The probability value was 0.1271, indicating that the net credit interest to net credit facilities ratio positively impacts the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange. Hence, we accepted the second null sub-hypothesis.

(3) The R^2 of the provision of credit facilities and interest in suspense to net credit facilities ratio is 0.306492, indicating the ability of the provision of credit facilities and interest in suspense to net credit facilities ratio to explain the changes in the profitability measured by return on assets by 30.6492%. The Durbin-Watson value is 2.296353, approving that no multicollinearity problem exists. The probability value was 0.4447, indicating that the provision of credit facilities and interest in suspense to net credit facilities ratio negatively impact the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange. Hence, we accepted the third null sub-hypothesis.

(4) The R^2 of the bank size is 0.303526, indicating the ability of bank size to explain the changes in the profitability measured by return on assets by 30.3526%. Furthermore, the Durbin-Watson value is 2.276239, approving that no multicollinearity problem exists. Finally, the probability value was 0.7190, indicating that the bank size negatively impacts the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange. Hence, we accepted the fourth null sub-hypothesis.

5. CONCLUSION

This study aims to study the factors affecting Jordanian commercial banks profitability. A sample of 13 commercial banks out of 16 listed on the Amman Stock Exchange for 2011–2020 was selected to achieve this goal. We used the e-views program to perform descriptive analysis, correlation analysis, and simple and multiple linear regression analysis for the study variables. Initially, a multiple linear analysis to determine the independent factor's effect on the dependent factor represented by the return on assets. Then a simple linear regression analysis was conducted to find out the effect of each of the independent factors represented by the net interest and commission income to total income ratio; the net credit interest to net credit facilities ratio; the provision of credit facilities and interest in suspense to net credit facilities ratio; the bank size on the dependent factor represented by the return on assets.

The study concluded an effect of the combined independent factors on the dependent factor represented by the return on assets.

The study also finds:

1. The net interest and commission income to total income ratio negatively impact the profitability measured by return on assets in the Jordanian commercial banks

Table 5

The results of the simple linear regression Panel Least Squares- fixed-effect method of Eqs. (1.1–1.4)

Independent variables	Coefficients	R^2	D.W.	t-Statistic	Prob.
*X*1	–0.057206	0.356836	2.394050	–3.001629	0.0033
*X*2	0.131158	0.317755	2.324871	1.537673	0.1271
*X*3	–0.011340	0.306492	2.296353	–0.767052	0.4447
*X*4	–0.004282	0.303526	2.276239	–0.360753	0.7190

Source: compiled by author.

Note: Y is the return on assets; *X*1 is the net interest and commission income to total income ratio; *X*2 is the net credit interest to net credit facilities ratio; *X*3 is the provision for credit facilities and interest in suspense to net credit facilities ratio; *X*4 is the bank size. Implies significance at 5%.

listed on the Amman Stock Exchange, that high-interest rates and commissions will decrease the return due to the customers' estrangement from transactions with high commissions and interests, and consequently, the low of net income.

2. The net credit interest to net credit facilities ratio positively impacts the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange, indicating that the higher the net credit interest resulting from the granted facilities, the higher the return on assets.

3. The provision for credit facilities and interest in suspense to net credit facilities ratio negatively impact the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange, indicates the high quality of loans granted by Jordanian commercial banks, in addition to the high ability of customers to repay and the low percentage of non-performing loans, which indicates that Jordanian commercial banks follow correct credit policies. This finding is inconsistent with [4, 13, 23, 26, 27]. In contrast, consistent with [29].

4. The bank size negatively impacts the profitability measured by return on assets in the Jordanian commercial banks listed on the Amman Stock Exchange. However, this indicates a lack of good operation and exploitation of assets by Jordanian commercial banks. Also, this shows that larger banks can get a higher return on assets than smaller ones because the larger banks have a more significant asset, a more considerable diversification of services and a larger market share. This finding is consistent with [10, 13, 23, 24, 28]. In contrast, inconsistent with [4, 25–27, 30].

Recommendations

Based on the findings, we suggest:

1. Banks management and investors should consider these factors to raise profitability.

2. External factors can be used in future studies, such as GDP growth and inflation, internal variables such as interest price volatility.

Limitations

Since this research was limited to Jordanian commercial banks, it is doubtful that they can apply the findings to other sectors. Furthermore, since the research period is 2011–2020, we cannot use the results for different periods. Finally, only a few financial ratios were studied.

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