
The role of the size and growth rate of the bank in determining the effect of financial leverage on the profitability of Jordanian commercial banks

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Abstract

This study aims to determine the role of the size and growth rate of banks in determining the effect of the financial leverage degree on the profitability of Jordanian commercial banks. To achieve this goal, the study adopted the analytical descriptive research approach and analysed the financial reports of 13 Jordanian commercial banks listed on the Amman Stock Exchange Market (ASEM) during 2014–2018. To test the hypotheses and achieve the study goal, the data were analysed using simple linear regression analysis and hierarchical interaction regression analysis. The analyses showed that there is a positive effect on the financial leverage degree on the profitability of Jordanian commercial banks. Moreover, the results uncovered that the interaction effects of the financial leverage degree and the size and the growth rate of the bank foster the positive effects of the individual variables on the profitability of the banks. foreign direct investments is also the essential ingredient to the growth and development of most economies (Baban & Hasan, 2019). The most important factors in the economic growth processing of any country are the commercial transactions and foreign direct investments (Adl.Nawzad, 2020). The element of knowledge management and innovation are currently considered as integral in all aspects and operations of an organization given the fact that they determine the survival of entities in the corporate market (Jabbar et al., 2019).

Keywords: Financial Leverage; Profitability; Bank Size; Bank Growth Rate; Jordanian Commercial Banks.

1. INTRODUCTION:

Profitability is the main goal of all establishments, and it is the embodiment of the results achieved by the establishment, which are of interest to multiple parties and different groups. Therefore, profitability is one of the most important measures that is used in evaluating the performance of the establishments, the effectiveness of the management and the level of the contribution to achieving the desired objectives, and as profits are the main criterion for the efficiency of the management, if the facility achieves higher profits, then it is more efficient than other establishments. Therefore, the management gets rid of the expenses that do not add value to the establishment and focus on the activities that add value to the enterprise and the balance between the use of the financing methods in order to reach the lowest cost of capital, which leads to an increase in the entity's market value and shareholder wealth. The financing decision in banks is also considered one of the important decisions that affect the bank's future cash flow, its profitability and its liquidity. This decision relates to determining the percentage of financing from short- and long-term sources as well as determining the best mix of debt and ownership sources. The use of the optimal financing mix is important because it reduces the cost of capital in the company and then maximises its value and increases the profitable investment opportunities available to the bank, which motivates the bank to analyse the financial leverage in order to determine the financial strengths and weaknesses of the bank as the bank needs funds to manage its activities. Then, implementing expansion and diversification and other plans that the bank seeks to achieve, and the degree of financial leverage measures the facility's exposure to financial risks. It also reflects the degree of change in the per-share return from the operating profits resulting from the change in the percentage of operating profits before interest and taxes and allows leverage. The expected return of the investor increases more than what was available, but the expected loss is also greater if the investment becomes useless; therefore, it is necessary to repay the principal amount borrowed and all the interest due on the loan (Sen and Ranjan, 20182013).

In light of the spread of business banking in Jordan and the intensification of competition between banks, the administration seeks to maximise its profits through the optimal use of available resources. Debt financing is one of the most common methods of financing the bank's assets and projects and is expressed as leverage, and the size of the bank and its growth rate play an effective role in determining the relationship between the degree of financial leverage and its profitability. Therefore, this study measured the impact of financial leverage on the profitability of Jordanian commercial banks and, because of the different sizes of the banks, the bank's growth rate.

2- RESEARCH PROBLEM:

The study came to examine the role of the size and growth rate of the bank in determining the effect of financial leverage. Regarding the profitability of Jordanian commercial banks, the research problem can be expressed by answering the following set of sub-questions:

1- What is the effect of financial leverage on the profitability of Jordanian commercial banks?

2 - Does the impact of leverage on the profitability of Jordanian commercial banks differ according to the size of the bank?

3 - Does the impact of financial leverage on the profitability of Jordanian commercial banks differ according to the bank's growth rate?

3. RESEARCH OBJECTIVES:

The aim of this research is to measure the role of the size and growth rate of the bank in determining the effect of financial leverage on the profitability of Jordanian commercial banks through an applied study on the Jordanian commercial banks listed on the ASEM during 2014–2018. This goal can be achieved by through the following sub-goals:

1 - Learning about leverage – concept and metrics.

2 - Knowing the profitability of the banks – concept and metrics.

3 - Knowing the effect of financial leverage on the profitability of Jordanian commercial banks.

4 - Identifying the effect of financial leverage on the profitability of Jordanian commercial banks according to the different characteristics of the bank (bank size, bank growth rate).

4. IMPORTANCE OF RESEARCH:

A central bank is a financial institution given privileged control over the production and distribution of money and credit for a nation or a group of nations (Erülgen et al., 2020). The practical importance of the research lies in its being a field study that relied on the analytical method of the financial statements, which will give more accurate results in highlighting the role of the size and growth rate of the bank in determining the effect of financial leverage on the profitability of Jordanian commercial banks according to the different sizes of the bank and the growth of the bank. The purpose of this study is to build a characteristic-based factor approach to estimate multifactor model that explains the bank stock prices (Rjoub et al., 2017; Alrub A, et al 2016). This contributes to rationalising the decisions of the users of these reports given that they provide additional data and information with explanatory value that helps in the permanent understanding of the bank.

5. RESEARCH HYPOTHESES:

In order to achieve the objectives of the research and to answer the above research questions, the research hypotheses were formulated as follows:

The first hypothesis: There is no statistically significant effect at the level of significance (α 0.05) for the degree of financial leverage on the profitability of Jordanian commercial banks.

The second hypothesis: The effect of the degree of financial leverage on the profitability of Jordanian commercial banks does not differ at the level of significance (α 0.05) according to the difference in the size of the bank.

The third hypothesis: The effect of the degree of financial leverage on the profitability of Jordanian commercial banks does not differ at the level of significance (α 0.05) according to the difference in the bank's growth rate.

6. RESEARCH LIMITS:

The research sample was limited to Jordanian commercial banks only and excluded Islamic banks or foreign banks listed on the ASEM, and the sample was chosen according to a set of determinants and covered the time period from 2014 to 2018, which was the last available financial reports of the banks for the date of the study. Their study revealed that the technical discount rate variations are endogenous whilst non-technical variations contain information about monetary policy (Hasan et al., 2019). The study was limited to measuring the degree of financial leverage in terms of indebtedness and the profitability of the banks at the rate of return on property rights as an accounting measure, excluding other methods, and then relying on the results and their generalisability in light of that methodology.

7. THEORETICAL FRAMEWORK:

Profitability of banks

Profitability also represents the ability of the company to generate income. The profit analysis is very important to shareholders because the profits that they receive are a percentage of the profits achieved, which maintains the continuity of the bank. The value of the profits achieved is of high importance to the creditors because it enables them to evaluate the ability to pay off their debts, and profitability is an indicator of the company's financial performance (Gbolagade et al., 2013; Reda, I et al 2016). According to (Sabir, Sabr & Nader 2015) a firm's profitability level will be determined by comparing its relative position within its industry. When the level is above average it means that the bank is in a continuous competition in a long period. The use of accounting techniques to generate financial reports, which shows an overly positive view of the business activities and financial position of the company (Hamawandy et al., 2020). Banks also can benefit from building or developing competitive advantage with the aim of attaining development in the share market, value of the share in market as well as the return of investment. The capital market is one of the most important parts of the economy, that it is not covered they're important to anyone (MIR et al., 2020). Linking people and different world is the work of modern technology is the carrier of globalization all over the world (Othman et al., 2020). Restatement of financial statements to the market contains new information (Sulaiman et al., 2020). The benefit that can be achieved by the banks through constructing or developing the competitive advantages which is aiming either to achieve growth in the market share, growth in the market value of shares, or growth in the return on investment (Jaf & Xinping, 2011) In today's world, firms will be forced to use various methods to maximize its profits through making their loyal customers more

satisfied even when the prices of the products rise. (Sabir, Xinpings & Sabr, 2011). Profit, the market share, the amount investment and the generated income of the firm will show a current performance of an organization (Karim et al., 2020).

Profits are important to creditors as well because they are one of the sources of funds to cover debts (Gibson, 2009: 297). According to (Sabir, Xinpings & Sabr, 2012) in order to create good creativity, banks need to innovate as well as progress software and networking of information systems though it requires large amount of money to invest.

Profitability ratios are generally considered the bank's basic financial ratio in order to assess the bank's success in performance in terms of profits. More importantly, if the profitability ratio is high compared to the standard rate or the same rate in previous years, this indicates a better performance of the bank.

This study has relied on the rate of return on property rights as one of the profitability indicators because it is the most common, and it has been used in previous studies similar to this study.

There are many factors that affect the profitability of commercial banks, some of which are external, such as the political and economic conditions surrounding the bank, the legislation and legal controls, the monetary policies and the prevailing interest rates, and some of them are internal, such as the financial situation inside the bank, the size of the bank, the bank's growth rate and the policies of the bank. The bank towards its customers, and the quality of the internal operations within the bank, as the external and internal factors, complement each other to reach the desired goal of maximising the profitability of commercial banks, and the focus of this study was on a number of these factors, such as financial leverage, the size of the bank and the bank's growth rate.

Leverage

Mahran (2016) believes that financial leverage is the facility's use of third-party funds in order to achieve the largest return for the investors and owners of the facility, which represents the ratio of debt to total assets. Corporate governance of firms depends on the ownership structure of the company, on whether the company is owned by a single individual or by a group of people (Al-Kake & Hasan, 2019). Noghondari and Noghondari (2017) defined financial leverage as the ratio of total debt to total assets or the total value of the company.

Most financial management writers, as well as most studies, consider that financial leverage is the sum of long-term liabilities on the total assets, but among them (Sihler, 1971; Brigham, 2005; Andrew, 2000; Esmaeil et al 2020), however, we find that there are a few studies that consider that financial leverage is the sum of long-term liabilities on the total assets (such as Aivazian, 2003; Fattoh, 2005). This study provides measures that can be used to enhance such financial performance. In addition, little has been done to explore the area of internal

control issues that are hampering financial performance in the Middle East (Mahmood et al., 2020).

Bank properties

Many variables affect the profitability of banks, the most important of which are the size of the bank, the bank's growth rate and understanding the role of these characteristics in modifying the effect of the degree of financial leverage on the profitability of the banks. These variables were entered into the research form. The size of the bank is one of the characteristics that play a fundamental role in determining the effect of the degree of financial leverage on the profitability of the banks.

The size of the company affects its financial performance for various reasons, including that it can obtain financing faster, and it has greater growth opportunities. Dwi (2013) and others found an inverse relationship between the size of the company and the management of the profit, and he explained that a large company has more resources and more profits, so there is less need to manage the profit. As a result, the quality of its profits is higher. On the other hand, large companies enjoy a good relationship with their auditors, which increase the company's ability to negotiate with them to make the auditor's report more flexible, and large-sized companies may resort to using accounting options that reduce their profits in order to avoid the cost of responsibility. The size of assets was the most used measure in previous studies, such as the studies by Al-Fayoumi et al. (2011) and Ardison et al. (2012) Alfadli and Rjoub (2020).

Where the size of the bank affects the financial structure, if the small-sized banks bear more costs than the large-sized banks in the direction of long-term borrowing. The importance of the size of the establishment is one of the determinants of financial leverage, so the greater the size of the bank, the more it becomes diversified and less volatile in its annual returns, which leads to a decrease in the financial risks associated with it and thus an increase in its ability to bear a high rate of leverage more than smaller companies (Bastos and Ramalho, 2016).

As for the bank's growth-rate characteristic, it represents the bank's ability to use its assets efficiently, generate income that enables it to pay off creditors, increase its assets and maximise the value of the company (Halim, 2011) and the owners' profits. Many studies have assumed that companies with high growth that is excessive and unjustified have little quality of profits because the profits will not have a predictive character. In addition, this growth provides opportunities for profit manipulation and opportunities for measurement error, which reduces the quality of these companies' profits. Also, high-growth companies are often characterised by future optional expenses (high dues), and control over them is more difficult, which increases the opportunity for managers to manipulate the profits (McNichols, 2000). On the other hand, high-growth companies have high-investment opportunities and may need to obtain external financing, which increases the drive towards improving the

quality of profits to benefit from a lower cost of capital. It is measured as the ratio of the total assets of the current year to the total assets of the previous year (Gaio, 2009).

8. RESEARCH METHODOLOGY:

In order to achieve the study objective, this study is based on the descriptive approach, which involved collecting data related to the variables of the study model and arranging and presenting them. It also relied on the analytical method by analysing the data and testing the hypotheses in order to arrive at the results, generalisations and recommendations. In order to achieve the research objectives, the research methodology deals with presenting the research community and sample and defining and describing the research variables and the study model.

Community and sample research

The research community and sample are represented in all the Jordanian commercial banks listed on the ASEM during the period of 2014–2018, which are 13 banks according to the Directory of Banks in Jordan (Central Bank of Jordan, 2018). The data were obtained through the websites of the research sample banks and the Securities Commission.

Definition and description of the research variables:

A - The independent variable: Financial leverage. This is measured by the ratio of the total liabilities to total assets at the end of the year.

B - The dependent variable: The bank's profitability. The bank's profitability was measured using the return on equity index (ROE) by dividing the net profit by the average equity.

C - The modified variables: They are as follows:

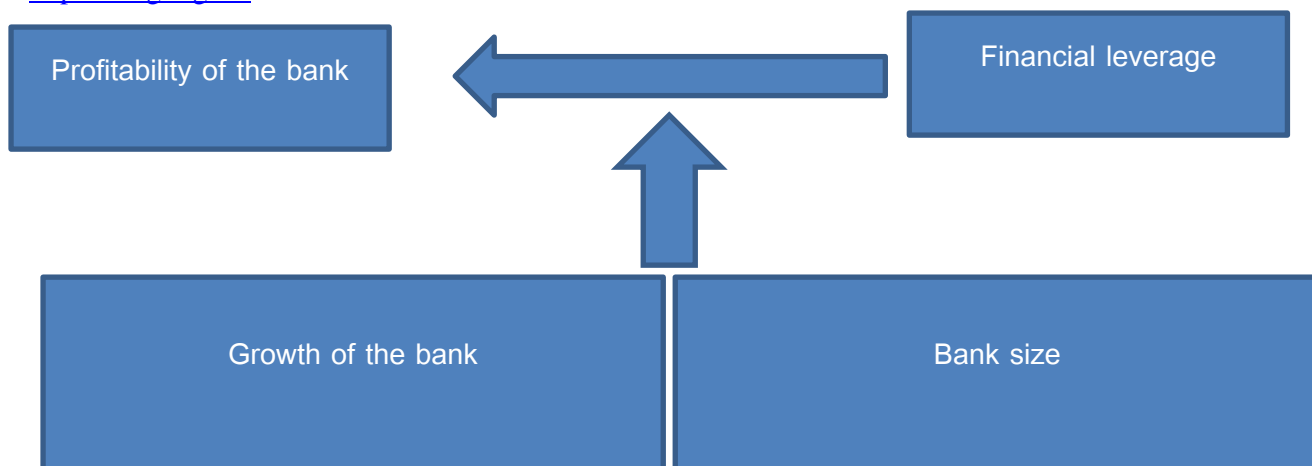
1 - Bank size: The size of the bank is measured through the natural logarithm of the total capital at the end of the year.

2 - The bank's growth rate: It was measured as the ratio of the total assets of the current year to the total assets of the previous year.

Study model:

Based on what was presented through the study problem, its objectives and assumptions, the study model was developed to measure the effect of the degree of financial leverage as an independent variable on the profitability of banks as a dependent variable, and the study also used some variables of the rate (the size of the bank, the bank's growth rate), as shown in

Figure (1)



9. ANALYSIS OF THE RESULTS OF THE STUDY:

The analysis of the results of the applied study was based on three stages starting with verifying the validity of the data for the statistical analysis, describing the study data and testing its hypotheses, and the following is an analysis of these stages:

1.10 Data validity test for statistical analysis:

1 – Normal Distribution Test:

The researchers used the (Kolmogorov-Smirnov) test to ensure that the distribution pattern that the study data behave is normal.

Table No. (1) The normal distribution of the study variables with the values of (Kolmogorov-Smirnov).

Statistic Kolmogorov-Smirnov		Study variables
Sig	Z Values	
0.382	1.311	Financial leverage
0.219	0.816	Profitability of the bank
0.185	0.202	Bank size
0.196	0.845	Bank growth

It is evident from the data presented in Table No. (1) that the probability values of the variables are greater than the level of significance (0.05), indicating that they follow a normal distribution (Hair et al., 2010).

Multicollinearity Test

The linear interference was examined by calculating the tolerance coefficient for each of the independent variables and the adjusted variables and then finding the variance inflation factor (VIF), which is a measure of the effect of the correlation between the independent variables. This can be clarified through Table No. (2).

Table No. (2) Multicollinearity test for linear interference.

Contrast amplification factor VIF	Tolerance	Variables
2.810	0.601	Financial leverage
3.610	0.670	Bank size
2.274	0.810	Bank growth

It is evident from Table No. (2) that the value of the VIF for all the variables of the study did not exceed (10) (Field, 2005). Therefore, the study model does not suffer from the problem of linear overlap as the correlation between the variables has no statistical significance and is extremely low. This indicates the strength study model in explaining and determining the effect on the dependent variable.

2.10 Descriptive analysis of the study variables:

After the two researchers have verified the validity of the data for the statistical analysis, the second stage encompasses an analytical description of the study variables as follows:

Table No. (3): Descriptive statistics of the study variables.

Standard deviation	Highest value	Average	The lowest value	Views	Variable
2.40	92.495	86.29	81.71	65	Leverage (%)
2.80	15.26	8.54	0.33	65	Bank profitability (%)
0.22	8.81	8.21	8.00	65	Natural logarithm of the bank volume
0.121	0.460	0.065	-0.149	65	Bank growth (%)

Table No. (3) displays the descriptive statistics of the study variables related to 13 commercial banks listed on the Amman financial market for 2014–2018. To the Jordan Money Bank in 2015, and the highest profit rate was 15.26% for Cairo Amman Bank in 2014, while the average profitability of the bank was 8.54%, which means that the net profit

rate represents 8.54% of the average equity of the banks, and it measures the bank's profitability. The management is highly efficient in using its resources to generate profits. As for the independent variable, the leverage reached the lowest view (81.71%), and this view is due to the investment bank in 2015. The highest viewership reached 92.495%. These views returned to Société Générale (Jordan) in 2018, while it reached the arithmetic average of the financial leverage (86.29%). This percentage is high, and it indicates the dependence of these banks on financing their assets through liabilities. This is the nature of the banks' business. With regard to the characteristics of the banks, their sizes ranged from 8 to 8.81 with an average of 8.21, indicating that the total capital of the banks is exceptionally large. Regarding the growth of the banks, the highest growth rate reached 0.460%, which is due to the Arab Jordan Investment Bank in 2015, while it reached the lowest growth rate (-0.149%), the Jordan Commercial Bank returns in 2016. It is noticeable that the growth rate varies between the banks.

10. TEST HYPOTHESES OF THE STUDY:

The first hypothesis: There is no statistically significant effect at the level of significance (α 0.05) for the degree of financial leverage on the profitability of Jordanian commercial banks.

Table No. (4): Results of the regression analysis on the impact of the degree of financial leverage on bank profitability.

Std. Error	R ²	F	Sig	Regression (B) coefficients	Variables
1.132	0.461	11.462	0.001	6.114	Constant
			0.000	2.214	Degree of financial leverage

This hypothesis was tested using the simple linear regression method, so the results presented in Table (4) indicated that the independent variable and the degree of financial leverage affects the profitability of Jordanian commercial banks, and it explains the 46.1% change in their profitability. The value of (B = 2.214) means that the effect of the degree of financial leverage on the profitability of the banks is positive, and the value of (≤ 0.00 α) is statistically significant, which means rejecting the null hypothesis and accepting the alternative hypothesis. This means that there is a statistically significant effect of the degree of leverage finance on the profitability of Jordanian commercial banks. From the above, the first study form can be formulated as follows:

$$\text{ROE} = 6.114 + 2.214 \text{ Liv.} + 1.132$$

The second hypothesis: The effect of the degree of financial leverage on the profitability of Jordanian commercial banks does not differ at the level of significance (α 0.05), according to the difference in the size of the bank.

Table No. (5): The results of the regression analysis of the impact of the degree of financial leverage on the profitability of banks according to the difference in the size of the bank.

Third level		Second stage		First stage		Variable
Sig	Values B	Sig	Values B	Sig	Values B	
0.000	8.417	0.000	4.214	0.001	6.114	Constant
0.000	4.541	0.000	2.416	0.000	2.214	Degree of financial leverage
0.000	8.841	0.000	7.619			Bank size
0.001	1.151					The interaction between degree of leverage and bank size
	0.540		0.410		0.461	R2 value
	15.615		8.781		11.462	F value
	0.000		0.000		0.000	Sig
	1.201		1.262		1.132	Std. Error

The second hypothesis tests the level of difference in the impact of the degree of the financial leverage on the profitability of the banks according to the difference in the size of the bank. In order to test the hypothesis, hierarchical interaction regression analysis was used, as shown in Table No. (5), where the first stage of the variable of the degree of financial leverage was introduced, and it showed that the results have an effect on the degree of financial leverage on the profitability of the banks. The degree of financial leverage explains 46.1% of the change in the profitability of the banks, and this value is statistically significant as it reached $F = 11.462$, $\text{sig} = 0.000$. In the second stage, the bank size variable was introduced, where the results show the existence of an effect of the bank size variable on the profitability of the banks, with a value of $F = 8.781$, $\text{sig} = 0.000$, which is a statistically significant function. In the third stage, the interaction between the degree of financial leverage and the size of the bank was added, as the results show a statistically significant effect of that interaction on the profitability of the banks, as the value of $F = 15.615$ ($0.000 = \text{sig}$), and this value is statistically significant, so the null hypothesis is rejected. The alternative hypothesis is accepted; that is, the effect of the degree of financial leverage on the profitability of Jordanian commercial banks varies at a significant level (α 0.05 α) depending on the size of the bank. From the above, the second study form can be formulated as follows:

$$\text{ROE} = 8.417 + 4.541 \text{ Liv.} + 8.841 \text{ BSize} + 1.151 (\text{Liv.} * \text{BSize}) + 1.201$$

11. DISCUSSING FINDINGS AND RECOMMENDATIONS:

The study found the following results:

1 - The study found that the arithmetic average of the degree of financial leverage is 86.29, which is high, and it indicates the dependence of these banks on financing their assets through liabilities. This is the nature of the banks' business. Although the average profitability of the bank was 8.54%, it measures the efficiency of the management in using its resources to generate profits. The average size of the bank was 8.21, indicating that the total capital of the banks is exceptionally large. With regard to the growth of the bank, the highest growth rate reached 0.460, while the lowest growth rate reached -0.149. The variation in the growth rate between banks is noted.

2 - The study found a positive effect of the degree of financial leverage on the profitability of Jordanian commercial banks as the degree of financial leverage plays a fundamental role in improving the profitability, and it explains the 46.1% change in the banks' profitability. The results of this study are in agreement with Dalci's study (2018), which concluded that financial leverage and the ratio of liabilities to assets have a positive and statistically significant effect on the return on equity as the positive effect of financial leverage on profitability can be attributed to the tax savings. In terms of the presence of the effect of the degree of financial leverage on the profitability index represented in the return on equity, it differed in terms of the direction of the impact as these studies concluded that there is a negative impact of financial leverage on the return on property rights and that this effect extends for several years to come, while the current study concluded that the effect is positive. The negative impact can be attributed to the cause of the cost of bankruptcy, financial stress, agency problems and information inconsistency plaguing enterprises. This study was not consistent with Reddy and Narayan's (2018) and Sen and Ranjan's (2018) studies, which concluded that there is no significant impact of financial leverage on profitability and capital structure and that financial leverage does not play any major role in making investment decisions of your bank. This can be explained by the different application environments.

3 - The study found that there is a difference in the effect of the degree of financial leverage on the profitability of Jordanian commercial banks according to the difference in the size of the bank, and this indicates that the higher the size of the bank the higher the positive effect of the degree of financial leverage on the profitability of Jordanian commercial banks, as well as the interaction between the degree of financial leverage and the size of the bank increases the positive impact of the degree of financial leverage on the profitability of Jordanian commercial banks, as with this interaction the rate of explanation of bank profitability increased, and this is consistent with a study (Anderson et al., 2003) that showed that the size of the company had a positive effect on both. It is a statistical indication of the performance of Jordanian banks measured by the return on property rights as the size of the bank affects the financial structure, if small-sized banks incur more costs than large-sized banks in the direction of long-term borrowing. This leads to a decrease in the financial risks associated

with it and thus an increase in its ability to bear a high rate of financial leverage and more than the banks of a smaller size.

4 - The study found that there is a difference in the effect of the degree of financial leverage on the profitability of Jordanian commercial banks according to the difference in the growth rate of the bank, and this indicates that the higher the growth rate of the bank the higher the positive effect of the degree of financial leverage on the profitability of the banks, and the interaction between the degree of financial leverage and the bank's growth rate increases the positive impact of the degree of financial leverage on the profitability of Jordanian commercial banks. Therefore, high-growth banks have high investment opportunities, which increases the drive towards improving profitability. This is reflected in the value of the banks. The results of this study are consistent with the Abed et al.'s (2012) and Aggarwa et al.'s (2011) studies, which showed that the growth rate has a positive effect on the financial structure.

Based on the results of the study, the study recommends the following:

1 - Urging the banks to increase the size of the financial leverage to the maximum extent possible because the higher the degree of financial leverage for the banks leads to an increase in profitability, taking into consideration the bank's ability to employ these funds with returns greater than those paid to depositors and lenders.

2 - Through the results of the analysis, it was found that the degree of financial leverage measured by the ratio of liabilities to assets has a positive effect on the profitability of Jordanian commercial banks. Therefore, the study recommends that bank managements use all means to enhance their deposits as they are the main source of financing their projects.

3 - Urging banks to develop and expand the scope of their work, given that there is a clear relationship of influence to the size and growth rate of the banks on the possibility of using the degree of financial leverage to improve their profitability.

4 - Encouraging banks to invest their surplus funds in corporate finance operations, especially long-term financing, by exploiting investment opportunities to increase the banks' profitability, which will be reflected in the rate of return on property rights.

5 - Urging banks to achieve returns on assets that are higher than the cost of borrowing by focusing on economically viable projects.

6 - Conducting more studies by expanding other characteristics of the banks due to their importance, such as the age of the bank and its competitive position and studying its impact on the relationship between financial leverage and the profitability of banks, or conducting other studies using other measures of the bank's profitability, such as the rate of return on assets or earnings per share or conducting the study in other sectors.

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