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The effectiveness of bank financing in enhancing the gross domestic product of a sample of Arab countries during the period 2018:1-2021:4

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Abstract:
Within our study, we aim to clarify the impact of bank financing on enhancing the gross domestic product, given the reforms that affected the banking system in the Arab countries and the remarkable technological development that it witnessed, Which makes him able to finance projects and the economy as a whole and achieve the goals of economic policy, so the problem of the study is limited to a question Its essence includes knowledge of the causal relationship from bank financing to GDP in a sample and study period, and therefore we assume that increasing the levels of both loans, deposits and liquidity contribute positively to the GDP, and we concluded using the panel model that the explanatory variables have a significant impact on the dependent variable In the long term, Therefore we recommend a tight implementation of financial inclusion steps within an effective digital transformation.
Keywords: banking financing, Gross domestic product, bank deposit, bank loans, domestic liquidity .
JELClassificationCodes : E51; G21; O43

1. INTRODUCTION

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The growth of economic sectors in most advanced and developing countries is linked to the development of their banking sector, which is considered one of the basic constituents for achieving economic development, This is demonstrated by the role played by the banking sector in mobilizing the available financial resources in the economy, and granting them in the form of credit facilities to economic institutions. Therefore, it has become dependent on this sector as a major financing channel for the economy, and the basic guarantee for the provision of all financial services needed by various economic activities.

The efficiency of the banking sector in performing its duties effectively form is based on a clear audited by competent bodies within the bank in directing financing for projects aimed at achieving an added value in the economy. Hence, the majority of Arab countries have resorted to focusing their interests in banking reforms to keep pace with developed countries in managing their banking sector, especially with regard to It is related to improving bank financing operations, in order to strengthen the efficiency of its banking sector with the aim to move the wheel of economic activity. Knowing the impact of bank finance in the Arab countries on the volume of production, we decided to ask the following main question: **How does bank finance contribute to the growth of GDP in Arab countries?**

Sub-questions: Based on the main question posed, we can present the following sub-questions:

- What do we mean by bank financing, and why is his important?;
- What drives economic institutions to use bank financing?;
- How do bank financing indicators affect gross domestic product?.

Hypotheses: To answer the content of the main question, the following hypotheses should be formulated:

- High levels of deposits lead to boosting the GDP of Arab countries;
- The high levels of bank loans lead to the enhancement of the domestic product of Arab countries;
- The high levels of domestic liquidity contribute to the enhancement of the GDP of Arab countries.

Research importance: The importance of the research stems from the role played by banking institutions, which represent the core of the financial system and one of the main financial channels that contribute to achieving economic development, through the mobilization of financial resources and granting them in the form of credit facilities for productive and investment projects that contribute to achieving great productivity rates.

Research objective: We aim, based on panel models, to reveal the relationship and the role that bank financing plays in enhancing the gross domestic product of Arab countries, based on Panel models.

The limits of the research: the components of the problem, especially the question posed and

the hypotheses formulated in the research, in light of achieving the desired goal, provide us with the possibility of limiting the time and spatial framework as follows:

- **Spatial Delimitation:** we use a panel of Arab countries: Jordan, Tunisia, Saudi Arabia, Palestine, Egypt, Oman, Morocco;

-**Time frame**: the study period spanned from the first trio of 2018 to the fourth trio of 2021;

The scientific method: The nature of the research topic requires relying on the inductive approach using standard statistical and economic tools to estimate the relationship between bank financing indicators and the gross domestic product of the studied sample.

Search Sections: the research was divided - in our perception of its treatment two aspects, one theoretical and the other application aspect - into two axes:

-The first axis: Bank financing of the economy;

-The second axis: measuring the goal of bank financing.

Previous studies

-Study (Belhouchet & Gaboussa, 2020) This study aims to identify trends of the causal relationship between bank financing and economic growth in Morocco between 1980 and 2018, for this purpose, we used Toda and Yamamoto (1995) Approach to test causality in the long run, Which is based on estimating Augmented Vector autoregression model, The study concluded that there is a Unidirectional causal relationship going from bank financing towards economic growth, In addition to another relationship going from the lending interest rate to economic growth in the long-run, and the study also concluded that there is a Unidirectional causal relationship going from bank financing towards the lending interest rate and broad money in the longrun.

- Study (hasan, 2015) This study aimed to show the extent of the contribution of bank financing to Iraqi banks in achieving sustainable economic growth during the period 2000-2010, using the spss program, This study concluded that there is a positive statistical relationship between bank financing and sustainable economic growth.

- Study (jilali bin faraj & khalifat, 2021) This study aimed to show the impact of the main activities of the Algerian banks represented in each of the volume of loans and deposits on economic growth through a quantitative study of the period 1990-2018, This study concluded that bank financing is an effective tool to increase and stimulate economic growth in Algeria.

- Study (auadi, lebza, & difi, 2018) The objective of this study is to examine the effect of banking financial intermediation services on economic growth in Algeria during the period 1990-2015, using the methodology (OLS, VAR, GRANGER(, The real GDP was used as an indicator of economic growth. M2, assets and deposits of banking intermediaries, Outside banks, short-term loans, medium and long-term loans as variables for the development of banking financial intermediation institutions. The study concluded that there is a positive effect of independent variables on economic growth

- Study (Nassim Hassan, 2015) This study aimed to know the impact of financial intermediation on the Palestinian gross domestic product, by addressing the most important theories explaining this, This study also built a standard model that illustrates the nature of the relationship between bank financing indicators and GDP, and concluded that bank loans granted by Palestinian banks have a positive impact on GDP.

- Study (Were, Nzomoi, & Rutto, 2012) This paper investigates the impact of access to bank credit on the economic performance of key economic sectors using sectoral panel data for Kenya, It found a positive and significant effect of credit on measured sectoral gross domestic product measured as real value added. However, the magnitude of the impact is smaller once factors such as the labour employed and past economic performance of the sectors are taken into account, Therefore, this study recommended the adoption of policies aimed at deepening the financial sector and increasing access to credit to enhance economic performance.
- Study (King & Ross, 1993) This study tried to provide evidence through several models consistent with Schumpeter's vision, which states that the banking and financial system contribute to enhancing economic growth, and to achieve this, a sample study consisting of was conducted 85 a developed country, Based on this, this study concluded that bank financing enhances economic growth.

2. Bank financing of the economy

The majority of Arab countries, like other developed countries, have sought to reach acceptable levels of GDP by paying attention to the financial sector, especially the banking sector, which is considered as a channel for financing the economy, through the mobilization of financial resources and granting them in the form of facilities for economic institutions. In light of the above and to understand the content of bank financing, we will address the following elements:

2.1 Definition of bank finance

The issue of bank financing has attracted the attention of many economists because of its important role in financing and developing the economies of developed countries. It is also considered one of the important and basic operations carried out by banking institutions ((Belhouchet & Gaboussa, 2020, p. 341):

- Legal definition: Any business through which an institution prepared for this purpose collects a temporary amount of money at the disposal of a natural or legal person, in exchange for an undertaking to pay on time;
-Economic definition: Bank financing is the provision by banks (the lender) of all possible credit facilities to individuals and business institutions (borrowers) in order to meet their financing needs for various activities and on limited and different terms, in exchange for the banks obtaining certain benefits;
-It is the trust that the commercial bank generates for a person when he puts some money at his disposal or guarantees it for a limited period agreed upon by both parties, and in the end the borrower fulfills his obligations. (zardali, 2020-2021, p. 96);
- The concept of bank financing is the transfer of capital from places of abundance to places of scarcity, and the process is carried out through financial intermediaries (abadeh & Milhem, 2019, p. 288);
- It expresses purchasing power that is not derived from income but rather from financial institutions, either as compensation for disrupted income of bank depositors, or as an addition to the total net amount of purchasing power (Mawaddah Abdul Rahman, 2020, p. 39).

Through the previous definitions, determining the essence of the concept of bank finance lies in the banking institutions granting credit to people who suffer from financial deficit in return for the return that these institutions obtain from this process, and the importance of bank finance can be summarized in the following points (Al-Saqqaf, Al-

Shaghdari, & alzaraafah, 2021, p. 16):
-Providing the necessary capital to complete productive projects;
- Providing new job positions, that eliminate unemployment in the economy;
-Achieving the economic development of the country;
-Achieving the set goals of the state.

2.2 Motives for economic institutions' resort to bank financing

The main objective that every economic institution aims at is to achieve the greatest return that covers the requirements of companies and institutions and covers their requirements and obligations. There are other objectives represented in (Bashir Al-Maghrib, 2020, pp. 13-14) :
- Achieving the optimal guarantee of the continuity of institutions and their ability to fulfill their obligations and achieve the best possible profit;
- The ability to take appropriate decisions to achieve the link between the policies of different activities as an accurate and targeted method for the optimal use of the financing capabilities available in production and service institutions;
-Achieving the maximum current value of the facility and its owners, i.e. maximizing long-term profit;
- Expand and amplify the company and achieve the maximum value of the company in total terms;
-Achieving the maximum wealth for shareholders by giving the maximum benefit for them;
-Achieving maximum profit in order for giving maximum wealth by increasing the company's total profit and increasing earnings per share.

2.3 Bank financing formulas

In general, loans to economic institutions are directed towards the investment and exploitation cycles, as follows (Bin Harith & Yousfi, 2012, pp. 46-51):

2.3.1 Bank financing formulas Forms of bank financing directed at exploitation activities: Exploitation activities mean all the operations carried out by enterprises within a short period not exceeding a year: such as production, storage, purchase and sale." These activities take the bulk of bank loans and are considered the best types of employment for them, because of their low risks, In view of this, banks follow several ways to finance them, depending on the type of sector in which they are active or their These loans can be classified into:

2.3.1.1General loans: These are called public loans because they are intended to finance current assets. Also called fund loans or treasury loans, Small and medium enterprises resort to it to face temporary financial difficulties. These loans consist of (Loraty, 2016, p. 201) :

-Fund facilities: They are loans given to alleviate temporary or very short liquidity difficulties faced by the customer, resulting from the delay in revenues over expenditures, and such loans are resorted to in certain periods, such as the end of the month, for example (Latrash, 2005, p. 58), The bank offers this type of loan within a

certain amount and for a period of time not exceeding the number of days of the month ((Bin Harith & Yousfi, 2012, p. 47);

-Overdraft: This loan is given to institutions that suffer from a temporary deficit in the treasury (Suleiman, 2015, p. 52), Caused by insufficient working capital, and materially embodied in the possibility of filling up the client's account within a certain amount and for a relatively longer period that may reach a whole year (Latrash, 2005, p. 59);

-Seasonal loans: These are loans granted to institutions that conduct their activities seasonally, with the intention of covering the costs of raw materials and other banks, such as transportation and storage. It can be granted for a period of usually nine months (Bin Harith & Yousfi, 2012, p. 48);

-relay credit: They are loans granted to the customer to meet the need for liquidity required to finance a financial transaction that is almost certain to be achieved, but is only deferred for external reasons (Latrash, 2005, p. 61).

2.3.1.2private loans: These loans are not directed to financing current assets in general, but rather to finance a specific asset, among these assets, These loans are divided into the following (Latrash, 2005, pp. 62-66):

- Advances on goods: It is a loan provided to the customer to finance a specific, and obtaining, in return, these goods as security for the loan;
- Advances on public deals: They are those loans granted by banks to contractors for the execution of works for the benefit of public authorities;
- Commercial discount: It is a form of loan granted by the bank to the customer. The process of discounting the commercial paper is when the bank purchases the commercial paper from its holder before the due date, The discount process is considered a loan, given that the bank gives money to its holder and waits for the maturity date to collect this debt;

2.3.2Forms of bank financing directed to investment activities: Financing investment activities requires forms and methods commensurate with their type, and thus the bank is on the verge of freezing its funds for a period not short, as it may range between two and more than ten years, depending on the nature of the investment, and from it we can distinguish between financing through medium-term loans and financing through long loans (Bin Harith & Yousfi, 2012, pp. 50-51) :

- Medium-term bank financing formulas: the term of the medium-term loan ranges from 1 year to 5 years and sometimes 7 years and includes purchases of equipment and machinery (investment financing);
- Long-term bank financing formulas: The term of long-term loans exceeds 5 years or 7 years, and is granted for the purpose of establishing new projects or developing or expanding existing ones. These loans are also usually granted to large institutions that have a market share and position in the market.

2.4Theories explaining the relationship between banking finance and economic growth

Many researchers have studied and analyzed the relationship between banking finance and economic growth, They affirmed this positively, and the controversial matter is the direction of the causal relationship between finance and economic growth, When the causal relationship is directed from financial development to economic growth, we call this case the supply-leader hypothesis, meaning that the activities of financial institutions, such as increasing the supply of financial services, will create economic growth, And when economic growth leads to an increase in demand for financial services, and this stimulates economic development at a later time, it is called the "demand-dependent" hypothesis, There are scholars who believe that causation is in both directions (alqursu & ghazi, 2017, p. 81), These theories can be summarized as follows (alqursu & ghazi, 2017, p. 82):

-supply leading: Proponents of this theory believe that banking activities are a useful tool for increasing a country's productivity, and they believe that countries with a developed banking system tend to grow faster, The results of most studies also showed that bank financing does not follow growth, but rather it is important for driving economic growth, and this supports the saying that financial services stimulate economic growth, Among the most important studies whose results turned out to support this view are (Thierry, Jun, & Eric, 2016, pp. 664-671) (Belhouchet & Gaboussa, 2020):

In 1997, Levine explored the causal relationship between financial development (increased bank financing) and economic growth. He concluded that bank financing stimulates economic growth by increasing the investment rate and allocating capital to more productive projects, To explain the relationship further, the researcher presented five functions performed by Financial intermediation promotes economic growth: (Belhouchet & Gaboussa, 2020, pp. 343-344):

- Mobilization of savings;
- promoting the optimal allocation of resources by obtaining information on projects;
- Ensure supervision of project owners and control of companies;
- managing the exchange of goods and services;
-Facilitating financial transactions, hedging risks, diversifying assets, and dividing risks.

By using these functions, the researcher was able to clarify the causal relationship between the financial sector and economic growth from a statistical point of view. He found that each of the five major functions contributes to capital accumulation and the process of technological development, which fuels economic growth.

- **Demande Following**: In contrast to the "supply leading" hypothesis, under the "Demande Following" hypothesis, economic growth is one of the factors that lead to

an increase in bank financing (financial development). According to the proponents of this theory, the growth of the real sector leads to an increase in the per capita GDP, which leads to an increase in the demand for financial services, One of the most important studies that support this view is a study (EMECHETA & Ibe, 2014, pp. 11-21) **-Bi-directional causality:** Supporters of this view concluded that there is a two-way relationship between bank finance and economic growth.

3. Measuring the goal of bank financing

Bank financing in the developed countries contributed to moving the economic activities of these countries, which made them achieve acceptable economic growth rates, and for this the Arab countries tried to develop their production systems by increasing the volume of bank financing, and shedding light on that We will try to conduct a standard study through the following steps:

3.1 The method and tools used

To test the hypotheses given in the introduction to the study, the method and tools used should be determined as follows:

3.1.1 Sample and study period

The study community consists of 22 Arab countries, and we have tried to collect the largest possible number of Arab countries that provide us with statistics on bank financing indicators as well as indicators of GDP.

The method of data inventory and sample selection is to use the non-random sampling method by selecting certain countries to be included in the sample on the grounds that they represent the well-studied community, and the judgmental or intentional sample was extracted due to the availability of data for some Arab countries. This sample is represented by: Jordan, Tunisia, Saudi Arabia, Palestine, Egypt, Oman, Morocco, For the period from: first trio 2018- The fourth trio 2021.

3.1.2 Determining the study variables

study variables are determined based on the multiple regression method as a model for economic measurement on the one hand, and on what was stated in the empirical studies on the other hand within the following table:

Table 1. Standard study variables

symbo		Explanation
		dependent variable
y	Gross domestic product	It expresses the total value of final goods and services produced by a country during a specified period of time, usually a year (brish, 2007, p. 61) .
		independent variables
$\mathbf{X_1}$	total deposits	Deposit can be defined as everything that individuals or organizations do by placing it in banks temporarily, short or long, for the purpose of keeping or employment (litarash, 2005, p. 25).

$\mathbf{X_2}$	total loans	The loan is defined as the trust that the bank generates for a person, whether this person is natural or legal, as it puts at his disposal a sum of money, for a specific period agreed upon by the two parties, at the end of which the borrower fulfills his obligations (rays, 2009, p. 67).
$\mathbf{X_3}$	Total Domestic Liquidity	Domestic liquidity expresses the sum of money circulating outside or the sum of the means of temporary holding of purchasing power, and it includes the M1 complex (which includes besides the amount of legal money in circulation + the volume of demand deposits) plus time deposits, and this pool is considered the best monetary community, because it affects the economic movement (Ben Ali & Mahmoudi, 2008, p. 29) .

Source: Prepared by researchers

3.1.3 Data and tools of the study:

The data for the study variables were collected from the Arab economies competitiveness report issued by the Arab Monetary Fund, as well as the adoption of World Bank data and their unloading within the program (stata.15), In order to build a standard model that shows the nature of the relationship between the variables of the multiple regression model for a sample of Arab countries During the specified time period from the first trio of 2018 to the fourth trio of 2021, we resorted to using panel models or what is known as cross-sectional time-series data, which combines the characteristics of cross-sectional data and time-series.

3.2 Presentation and analysis of results:

In this regard, based on the method and tools used in the empirical study, we seek to extract and analyze the results of the optimal panel model as shown below:

3.2.1 differences between the panel models:

there are three models well used which are the aggregative model, the fixed model and the random model, so it is necessary to start building the panel model for each of the three types using the program (stata.15) as shown in the table 2..

Table 2. Estimation results of the panel model

explanatory variables	Pooled Regression Model (PME)	Fixed Effects Model (PEM)	Random Effects Model (REM)
X_1	0.7692274	0.2571778	0.4573178
	(0.000)	(0. 048)	(0.002)
X_2	0.5123102	0.1014386	0.5638008
	(0.000)	(0.496)	(0.000)
X_3	-0.2720463	-0.0452518	-0.1312973
	(0.000)	(0.153)	(0.000)
Constant (c)	-1.24771	7.182197	0.2017252
	(0.000)	(0.000)	(0.40)
Number of obsevation	112	112	112
R-squared	0.9937	0.9988	-
Adjusted R-squared	0.9936	0.9987	-

Prob (F-Stat)	0.0000	0.0007	0.000

Source: Prepared by researchers based on the results of the program (stata.15), Appendix 1

In order to choose the appropriate panel model for our study (the differentiation between the three models), we conduct a set of the following necessary binary tests:

- Breusch and Pagan test: we use it to compare between the Pooled Regression Model and the random effects model. The hypothesis of this test is formulated as follows:

$$\begin{cases} H_0: \text{no randam effect (Pooled Regression Model)} \\ H_1: \text{There is a random effects model (REM)} \end{cases}$$

This test within the program (stata.15) leads to the calculation of both chibar2 (01) and Prob>chibar2, the results of which are summarized in the following table:

Table 3. Breusch and Pagan test results

chibar2(01)	291.47
Prob> chibar2	0.0000

Source: Prepared by researchers based on the results of the program (stata.15), see Appendix No2.

We note from the table that the value of Prob> chibar2 is statistically significant, i.e. less than 5%, so we accept the alternative hypothesis (H1) which indicates the presence of random effects, meaning that we choose the a random effects model.

- Hausman test: It is used to compare between the fixed effects model and the random effects model, within two hypotheses:

$$\begin{cases} H_0 : \text{Random Effects Model (REM)} \\ H_1: \text{Fixed Effects Model (PEM)} \end{cases}$$

This test is based on a differentiation tool by calculating chi2(10) and Prob>chi2, which were results using the program (stata.15) in the table below:

Table 4. Hausman test results

chi2(3)	43.39
Prob>chi2	0.**000**

Source: Prepared by researchers based on the results of the program (stata.15), Appendix No3.

It is evident from the value of Prob>chi2 in the above table that the probability value of the test is statistically significant at 5%, which leads us to accept the alternative hypothesis (H_1) and consider the fixed-effects model to be preferable compared to the random-effects model.

- Constrained Fisher test: It represents a test to compare between the Pooled Regression Model and the fixed effects model, by verifying the presence of individual effects within two hypotheses given as follows:

$$\begin{cases} H_0: \text{ No Fixed Effects Mode (Pooled Regression Model)} \\ H_1: \text{There is a fixed effects model} \end{cases}$$

Table 5. Results of the restricted Fisher test.

F(6, 102)	74.98
Prob> F	0.0000

Source: Prepared by researchers based on the results of the program (stata.15).

It is clear from the results of this test that the value of F(6, 102) which is equal to

74.98 is significant at the level of significance 5% (because: Prob> F = 0.0000 < 0.05), So the constant fixed effects model is the best model compared to the Pooled Regression Model.

3.2.2 Examine the validity of the optimal model:

Through the results of previous tests, the optimal model reflecting the relationship between the study variables is the fixed effects model, but before adopting its results, it should be ensured that it is free of standard problems, both of the problems of self-association of errors and of the problem of heteroskedasticity:

- **Wooldridge test**: The autocorrelation of errors measures the degree of correlation between values for the same variable during a specified period of time where the results of this test were as follows:

```
xtserial y x1 x2 x3
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      5.765
    Prob > F =      0.0335
```

Source: Prepared by researchers based on the results of the program (stata.15)

The results of the test to detect the autocorrelation problem within the Wooldridge test showed that the probability value is less than 0.05, so we can reject the null hypothesis and accept the alternative hypothesis (the presence of an auto-correlation problem).

- **Modified Wald test**: It aims to find out the heterogeneity of the variance, by the command (xttest3) in the program (stata.15), as indicated the command results below:

```
. xttest3
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (7)  =       26.43
Prob>chi2 =      0.0004
```

Source: Prepared by researchers based on the results of the program (stata.15)

We conclude from the results of the Modified Wald test that the random effect model has the problem of heterogeneity of variance, given that the statistical significance Prob> F is less than 5% (rejecting the null hypothesis and accepting the alternative hypothesis).

3.2.2 The estimated model and analysis of the results

Through the results of tests, we find that the fixed effects model suffers from standard problems (the problem of autocorrelation of errors and the problem of homogeneity), and to address these problems in the optimal model, we use the error correction method, or what is known as the method of correcting errors. (xtpcse) (Danie, 2007, p. 285), If the cross-sectional data chain is greater than the number of time periods, we turn to it.

It is also one of the most important methods used in cross-sectional time-series data in which the number of observations is few (Ilifi & Seri, 2020, p. 47), and by entering the data into the command (xtpcse), the results are as follows:

```
. xtpcse y x1 x2 x3
```

```
Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable:   ind                             Number of obs     =         112
Time variable:    date                            Number of groups  =           7
Panels:           correlated (balanced)           Obs per group:
Autocorrelation:  no autocorrelation                                min =          16
                                                                    avg =          16
                                                                    max =          16
Estimated covariances      =        28           R-squared         =      0.9937
Estimated autocorrelations =         0           Wald chi2(3)      =   146334.89
Estimated coefficients     =         4           Prob > chi2       =      0.0000

------------------------------------------------------------------------------
             |            Panel-corrected
           y |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .7692274   .0406314    18.93   0.000     .6895913    .8488635
          x2 |   .5123102   .0242777    21.10   0.000     .4647268    .5598936
          x3 |  -.2720463   .0351357    -7.74   0.000     -.340911   -.2031817
       _cons |  -1.247771   .0358525   -34.80   0.000     -1.31804   -1.177501
------------------------------------------------------------------------------
```

Source: Prepared by researchers based on the results of the program (stata.15)

4. RESULTS AND DISCUSSION

After addressing the two problems of autocorrelation of errors and heterogeneity of variance and based on most of the previous statistical tests, the optimal model can be written according to the following formula:

$$\boldsymbol{y = -1.247771 + 0.7692274}X_1 \boldsymbol{+ 0.5123102}X_2 \boldsymbol{- 0.2720463}X_3$$

- The results of the regression equation showed that the first hypothesis was correct, because the greater the volume of bank deposits in one unit, the greater the gross domestic product by 0.7692 units, which means that the greater the financial resources of banks, the greater the ability of banks to invest. In the form of banking products that meet the needs of their customers, and this is consistent with each study (djilalibenfredj & khalifa, 2021, pp. 47-72) (King & Ross, 1993, pp. 717-738) which concluded that financial products enhance the GDP.
- The results of the regression equation showed the validity of the second hypothesis, i.e. that the increase in bank loan levels by one unit, Increases GDP by 0.5123, which is consistent with economic theory and some economic studies (lebza & otmani, 2020, pp. 29-54), (Eyas Gaffar, 2014, pp. 109-117), (ALZYADAT, 2021, pp. 809-820) , (Abbas, 2013, pp. 133-144), (Mushtaq, 2016, pp. 1-11).
- The results of the regression equation showed that the third hypothesis is incorrect, as the high levels of domestic liquidity for a sample of Arab countries contribute to reducing the GDP by an amount 0.272 Which differs with economic theory and study (Ghassan & Salam, 2022) , This inverse relationship can be justified on the grounds that Arab banking units enjoy a structural surplus in bank liquidity.

5. CONCLUSION

We benefited from an analysis of the relationship between bank finance indicators and the domestic product of a sample of Arab States, both theoretical and applied, to produce a set of results:

-The gross domestic product (GDP) of the Arab States under consideration is enhanced through increasing financial intermediation activity by attracting deposits;

- The Arab State's credit policy is consistent with the degree of economic growth, through an acceptable allocation of resources to productive sectors, which has a positive impact on GDP;
- GDP is adversely affected if surplus liquidity is available in the economy, which contributes to increased aggregate demand without affecting the aggregate supply side;
- Arab banks enjoy a surplus of bank liquidity;

In view of the above findings, we offer a set of recommendations that support the effectiveness of bank financing in the Arab States, as follows:

- Decision makers in Arab States should improve the investment climate and stimulate the private sector to create diversified investment opportunities to increase GDP;
-Promote financial inclusion in Arab countries by reaching the largest possible segment in order to attract savings from all types of savers;
- To target loans to productive sectors and bring them into line with investors' religious beliefs by adopting medium- and long-term Islamic financing formats in Arab traditional banks;
- The central banks of the Arab States should review the management of bank liquidity in the banking units of a sample of Arab States;
- Banking units operating in Arab countries should keep abreast of technological developments in order to expand the delivery of their banking products;
- Promote the establishment of banks specialized in financing long-term investments, which compensate for a shortage of funds granted by private and public banks.

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7. Appendices

Appendix 1: Estimate of the three panel models

Pooled Regression Model

```
reg y x1 x2 x3
      Source |       SS           df       MS      Number of obs   =       112
-------------+----------------------------------   F(3, 108)       =   5721.48
       Model |  547.985634         3  182.661878   Prob > F        =    0.0000
    Residual |  3.44797014       108  .031925649   R-squared       =    0.9937
-------------+----------------------------------   Adj R-squared   =    0.9936
       Total |  551.433604       111  4.96787031   Root MSE        =    .17868
------------------------------------------------------------------------------
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .7692274   .0665497    11.56   0.000     .6373142    .9011405
          x2 |   .5123102   .0653599     7.84   0.000     .3827555    .6418649
          x3 |  -.2720463   .0418987    -6.49   0.000    -.3550968   -.1889958
       _cons |  -1.247771   .0957808   -13.03   0.000    -1.437625   -1.057916
------------------------------------------------------------------------------
```

- Fixed Effects Model

```
. xtreg y x1 x2 x3 , fe
Fixed-effects (within) regression               Number of obs      =       112
Group variable: ind                             Number of groups   =         7
R-sq:                                           Obs per group:
     within  = 0.1540                                         min =        16
     between = 0.9952                                         avg =      16.0
     overall = 0.9930                                         max =        16
                                                F(3,102)           =      6.19
corr(u_i, Xb)  = 0.9939                         Prob > F           =    0.0007
------------------------------------------------------------------------------
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .2571778   .1282323     2.01   0.048     .0028296     .511526
          x2 |   .1014386    .148461     0.68   0.496    -.1930331    .3959103
          x3 |  -.0452518   .0313944    -1.44   0.153    -.1075226    .0170189
       _cons |   7.182197   .9260356     7.76   0.000      5.34541    9.018984
-------------+----------------------------------------------------------------
     sigma_u |  1.6591227
     sigma_e |  .07904263
         rho |  .99773545   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(6, 102) = 74.98                     Prob > F = 0.0000
```

- Random Effects Model

```
. xtreg y x1 x2 x3 , re
Random-effects GLS regression                   Number of obs     =       112
Group variable: ind                             Number of groups  =         7
R-sq:                                           Obs per group:
     within  = 0.1493                                         min =        16
     between = 0.9949                                         avg =      16.0
     overall = 0.9928                                         max =        16
                                                Wald chi2(3)      =    473.05
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
------------------------------------------------------------------------------
           y |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .4573718   .1481558     3.09   0.002     .1669917    .7477518
          x2 |   .5638008   .1587406     3.55   0.000      .252675    .8749266
          x3 |  -.1312973   .0373707    -3.51   0.000    -.2045425   -.0580521
       _cons |   .2017252   .5059627     0.40   0.690    -.7899435    1.193394
-------------+----------------------------------------------------------------
     sigma_u |  .20345263
     sigma_e |  .07904263
         rho |  .86885718   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Appendix 2: Trade-off between a Pooled Regression Model and a Random Effects Model

```
. xttest0
Breusch and Pagan Lagrangian multiplier test for random effects
        y[ind,t] = Xb + u[ind] + e[ind,t]
        Estimated results:
                         |       Var     sd = sqrt(Var)
                 ---------+-----------------------------
                       y |    4.96787       2.228872
                       e |   .0062477       .0790426
                       u |    .041393       .2034526

        Test:   Var(u) = 0
                                chibar2(01) =    291.47
                            Prob > chibar2 =    0.0000
```

Appendix 3: Trade-off between a Fixed Effects Model and a Random Effects Model

```
. hausman fe re

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
          x1 |    .2571778     .4573718        -.200194               .
          x2 |    .1014386     .5638008       -.4623622               .
          x3 |   -.0452518    -.1312973        .0860454               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       79.43
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)

. hausman fe re, sigmamore

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
          x1 |    .2571778     .4573718        -.200194        .0690845
          x2 |    .1014386     .5638008       -.4623622        .1030548
          x3 |   -.0452518    -.1312973        .0860454        .0143239
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic
                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       43.39
                  Prob>chi2 =      0.0000
```