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## Measuring the Impact of the Financial Structure on the Financial Performance of Commercial Banks Listed in the Iraqi Stock Exchange using the Panel Data Model

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### Abstract

This study aims at analyzing the relationship between the financial structure and the financial performance in the Iraqi commercial banks listed on the Iraqi Stock Exchange. A sample of (15) banks was selected for the period from 2009-2019. The financial structure was measured (as independent variables) by choosing indebtedness ratios represented by the ratio of the total debts to total assets, the ratio of total deposits and current accounts to total liabilities, and the ratio representing the ownership structure represented by capital and reserves to total assets. The financial performance indicators, on the other hand, were measured by the cash balance ratio (liquidity) and the return on assets (profitability). To measure this impact, the Panel Data model with its three models: Pooled Regression Model

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(PRM), Fixed Effects Model (FEM), and Random Effects Model (REM) were used. The results indicate that the financial structure in the Iraqi banks, the sample of the study, during the period of the study depends on the financial leverage represented by total debts to total assets with a greater percentage in raising the financial performance compared to internal funding sources.

**Keywords:** commercial banks, financial structure, financial performance, panel data, PRM Pooled Regression model (PRM), Fixed Effects Model (FEM), Random Effects Model (REM).

### **Introduction**

The interest of business organizations and banking institutions focuses particularly on selecting the financial structure that achieves profitability and provides liquidity and thus maximizing the market value of the bank. This is done through the development of plans and policies that clarify the way to determine how to manage the available financial resources. The concept of the financial structure has formed a deep debate among various researchers and theories examined in this study. It is the outcome of the interrelationship between the elements of owned financing and debt financing, that is, all the elements that making the liabilities of the budget. The financial structure and the mechanism to achieve the optimal mix according to the nature of the bank's work has become an important tool to evaluate its financial performance, and the evaluation process is of importance because the permanence and continuity of any bank can be measured by the efficiency of its performance in general and its financial performance in particular. Financial performance is receiving serious attention from the financial analysts and shareholders, as it contributes to highlighting the elements that have achieved a certain level of liquidity and profitability. Accordingly, the importance of performance in the bank is reflected in showing the strengths and weaknesses in its financial position and working to avoid weaknesses, and to maintain and develop strengths to raise the level of competitiveness and development in the field of work.

### **Research Problem**

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The decision of selecting the composition of the financial structure in commercial banks is considered one of the critical decisions faced by those in charge of financial management. Given the importance of owned financing in enhancing the confidence of dealers with the bank because it provides permanent funds that enable the bank to enter into long-term investments, and the importance of borrowed financing in reducing the financing risk and the cost of capital to a minimum. Taking such decisions may affect the bank's financial performance because of excessive debt financing at the expense of financing with ownership or vice versa. This is what will be studied by showing the impact of the components of the financial structure of banks on financial performance.

**In this context, the study problem can be formulated in the following questions:**

**Is there an impact of the financial structure on the financial performance of commercial banks listed in the Iraq Stock Exchange?**

**The following sub-questions arise from this problem:**

- 1- Is there a significant effect of owned financing (equity rights) on the financial performance of the banks that represent the study sample?
- 2- Is there a significant effect of borrowed finance (the financial leverage ratio) on the financial performance of the banks that represent the study sample?

**Research objectives**

- a- Explanation of the impact of internal sources of funding (equity rights) on the financial performance of commercial banks listed in the Iraq Stock Exchange.
- b- Explanation of the impact of external sources of funding (debt) on the financial performance of commercial banks listed in the Iraq Stock Exchange.
- c- Identify the essential differences in the composition of the financial structure between commercial banks and other institutions.
- d- Identify the most influential financing source in the bank's financial performance.

**The Importance of the Study**

The importance of this study lies in the fact that it deals with a crucial issue, that is to test the effect of the composition of the financial structure on the financial performance in Iraqi banks. This study deals with the analysis of the financing decision in the banking sector, which is considered one of the most essential decisions that the public administration must think about continuously to achieve

success and expansion. Thus, it provides evidence derived from the reality of application in the Iraqi environment, and this evidence contributes to providing the relevant authorities with a theoretical and applied framework that can be relied upon in the future to prepare studies on the financial structure and performance in commercial banks.

### **Study hypotheses**

**The study is based on testing the following null hypotheses:**

- 1-No significant relationship between the debt ratio and the cash balance ratio.
- 2-No significant relationship between the debt ratio and the rate of return on assets.
- 3-No significant relationship between the equity ratio and the cash balance ratio.
- 4-No significant relationship between the equity ratio and the rate of return on assets.
- 5-No significant relationship between the deposit's ratio and the cash balance ratio.
- 6-No significant relationship between the deposits ratio and the rate of return on assets.

### **First: Theoretical Framework**

#### **\*Literature Review**

There is no doubt that the previous studies have an important role in any new study, as they contribute to the identification of the methods of investigation used and the knowledge of the main findings of the studies. This matter is considered a necessary and essential stage for any scientific study as a link between the current study and previous ones. The study of the relationship between financial structure and performance received considerable interest from researchers. Many theories and studies have tried to explain the problem of choosing the optimal financial structure for institutions. The contributions of Modigliani and Miller's theory in 1958 are considered the theoretical basis for the financial structure in institutions. They demonstrated that there is no effect of the method of financing on the cost of money nor on the value of the institution in the absence of the taxes. Their theory constituted a very important philosophical trend in financial theory, and they were considered the founders of the modern school of financial management (phooi et al, 2017:3). However, in 1963, M&M presented a corrective article entitled Corporation Income Taxes and the Cost of Capital, and they pointed out that the difference between the value of the enterprise that uses leveraged financing in its

financial structure and the value of the enterprise that depends on equity rights is represented by the current value of tax savings (Ahmeti, 2015: 919 - 920). Many theories have emerged to show the relationship between financial leverage and the value of the institution, including the theory of exchange, which states that any increase in the level of debt can cause financial problems such as an increase in bankruptcy and agency costs and thus the value of the institution decreases. Therefore, an optimal financing structure can be determined through a balance between tax benefits and the costs of bankruptcy and financial crises (Nguyen et al, 2019:2,3). Then the Picked Theory has emerged. It emphasized that institutions follow a hierarchical arrangement in financing their projects and their needs of funds (Serrasqueiro & Caetano, 2015: 450-451). The Theory of Information Asymmetry also emerged. Its basis is the asymmetry of information between management and the market, since the management may have more information than that available to investors, so this information is exploited for their benefit (Abad et al, 2017:263). It was followed by the Signal Theory: the information asymmetry is a result of the disparity in the volume and nature of information between the management and the market. Managers have some internal information that are not available to investors, which makes it difficult to distinguish between high-return and high-performing institutions from low-return and low-performing institutions, and this leads to pricing the shares of both types in the market at the same value (Connelly et al, 2011,41,42). The latest theory was the Market Timing Theory, which states that financial structure decisions are taken on the basis of capital market conditions (market evaluation) (Allini et al, 2017:7). However, these theories provided useful mechanisms that would assist the management in taking the appropriate decision, but there is still a great controversy between researchers and specialists in the financial management field and there is no consensus on any theory. Some of them have been applied on commercial banks, such as the modified Modigliani and Miller theory, the exchange theory, as well as the picked theory. But these theories, except for the theory of exchange and reference, are difficult to be applied on commercial banks for many obstacles, represented by the following (Romec, 2011:47,48):

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A- Deposits are a basic and important source of bank funds, and the function of accepting deposits is that of banks only, and these deposits are considered a financial source of debt for banks that differ from the debts of other institutions.

B - The procedure taken by central banks, in order to ensure financial stability especially with insurance mechanisms for deposited funds to protect them, encourage banks to increase the levels of financial leverage instead of reducing it.

C- According to the optimal financial structure, it is that structure that reduces the cost of capital to the minimum and maximizes the value of the bank, but this is in the case of absence of capital requirements, while under these requirements, it can cause an increase in the cost of capital and a decrease in the market value of the bank.

Despite the theories mentioned above, researchers had a different opinion regarding the relation between the financial structure and financial performance. For example, the study (Flath & Knoeber, 1980) where the M&M theory was tested on some American industrial companies based on a sample of (38) companies in order to know the impact of taxes and deficit costs on the financial structure. The financial statements of these companies were selected in the form of a time segment for multiple periods, starting from 1965 to 1972. The other period is from 1965 to 1972. The most prominent results reached are that the difference in the financial structure between sectors is the result of different operational risks, besides the differences in the organizational process and not due to the differences in tax benefits between sectors, which were very small.

As for the Cox (2006) study, it emphasized the importance of the impact of the financial structure on the financial performance in the banks and used the cross-sectional time-series analysis method for two different periods. 1996 to 2002, which is the most organized period in order to identify the relationship between the capital structure and the return on assets and the return on equity in the banks of the United States of America. The results indicate a positive relationship between financial leverage and return on equity, and also the relationship was positive between capital ownership and return on assets.

The Velnampy & Niresh (2012) study analyzed the relationship between the financial structure and profitability of a sample of banks in Sri Lanka for the period from 2002 to 2009 and reached the conclusion that there is a negative correlation between capital and profitability. This was due to the fact that these banks rely

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heavily on debt in Financing their assets, and this study emphasized the need to pay attention to better formulating decisions related to the financial structure and reduce risks.

Also, Abbadi & Rub (2012) presented a study that aimed to find the relationship between the financial structure of Palestinian banking institutions and market efficiency. They used the cross-sectional time-series analysis method on a sample of 22 commercial, investment, and Islamic banks for the period from 2007 to 2010. The financial structure was measured by the ratio of total deposits to assets, the ratio of total loans to assets and the ratio of total loans to deposits. As for the efficiency of the bank, it was measured by the ratio of return on assets and the ratio of return on equity. The results indicate a negative impact of financial leverage on the profitability of banks, as well as a negative impact on the market value of the bank. However, there was a strong positive impact between the return on assets and the market value.

As for Taani (2013) study, it concluded that there is no significant effect between the financial structure measured by the ratio of total debts to equity on financial performance measured by profit margin, return on equity and return on working capital. The cross-sectional time series analysis method was used on a sample of 12 banks listed on the Amman Stock Exchange for the period from 2007 to 2011.

The results of Goyal (2013) study indicated that there was a positive relationship of short-term debt on profitability measured by return on assets and return on equity, while the relationship had a negative effect of long-term debt on profitability measured by return on assets and return on equity. The cross-sectional time-series analysis method was used for the period from 2008 to 2012 on a sample of banks listed on the National Stock Exchange in India.

As for Widyastuti et. al. (2019) study, it analyzed the audited financial statements with the aim of knowing the impact of the financial structure on the financial performance of commercial banks listed on the Indonesia Stock Exchange, and reached the conclusions that short-term debts have a positive impact on the financial performance measured by the return on equity rights, and that deposits represent the least costly source of financing among other sources.

The results of the study done by Jadah et all (2020) indicated a positive impact of the measured financial structure (ownership to assets ratio and liabilities to assets

ratio) on the financial performance measured by the return on assets ratio. While the results showed a negative impact of the measured financial structure (long-term debt to assets ratio, short-term debt to assets ratio, and total debt-to-assets ratio) on the bank's financial performance. The panel analysis method (random effects models, fixed effects models) was used for the period from 2009 to 2018 on a sample of 18 commercial banks listed in the Iraq Stock Exchange.

#### **\*Financial structure in the commercial banks**

The presence of commercial banks in the economy is a vital necessity, not because they are an important economic operator only, but also they have allowed finding solutions to many problems related to finance. These banks work to support and accelerate economic development in countries by granting credit to customers, and thus they provide the necessary financial resources that are directed to finance projects that properly serve the economic and financial sectors. In addition to the essential role of the banking sector, which is represented in financing foreign trade, the geographical spread of banks, whether through a network of relationships or through the spread of branches, facilitates economic exchanges between societies and leads to the development of international trade. As a result, economic development is achieved in the country (Kalpana & Rao, 2017: 2). The banking sector also influences and contributes to developing capital markets through direct investment in the market. It works to employ the available funds in order to achieve acceptable returns and reasonable risks, and this would contribute to achieving development in the country (Andolfatto et al., 2017: 1,2 ). The integrity of the financial structure of commercial banks in light of their application of the coverage approach in financing requires providing sufficient and diversified financial resources to carry out these activities. The financing decision is considered one of the most important and difficult financial decisions to be taken at the level of commercial banks (Murtaza & Azam, 2019:52). The financial structure can be defined as the best mix which is determined by the manager of debt and equity and used by the bank in financing the fixed and current assets, and it has a pivotal role in the financial activity of the bank due to its impact on the financial performance since this performance indicates the success or failure of the bank being as a mirror that reflects the real financial situation through the evaluation processes that confirm the efficiency of the bank in its use of the available financial resources for the purpose of maximizing the value of the bank in the market, which is the main

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objective of financial management (Mukumbi et al,2020:166) and (Lu,2016:6). In terms of its composition, the financial structure in commercial banks differs from other institutions due to the different nature of activity among them. Commercial banks are basically found to be institutions with high financial leverage unlike all other institutions (Jadah et al,2020:122,123). The reasons for this difference, based on the study, are as follows:

1- The capital owned by commercial banks represents a small percentage of the financial structure compared to the rest of the liabilities. Therefore, commercial banks should apply certain rules and follow a certain level of organization for the purpose of protecting them from the fluctuations of their financial conditions. Besides, they should deal cautiously with the composition of their assets in the presence of a financial structure where the lowest percentage is that of the owned capital (Nguyen & Kayani, 2013: 6).

2- Profits and costs of bankruptcy affect the preference of non-financial institutions for debt due to the tax savings that these debts offer, especially the institutions that achieve high levels of profits, as they are featured by the low exposure to bankruptcy risks, so they depend on debt in financing their activities to a greater extent. For the non-financial institutions with low levels of profit, their dependence on debt is less, as they face a high risk of bankruptcy if they rely heavily on debt. However, commercial banks have no choice but to deal with the debts they get from deposits, as they are considered the main source of financing in the bank and the least expensive compared to other sources of financing that are available to the commercial bank (Widyastuti et al, 2019:137).

3- Commercial banks depend on debt in a way that exceeds their reliance on shares in financing their activities compared to non-financial institutions that rely more on shares because these banks invest in assets that can be described as difficult to be understood by those outside the bank. Thus, this situation increases the difficulty of marketing shares as a result of the information gap between the prospective investors and the bank (Fabozzi, 2009: 375-404).

4- Non-financial institutions differ from commercial banks in terms of the availability of growth opportunities and liquidity. Non-financial institutions can achieve growth opportunities by entering into profitable investments and work to finance these investments from the retained profits, and thus they can reduce the

size of their financial leverage. As for commercial banks, although this situation is applied to them, and they can finance investments with retained profits as well, however, they are still in great need for debt to finance growth opportunities as well as financing the bank's main activity represented by lending. (Brigham & Houston, 2009: 418).

5- Another difference stems from the ability of non-financial institutions to adjust and replace their preferences regarding the sources of financing their financial structure. These institutions can determine a certain level of capital cost based on their short or long-term financial needs, as well as their preferences for debt or stocks, accordingly. Commercial banks, on the other hand, are exactly the opposite. They are required to provide liquidity to borrowers in a time of need, be it a short or medium-term (because the bank avoids dealing with long-term loans) and on this basis their financial structures must guarantee different debts to balance liquidity (Hill, 2009: 72-80).

6- The financial structures of the commercial banks are characterized by fluctuation and continuous change, unlike the non-financial institutions structures that are characterized by relative stability. The reason for this fluctuation is that the commercial banks endeavor to ensure sufficient liquidity by increasing third-party deposits, which are described as high liquidity, especially deposits on demand. The bank works to benefit from the deposited finance by investing them in loans. This investment is described as the least liquidity in the bank's commercial portfolio ( Rose , 2008 : 476 - 478 ).

From the above, one can note that the financial structure in the commercial banks consists of equity rights represented by capital, reserves, retained earnings and provisions, and debts represented by deposits and loans. There are other sources of finance represented by insurances and Instant Checks.

#### **\*The relationship between the financial structure and financial performance in the commercial banks**

Through the opinions and results of the previous studies, it is noted that these studies have varied in their results and propositions about the relationship between the constitution of the financial structure and the financial performance in the commercial banks, especially when concerning with the increase in the percentage of deposits or capital and who has the greatest impact on the bank's financial

performance. It is found that many studies go against increasing the capital, because it is more costly than debt, as it makes the bank hold high levels of risks that may lead to bankruptcy and thus have a negative impact on the bank's financial performance in general and on its profitability in particular. However, many other studies emphasize the great benefits achieved by the capital increase and the positive impact of this increase on the bank's performance: it achieves stability, safety and provides the necessary fund to finance assets and achieve profitability. They stressed that the initial cost of this increase can be recovered by increasing the margin of lending and thus leads to improving the financial performance of the bank. Theoretically, there was agreement about the great benefits of capital, as it brings stability and safety to institutions and the financial system as a whole. Consequently, the study considers that the relationship between the financial structure and financial performance must be positive, and it must be noted that banks are institutions whose main work is focused on accepting deposits and granting credit, so they should have a deposit ratio that exceeds capital ratios, since banks, in general, prefer financing through deposits, i. e., by gaining customers and the market's trust. However, this does not eliminate the important role of capital, as it is the first defense line for the bank, and that the bank's reliance on deposits or capital depends on the prevailing circumstances and the risks it faces. An increase in the debt ratio or an increase in the capital means an increase in financing sources and thus an increase in the assets producing the return. But achieving this return depends on the efficiency of the bank's management in managing its financial structure, achieving a balance between the costs and benefits of internal and external sources of financing, and working to employ them in investments with appropriate returns in order to achieve profit, provide liquidity, and enhance safety and stability in the bank.

## **Second: The Practical Framework of the Study**

### **Description of the study model**

The study model consists of three independent variables:

- 1- The ratio of total debts to total assets ( $X_1$ ).
- 2- The ratio of equity rights to total assets ( $X_2$ ).
- 3- The ratio of total deposits and the current accounts to total liabilities ( $X_3$ ).

As for the dependent variables, they are two:

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- 1- The liquidity ratio, which is represented by the ratio of the cash balance (cash in the Fund and in the Central Bank to deposits and the like) ( $y_1$ ).
- 2- Profitability ratio, which is represented by the ratio of return on assets (net profit from operations to total assets) ( $y_2$ ).

It is assumed that the impact of the independent variables will be positive on the dependent variables since any increase in funding sources leads to achieving profit and providing liquidity in the event that efficient management is available.

### **Testing and analyzing the Study Hypotheses**

In order to verify the hypotheses of the study, they must be tested and analyzed, and accordingly, the effect of the independent variables (debt ratio ( $x_1$ ), equity ratio ( $x_2$ ), deposit ratio ( $x_3$ ) on the two dependent variables the liquidity ratio ( $y_1$ ) and the profitability ratio ( $y_2$ ) were measured. In order to obtain the best results, the regression method included the method of integrating time-series data and cross-sectional data, or what is termed in the economic measurement "panel data" was used.

The cross-sectional data describe the behavior of the cross-sectional units at one time period, while the time-series data describe the behavior of one individual unit during a certain time period. Therefore, the panel data model is to merge cross-sectional data with the time-series data at the same time. This method is distinguished from the normal regression in that it takes into account the effect of changing time and the effect of changing the difference between cross-sectional units as well. One of the most important features of it is that it has more information than the existing information in cross-sectional or time-series data alone, and this method is characterized by a greater degree of freedom and is considered more efficient and more advantageous (Atiya, 2016).

**If we have N cross-sections measured in T of the time periods, then the panel data model takes the following form:**

$$Y_{it} = B_{0(i)} + \sum_{j=1}^k B_j X_{j(it)} + \epsilon_{it} \quad , \quad i = 1, 2, \dots, N \quad , \quad t = 1, 2, \dots, T$$

Where:

$Y_{it}$  : is the dependent variable at the observation  $i$  and the time period  $t$ .

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$X_{J(it)}$  : is the independent variable J at observation i and time period t.

K : is the number of independent variables, and there are three here.

$B_{0(i)}$  : is the intersection point of the view i.

$B_J$  : is the slope of the regression line for the variable J and  $\epsilon_{it}$  is the random error at observation i and time period t.

**There are three main models for panel data (Al-Ashush, 2017):**

**1- Pooled Regression model (PRM)**

This model is considered one of the simplest types of panel data where all transactions are fixed and for all time periods, meaning that  $B_{0(i)}$  and  $B_J$  are fixed for all time periods (i.e. neglecting any effect of time).

**2- Fixed Effects Model (FEM)**

Using this model enables us to study the changes that occur in the behavior of units over time for the collected data. It also allows studying the behavior of each of the units and time through the constant element of the regression model.

**3- Random Effects Model (REM)**

This model is based on the assumption that the fixed segment of the time or cross-sectional data or both changes randomly within a fixed arithmetic mean.

**First: Determining the best model**

In order to determine the best model for estimation, the study tested several models and concluded that the best model for the regression is the double logarithmic model for both variables, as follows:

$$\text{Log}Y_{it} = B_{0(i)} + \sum_{j=1}^k B_j \text{Log}X_{J(it)} + \epsilon_{it} \quad , \quad i = 1, 2, \dots, N \quad , \quad t = 1, 2, \dots, T$$

**Second:** Estimating the regression model (panel data) and testing the study hypotheses

In order to test the first main hypothesis of the study, which states that there is no clear significant effect of the independent variables {debt ratio ( $x_1$ ), equity ratio ( $x_2$ ), deposit ratio ( $x_3$ )} on the dependent variable {the ratio of liquidity ( $y_1$ )}, the three longitudinal data models (PRM), (FEM), and (REM) with the double logarithmic model were used. The results are shown in the following two tables:

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**Table (1) Results of estimating the effect of the independent variables (logX1, LogX3, LogX2) on the dependent variable logY**

Model			Variables	
REM	FEM	PRM		
9.358	8.419	12.677	Value of the constant C	The constant term
4.28	3.70	5.64	The calculated value of t	
0.000	0.000	0.000	Probability Value p	
-1.155	-0.901	-1.977	Logx1 Coefficient Value	variable Logx1
-2.45	-1.86	-3.89	The calculated value of t	
0.15	0.065	0.000	Probability Value p	
-0.519	-0.483	-0.751	Coefficient Value of X <sub>1</sub>	Variable Logx2
-1.90	-1.68	-2.75	The calculated value of t	
0.059	0.096	0.007	Probability Value p	
0.359	0.311	0.563	Coefficient Value of X <sub>1</sub>	Variable Logx3
1.513	1.28	2.15	The calculated value of t	
0.132	0.202	0.033	Probability Value p	
0.04	0.45	0.12	Identification factor R <sup>2</sup>	
0.71	0.79	0.54	D.W Value	
2.12	7.26	7.47	F Value	
0.099	0.000	0.000	Fisher Probability	

**Source: Implemented by the two researchers depending on Eview.9 program 7**

In the Pooled Regression Model (PRM), and despite the significance of the independent variables where the probability value of the t-test for coefficient x<sub>1</sub>, x<sub>2</sub>,

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$x_3$  is less than 0.01, the negative sign of the estimated parameters does not match with the economic logic. In addition to the low coefficient of determination 12% and the presence of auto-correlation for errors where the value of D.W = 0.54 which lies between 0 and DL.

As for the Fixed Effects Model (FEM), and despite the high coefficient of determination of the model to 45%, most of the independent variables were not significant at the 5% level, and the sign of some  $x_1$ ,  $x_2$  came negative with the persistence of the auto-correlation problem, as the value of D.W = 0.79 which lies between 0 and DL.

As for the Random Effects Model (REM), it is also noted that the independent variables were not significant with the exception of the  $x_1$  variable, which was significant at the 5% level since the probability value of the t-test for coefficient  $x_1$  is (0.015) which is less than 5%. However, the sign of the parameter was negative, while the variables  $x_2$ ,  $x_3$  were not significant at the level and the negative sign of the variable  $x_2$  continued. As for the significance of the model as a whole, as shown by the F-test, it was not significant at the 5% level because its probability value (0.099) is greater than 5%, and the coefficient of determination is very weak (0.04), i.e., what the independent variables explain only represents 4. % of the variables in  $y_1$  and the remaining 96% are due to other factors within the random error. It is also noted the persistence of the auto-correlation problem as the value of D.W = 0.71 and it lies between 0 and DL.

The study noticed the problems of heteroskedasticity and autocorrelation in the study data, which prevents the emergence of the effect of some variables, as well as the presence of the opposite effect of some of them, as the presence of the problem of mismatching was revealed using the White test, which was adopted in 1980 and depends on the relationship between the squares of the remainders of the model and all the independent variables as well as their squares using the model:

$$\hat{e}^2 = B_0 + B_1X_1 + \alpha_1X_1^2 + B_2X_2 + \alpha_2X_2^2 + \dots + \alpha_kX_k^2 + u$$

The coefficient of determination ( $R^2$ ) of the model was calculated with this equation and then tested for the Heteroskedasticity of error with the following hypothesis:

$$H_0: B_1 = \alpha_1 = B_2 = \alpha_2 = \dots = \alpha_k$$

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Using the Lagrange multiplier statistic ( $LM=Nr^2$ ), if this statistic is greater than the value of the chi-square with a degree of freedom of  $2k$  ( $\chi_{2k}^2$ ), that is, if: ( $LM > \chi_{2k}^2$ ) Then the model suffers from the problem of heteroskedasticity error.

The study calculated the coefficient of determination of the squares model with the remainders of the model and all the independent variables, and its value was (0.65), and when calculating LM it was ( $LM = 24.06$ ), which is greater than ( $= 15.52\chi_6^2$ ) with a significant level of 0.05, meaning that the model suffers from the problem of heteroskedasticity and assuming that the variance of the error term is a linear function in terms of the remainders of the model:  $E(e_i^2) = \sigma^2|\hat{e}_i|$  In order to get rid of the problem of heteroskedasticity, the following model is proposed:

$$\frac{y1}{\sqrt{|\hat{e}_1|}} = B_0 \frac{1}{\sqrt{|\hat{e}_1|}} + B_1 \frac{X1}{\sqrt{|\hat{e}_1|}} + \dots + \frac{Xk}{\sqrt{|\hat{e}_1|}}$$

It is written as:

$$Z1 = B0 + B1W1 + B2W2 + B3W3$$

The model was estimated as shown in the following table:

**Table (2) Results of estimating the effect of the independent variables (W1, W2, W3) on the dependent variable Z1**

Model			Variables	
REM	FEM	PRM		
-0.322	-0.304	-0.407	Value of the constant C	The constant term
-1.81	-3.05	-3.33	The calculated value of t	
0.072	0.000	0.000	Probability Value p	
1.143	1.135	1.191	Coefficient Value of W1	Variable W1
10.59	10.28	9.74	The calculated value of t	
0.000	0.000	0.000	Probability Value p	
0.489	0.473	0.535	Coefficient Value of W2	Variable W2

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16.10	15.25	15.84	The calculated value of t	
0.000	0.000	0.000	Probability Value p	
-0.489	-0.471	-0.577	Coefficient Value of W3	Variable W3
-4.99	-4.72	-5.17	The calculated value of t	
0.000	0.000	0.000	Probability Value p	
0.995	0.996	0.992	Identification factor R <sup>2</sup>	
1.87	1.82	1.84	D.W Value	
9849.67	2125.70	7516.60	F Value	
0.000	0.000	0.000	Fisher Probability	

**Source: Implemented by the two researchers depending on Eview.9 program 7**

**a- The Results of Pooled Regression model (PRM):**

From the above table, it is noticed from the estimated model (PRM) that the value of the constant term (C) for this model is significant and at the level of significance (0.01), because the probability value of the t-test for the fixed term (0.000) was less than the level of significance (0.01). Accordingly, the null hypothesis, which states that the constant term is not significant, is rejected, and the alternative hypothesis, which states that the significance of the constant term, is accepted. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the ( $W_1$ ) is (0.000), which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an effect of significance for the debt ratio variable on the liquidity ratio, is accepted, and this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the liquidity ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the economic theory which states that the greater the debt ratio, the higher the liquidity ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a

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significant effect of the equity percentage variable on the liquidity ratio, This is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the liquidity ratio, and we note that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the liquidity ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance below the level of (0.01) because the probability value of the t-test for the ( $W_3$ ) coefficient is (0.000) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is an effect of the significance of the financing variable with deposits on the liquidity ratio. This is not consistent with the first hypothesis which states that there is no significant effect relationship for the variable financing with deposits on the liquidity ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which states that the higher the deposit financing, the higher the liquidity ratio. It is obvious that the significance of the calculated F value is below the significant level (0.01) because its probabilistic value amounted to (0.000), which is less than (0.01). This means that the estimated model as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.99) This means that the value of what is explained by the independent variables has reached (99%) of the changes that happened to liquidity ratio, which is a very high percentage. As for the remaining percentage, which is (1%), it is due to other factors that were not taken in the model and are included in the error. There is no auto-correlation of errors, as the value of  $DW = 1.84$  and it lies between DU and 2.

**b- Fixed Effects Model (FEM):**

From the above table, it is noticed from the estimated model (FEM) that the value of the constant term (C) for this model is significant and at the level of significance (00.1), because the probability value of the t-test for the fixed term (0.000) was less than the level of significance (0.01). Accordingly, the null hypothesis, which states that the constant term is not significant, is rejected, and the alternative hypothesis, which states that the significance of the constant term, is accepted. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the ( $W_1$ ) is (0.000), which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an

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effect of significance for the debt ratio variable on the liquidity ratio, is accepted, but this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the liquidity ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the economic theory which states that the greater the debt ratio, the higher the liquidity ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a significant effect of the equity percentage variable on the liquidity ratio. This is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the liquidity ratio, and we note that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the liquidity ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance below the level of (0.01) because the probability value of the t-test for the  $W_3$  coefficient is (0.000) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is a significance effect of the of the deposit financing variable on the liquidity ratio. This is not consistent with the first hypothesis which states that there is no significant effect relationship for the financing with deposits variable on the liquidity ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which states that the higher financing with deposit, the higher the liquidity ratio. It is obvious that the significance of the calculated F value is below the significant level (0.01) because its probabilistic value amounted to (0.000), which is less than (0.01). This means that the estimated model as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.99) This means that the value of what is explained by the independent variables has reached (99%) of the changes that happened to liquidity ratio, which is a very high percentage. As for the remaining percentage, which is (1%), it is due to other factors that were not taken in the model and are included in the random error. There is no auto-correlation of errors, as the value of D.W = 1.82 and it lies between DU and 2.

### **c- Random Effects Model (REM)**

Based on the above table, it is noticed from the estimated model (REM) that the value of the constant term (C) for this model is significant at the level of significance (0.01), because the probability value of the t-test for the fixed term (0.000) was less than the level of significance (0.01). Accordingly, the null hypothesis, which states that the constant term is not significant, is rejected, and the alternative hypothesis, which states that the significance of the constant term, is accepted. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the ( $W_1$ ) is (0.000), which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an effect of significance for the debt ratio variable on the liquidity ratio, is accepted, but this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the liquidity ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the economic theory which states that the greater the debt ratio, the higher the liquidity ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a significant effect of the equity percentage variable on the liquidity ratio. But this is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the liquidity ratio. It is clear that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the liquidity ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance below the level of (0.01) because the probability value of the t-test for the ( $W_3$ ) coefficient is (0.000) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is an effect of the significance of the internal financing variable on the liquidity ratio. This is not consistent with the first hypothesis which states that there is no significant effect relationship for the financing variable with deposits on the liquidity ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which

states that the higher the deposit financing, the higher the liquidity ratio. It is obvious that the significance of the calculated F value is below the significant level of (0.01) because its probabilistic value reached (0.000), which is less than (0.01). This means that the estimated model as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.99) This means that the value of what is explained by the independent variables has reached (99%) of the changes that happened to liquidity ratio, which is a very high percentage. As for the remaining percentage, which is (1%), it is due to other factors that were not taken in the model and are included in the random error. There is no auto-correlation of errors, as the value of  $D.W = 1.87$  and it lies between DU and 2.

#### **d- Choosing the Appropriate Model**

After estimating the three models for the study data, it is now possible to determine the most appropriate model among these models, according to two tests and in two stages. The first stage of the first test includes a comparison between the pooled model and the fixed effects model in order to find out which one is better. If the result of the first test was that the pooled model is more suitable for the data, we stop at this stage and consider the pooled model to be the most appropriate. But if the results indicate the preference or suitability of the fixed effects model over the pooled model, then we will move to the second stage or to the second test, which is the preference or comparison between the fixed effects model and the random effects. The first stage or the first test of the evaluation will be applied among the models using the restricted F test, which takes the mathematical formula shown as follows (Zaalan, 2020):

$$F = \frac{(R_{FEM}^2 - R_{PEM}^2)/(N - 1)}{(1 - R_{FEM}^2)/(NT - N - K)} \approx F(N - 1, NT - N - K)$$

**where:**

N: The number of banks

T: Length of time

K: Number of independent variables

$R_{FEM}^2$ : The coefficient of determination ( $R^2$ ) for the unrestricted model (FEM model):

$R_{PEM}^2$ : The coefficient of determination ( $R^2$ ) for the restricted model (PEM model)

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If the calculated F value is compared with the tabulated F value with a significant level of (0.05) and the degree of freedom of the numerator( $N - 1$ ) and denominator ( $NT - N - K$ ), in the event that the calculated result of F is greater than the tabulated F value, we reject the null hypothesis and accept the alternative hypothesis, meaning that the best model is the fixed effects model (FEM) and the same is true in reverse.

If the null hypothesis is rejected, the second stage (the second test) is applied for the preference between the fixed effects model and the random-effects model. This was done using the Housman test and in accordance with the following hypotheses:  
 $H_0$ : Fixed Effects Model better than Random Effects Model.

Random Effects Model better than Fixed Effects Model.

We accept the null hypothesis if the probability value of the chi-test statistic ( $\chi^2$ ) is less than 0.05.

The calculated F value of the previous table which is (10.59) was calculated, and when comparing it with the tabulated F value which is (1.77), it is noted that it is less, meaning that the fixed effects model is the best or most appropriate in the estimation.

So, the second stage is applied for the preference between the fixed effects model and the random-effects model. This is done using the Housman test which is calculated using Eview.7 program and according to the following assumptions (Shrooqi, 2018):

$H_0$ : Fixed Effects Model better than Random Effects Model.

$H_1$ : Random Effects Model better than Fixed Effects Model.

The result of the test is shown in the following table:

**Table (3) The value of the Housman test**

Prob.	Chi-Sq. d.f	Prob. Chi-Sq. Statistic	Test Summary
0.067	3	7.158	Cross-section random

**Source: Implemented by the two researchers depending on Eview.9 program**

It is noted that the probability value is (0.067) which is greater than (0.05), so we accept the null hypothesis and reject the alternative, meaning that the fixed effects model is the best.

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Based on the above, it can be concluded, according to the FEM model, that the financial leverage variable X1 (the ratio of total debts to total assets) and as shown by the coefficient of the independent variable X1 (1.135) is the most effective variable in the financial performance variable liquidity  $y_2$  (liquidity). As the change of X1 by one unit leads to the change of  $y_1$  by 113% compared to the rest of the resources of the financial structure. That is, the banks in the study sample, in raising their performance and choosing the financial structure, depend on the element of financial leverage represented by the variable X1.

1- In order to test the first main hypothesis of the study, which states that there is no clear significant effect of the independent variables {debt ratio ( $x_1$ ), equity ratio ( $x_2$ ), and deposit ratio ( $x_3$ )} on the dependent variable {the ratio of profitability( $y_1$ )}, the three longitudinal data models (PRM), (FEM), and (REM) with the double logarithmic model were used. The results are shown in the following two tables:

**Table (4) Results of estimating the effect of the independent variables (logX1, LogX3, LogX2) on the dependent variable logY2**

Model			Variables	
REM	FEM	PRM		
-2.297	-3.321	-3.325	Value of the constant C	The constant term
-2.13	-1.90	-2.16	The calculated value of t	
0.035	0.059	0.033	Probability Value p	
1.054	1.161	1.053	Coefficient Value of Logx1	variable Logx1
3.09	3.13	3.03	The Calculated Value of t	
0.002	0.002	0.003	Probability Value p	
0.414	0.242	0.473	Coefficient Value of X <sub>1</sub>	Variable Logx2
2.18	1.10	2.53	The Calculated Value of t	
0.031	0.275	0.013	Probability Value p	
-0.205	0.311	-0.257	Coefficient Value of X <sub>1</sub>	Variable Logx3
-1.18	1.28	-1.43	The Calculated Value	

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			of t
0.241	0.202	0.155	Probability Value p
0.10	0.29	0.08	Identification Factor R <sup>2</sup>
0.68	0.89	0.62	D.W Value
5.81	3.45	4.66	F Value
0.000	0.000	0.000	Fisher Probability

**Source: Implemented by the two researchers depending on Eview.9 program output 7**

Through Table (5), it can be noted, according to the PRM pooled regression model, that all the independent variables Log(X1), Log(X2), and Log(X3) are significant, that is, they are statistically significant at the 5% and 1% level. All probability values of the t-test were less than 5% for the changes of C (constant term), X2, and X3, while they are less than the 1% level of significance for the variable X1. The sign of the parameters was also consistent with the economic logic (positive), except for the variable X3 (negative). As for the significance of the model, as shown by the F-test, the model was significant at the 1% level of significance, as the probability value is  $0.004 < 0.01$ . While the explanatory power of the model, as indicated by the coefficient of determination R<sup>2</sup>, showed weakness in the interpretation of changes in the dependent variable according to the independent variables, where the value was (0.8), meaning that 20% of the changes in the dependent variable are due to factors not taken within the model and included within the random error. Besides, the model showed an auto-correlation of errors, as the value of D.W = 0.62, which lies between 0 and DL.

As for the fixed effects model (FEM), the results of estimating the non-significance of the fixed term and the variables X2 and X3 at the level of significance 5%, showed that the probability value of the t-test was less than 5%, while the variable X1 showed a significant effect at the level of significance 1% where p value of the t-test is (0.002) which is less than 1%. The model also showed a positive relationship for the variables X1 and X2, while the negative X3 did not agree with the economic logic. As for the significance of the model according to the F test, the model was significant at 1% level because the probability value is (0.000) which is less than 1%, while the explanatory power of the R<sup>2</sup> model

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increased to 0.29. It is noted that the persistence of the problem of auto-correlation of errors  $D.W = 0.89$ .

As for the random effects model (REM), it showed the significance of all the independent variables at 5% level (for C, X1, X2, and the negative sign of the variable X3). For the significance of the model as a whole, as shown by choosing F, the model was significant at 1% level, while the explanatory powers of the model, as shown by the coefficient of determination  $R^2 = 0.8$ , meaning that 20% of the changes in  $y_2$  are explained by factors not included in the model and the problem persisted. The auto-correlation of errors is the same as with the rest of the previous models, where the value of  $D.W = 0.88$  which lies between 0 and DL.

The study noticed that the problems of heteroskedasticity and autocorrelation in the study data, which prevents the emergence of the effect of some variables, as well as the presence of the opposite effect of some of them, as the presence of the problem of heteroskedasticity was revealed using the White test, which was mentioned earlier using the Lagrange multiplier statistic ( $LM = Nr^2$ ), as the study calculated the coefficient of determination of the remainders squares model and all the independent variables, and its value was (0.65), and when calculating LM it was ( $LM=24.06$ ), which is greater than ( $=15.52\chi_6^2$ ) at a level Significance of 0.05, meaning that the model suffers from the problem of heteroskedasticity, and assuming that the variance of the error term is a linear function in terms of the remainders of the model:

$$E(e_i^2) = \sigma^2 |\hat{e}_i|$$

**In order to get rid of the problem of heteroskedasticity, the following model is proposed:**

$$\frac{\log y_2}{\sqrt{|\hat{e}_1|}} = B_0 \frac{1}{\sqrt{|\hat{e}_1|}} + B_1 \frac{\log X_1}{\sqrt{|\hat{e}_1|}} + \dots + \frac{\log X_k}{\sqrt{|\hat{e}_1|}}$$

**It is written as:**

$$Z_2 = B_0 + B_1 W_1 + B_2 W_2 + B_3 W_3$$

The model was estimated as shown in the following table:

**Table (5) Results of estimating the effect of the independent variables (W1, W2, W3) on the dependent variable Z2**

Model			Variables	
REM	FEM	PRM		
-0.030	-0.047	-0.019	Value of the constant C	The constant term
-0.32	-0.57	-0.237	The Calculated Value of t	
0.751	0.569	0.813	Probability Value p	
0.505	0.531	0.497	Coefficient Value of W1	Variable W1
6.05	6.01	5.97	The Calculated Value of t	
0.000	0.000	0.000	Probability Value p	
0.136	0.106	0.148	Coefficient Value of W2	Variable W2
5.63	3.53	6.69	The Calculated Value of t	
0.000	0.000	0.000	Probability Value p	
-0.225	-0.221	-0.220	Coefficient Value of W3	Variable W3
-2.81	-2.65	-2.86	The Calculated Value of t	
0.006	0.009	0.005	Probability Value p	
0.995	0.97	0.97	Identification Factor R <sup>2</sup>	
0.72	0.88	0.66	D.W Value	
1658.81	336.84	1760.05	F Value	
0.000	0.000	0.000	Fisher Probability	

**Source: Implemented by the two researchers depending on Eview.9 program 7**

**a- The Results of Pooled Regression model (PRM):**

From the above table, it is noticed from the estimated model (PRM) that the value of the constant term (C) for this model is not significant at the level of significance (0.05), because the probability value of the t-test for the fixed term

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(0.813) was less than the level of significance (0.05). Accordingly, the null hypothesis, which states that the constant term is not significant, is accepted, and the alternative hypothesis, which states that the constant term is significant, is rejected. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the coefficient ( $W_1$ ) is (0.000) which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an effect of significance for the debt ratio variable on the profitability ratio, is accepted. But this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the profitability ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the economic theory which states that the greater the debt ratio, the higher the profitability ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a significant effect of the equity percentage variable on the profitability ratio. But this is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the profitability ratio, and we noticed that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the profitability ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance below the level of (0.01) because the probability value of the t-test for the ( $W_3$ ) coefficient is (0.005) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is an effect of the significance of the financing variable with deposits on the profitability ratio. But this does not agree with the first hypothesis which states that there is no significant effect relationship for the variable financing with deposits on the profitability ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which states that the higher the deposit financing, the higher the profitability ratio. It is obvious that the significance of the calculated F value is below the significant level (0.01) because its probabilistic value amounted to (0.000), which is less than (0.01). This means that the estimated model

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as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.97) This means that the value of what is explained by the independent variables has reached (97%) of the changes that happened to liquidity ratio, which is a very high percentage. As for the remaining percentage, which is (3%), it is due to other factors that were not taken in the model and are included within the random error. Also, there is no auto-correlation of errors, as the value of D.W = 1.81 which lies between DU and 2.

**b- Fixed Effects Model (FEM):**

From the above table, it is noticed from the estimated model (FEM) that the value of the constant term (C) for this model is not significant at the level of significance (0.05), because the probability value of the t-test for the fixed term (0.569) was less than the level of significance (0.05). Accordingly, the null hypothesis, which states that the constant term is not significant, is accepted, and the alternative hypothesis, which states that the constant term is significant, is rejected. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the coefficient ( $W_1$ ) is (0.000) which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an effect of significance for the debt ratio variable on the profitability ratio, is accepted. But this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the profitability ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the economic theory which states that the greater the debt ratio, the higher the profitability ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a significant effect of the equity ratio variable on the profitability ratio. But this is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the profitability ratio, and we noticed that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the profitability ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance

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below the level of (0.01) because the probability value of the t-test for the ( $W_3$ ) coefficient is (0.009) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is an effect of the significance of the financing variable with deposits on the profitability ratio. But this does not agree with the first hypothesis which states that there is no significant effect relationship for the variable financing with deposits on the profitability ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which states that the higher the deposit financing, the higher the liquidity ratio. It is obvious that the significance of the calculated F value is below the significant level (0.01) because its probabilistic value amounted to (0.000), which is less than (0.01). This means that the estimated model as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.98) This means that the value of what is explained by the independent variables has reached (98%) of the changes that happened to liquidity ratio, which is a very high percentage. As for the remaining percentage, which is (4%), it is due to other factors that were not taken in the model and are included within the random error. Also, there is no auto-correlation of errors, as the value of D.W = 1.85 which lies between DU and 2.

**c- Random Effects Model (REM):**

From the above table, it is noticed from the estimated model (REM) that the value of the constant term (C) for this model is not significant at the level of significance (0.05), because the probability value of the t-test for the fixed term (0.751) was less than the level of significance (0.05). Accordingly, the null hypothesis, which states that the constant term is not significant, is accepted, and the alternative hypothesis, which states that the constant term is significant, is rejected. It is also noticed that the coefficient of the variable ( $W_1$ ) has a significance below the level of significance of (0.01) and that the probability value of the t-test for the coefficient ( $W_1$ ) is (0.000) which is less than (0.01). Therefore, the null hypothesis is rejected and the alternative hypothesis, which states that there is an effect of significance for the debt ratio variable on the profitability ratio, is accepted. But this does not agree with the first hypothesis which states that there is no statistically significant effect relationship for the debt ratio variable on the profitability ratio, and we accept the alternative that states that there is an effective relationship. It is also clear that the sign of the positive parameter agrees with the

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economic theory which states that the greater the debt ratio, the higher the profitability ratio. It is also concluded from the table that the coefficient of the variable ( $W_2$ ) is significant under the level of (0.01) significance because the probability value of the t-test for the coefficient of  $W_2$  which is (0.000) is less than 0.01, so we reject the null hypothesis and accept the alternative hypothesis which states that there is a significant effect of the equity ratio variable on the profitability ratio. But this is inconsistent with the first hypothesis which states that there is no statistically significant effect of the equity ratio variable on the profitability ratio, and we noticed that the positive parameter sign is consistent with the economic theory which states that the higher the equity ratio, the higher the profitability ratio. It is also concluded that the coefficient of the variable ( $W_3$ ) has a significance below the level of (0.01) because the probability value of the t-test for the ( $W_3$ ) coefficient is (0.006) which is less than (0.01). Therefore, we reject the null hypothesis and accept the alternative hypothesis that states that there is an effect of the significance of the financing variable with deposits on the profitability ratio. But this does not agree with the first hypothesis which states that there is no significant effect relationship for the variable financing with deposits on the profitability ratio. It is also clear that the sign of the negative parameter does not agree with the economic theory which states that the higher the deposit financing, the higher the liquidity ratio. It is obvious that the significance of the calculated F value is below the significant level (0.01) because its probabilistic value amounted to (0.000), which is less than (0.01). This means that the estimated model as a whole is significant, and the value of the coefficient of determination ( $R^2$ ) has reached (0.97) This means that the value of what is explained by the independent variables has reached (97%) of the changes that happened to profitability ratio, which is a very high percentage. As for the remaining percentage, which is (3%), it is due to other factors that were not taken in the model and are included within the random error. Also, there is no auto-correlation of errors, as the value of D.W = 1.82 which lies between DU and 2.

**d- Choosing the Appropriate Model:**

In order to compare the PRM and FEM in order to find out which one is better, the restricted F test was used. So, the researcher counted the calculated F value for the previous table and it was (1.98). When compared with the tabulated F value of (1.77) noted that it is greater than it, i.e., the FEM is the best or most

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appropriate in estimating. So the second stage will be applied for the preference between the FEM and REM using the Housman test, whose value was calculated using the Eview.9 program, according to the following assumptions (Zaalan, 2020):

H<sub>0</sub>: Fixed Effects Model better than Random Effects Model.

H<sub>1</sub>: Random Effects Model better than Fixed Effects Model.

The result of the test is shown in the following table:

**Table (6) The value of the Housman test**

<b>Prob.</b>	<b>Chi-Sq. d.f</b>	<b>Prob. Chi-Sq. Statistic</b>	<b>Test Summary</b>
<b>0.275</b>	<b>3</b>	<b>3.876</b>	<b>Cross-section random</b>

**Source: Implemented by the two researchers depending on Eview.9 program**

It is noted that the probability value is (0.257) which is greater than (0.05), so we accept the null hypothesis and reject the alternative, meaning that the fixed effects model is the best.

It can be concluded from the above and according to the fixed effect model that the variable  $x_1$  (total debts to total assets) represents the most influential variable in the dependent variable  $y_2$  (profitability), where the results showed that changing  $x_1$  by one unit leads to a positive change in profitability by 53%, which means that the financial performance represented by the profitability ratio is more responsive to changes in the financial leverage represented by total debts to total assets compared to the rest of the structural elements included in the model.

### **Conclusions**

- There is no specific way to choose the sources of the financial structure, as the decision of the financial structure depends on the conditions of the surrounding environment and the conditions of the institution itself.
- The main difference between the financial structure of commercial banks and other institutions is represented in debts, as debt in non-financial institutions is part of the financing activity. While in banks, debts, including deposited money, are the raw materials for their activities, as they generate value itself.

*Listed in the Iraqi Stock Exchange using the Panel Data Model*

- The financial structure in the Iraqi banks (the study sample), during the investigated period, depends on the financial leverage represented by the total debts to the total assets in a greater percentage in raising the financial performance compared to the internal sources of funding, since these banks have no choice but to deal with the debts they obtain from deposits and short-term loans. Deposits are considered the main source of financing in the bank and the least expensive compared to other sources of financing, in addition to the laws and legislation imposed by the Central Bank regarding the owned capital, which prevents relying on it for investments.
- The financial leverage variable (the ratio of total debts to total assets) is the most influential variable in the financial performance variable (liquidity), as the change in the debt ratio by one unit leads to a change in the liquidity ratio by 113% compared to the rest of the sources of the financial structure.
- The financial leverage variable (the ratio of total debts to total assets) is the most influential variable in the financial performance variable (profitability), as the change in the debt ratio by one unit leads to a change in the profitability ratio by 53% compared to the rest of the sources of the financial structure.
- Commercial banks have found a basis to be institutions with high financial leverage unlike all other institutions, and their main work is concentrated in accepting deposits and granting credit, so they should have a debt ratio that exceeds the capital ratios, since banks, in general, prefer financing through deposits and loans, i.e., by gaining the trust of customers and the market.

### **Recommendations**

- 1- Financing sources must be diversified and not just a specific source for the purpose of achieving growth and continuity.
- 2- Attracting depositors through mutual trust between the bank and the customer by setting up a complete marketing program that helps increase this source.
- 3- Setting up specialized committees in each bank whose mission is to manage deposits and invest them in projects with appropriate returns.
- 4- Setting up specialized committees in each bank whose mission is to manage assets and liabilities, and follow certain rules and a certain level of organization for

the purpose of achieving appropriate returns that lead to an increase in the bank's market value and give it a competitive advantage, thus raising the level of profitability and liquidity.

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