# MEASURING AND ANALYZING THE IMPACT OF MONETARY AND FISCAL POLICY ON THE BANKING PERFORMANCE PROFITABILITY INDEX FOR A SAMPLE OF IRAQI COMMERCIAL BANKS FOR THE PERIOD (2005-2020)

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## Abstract
The study assesses and evaluates how monetary and fiscal policies affected bank profitability (2005-2020). Considering the reality of the Iraqi economy and how its monetary policy tools—open market operations, the discount rate, and the legal reserve ratio—as well as its financial policy tools—public spending, public revenue, and the overall budget—affect banking performance indicators like profitability. Additionally, to progress the economy and banking industry, it is necessary to assess the effects of monetary and fiscal policy instruments on the profitability index of banking performance using two panels of longitudinal data models (The standard effect model and the Fixed effect model).
The standard side results showed a clear and noticeable impact of monetary and financial policies on the profitability ratio index. There is an apparent effect of the economic and fiscal policies on the profitability index of banking performance for a sample of commercial banks in Iraq between 2005-2020 and the effect ratio.

## Introduction
In developing and developed nations, monetary and fiscal policies significantly impact how well banks perform. To fulfill the goals set for them to establish economic balance, the consequences of these two policies pass through several systems. These mechanisms reflect the unique connections that allow monetary and fiscal policy to affect banking performance over an unpredictably long period. Financial indicators in banks are intimately related to banking performance, and one of those indicators is (the profitability index).

## The First Topic: Research Methodology
## First: the aim of the research

The study attempts to determine the following end goals in light of the reality of the Iraqi economy and banking sector and consideration of the fundamental features of these two banking and economic fields:

1. Measuring and analyzing the impact of monetary policy on the banking performance index, or (profitability index) for commercial banks, using its methods (discount rate, open market operations, legal reserve ratio).
2. Measuring and examining the effects of fiscal policy on a sample of Iraqi banks' profitability index using the tools of public expenditures, public revenues, and the general budget.

## Second: the importance of research

Economic literature indicates that monetary and fiscal policies influence banking activity. Knowing the mechanisms through which monetary and fiscal policy impacts are transmitted, the effect is safe, stable, and effective for the impact of monetary and fiscal policies on banking performance. It is economic policies that Governments can rely on for banking performance, and commercial banks' performance and its impact on global and domestic financial performance.

## Third: The problem of research

The Iraqi economy suffers from several problems: structural imbalance, monetary and financial instability, low growth rates in the non-oil sectors, and so on. The issue of research can therefore be formulated with the following questions: -
"How do monetary and fiscal policies affect the profitability index of bank performance assessment of commercial banks"?

## Fourth: Research hypothesis

Research is based on the premise that there are significant implications of monetary and fiscal policies that can be positively reflected in the bank's performance index (profitability)

## Fifth: The Research community and its Appointment

The research community is represented by the Central Bank and the Iraqi private commercial banks listed in Iraq's stock exchange of 40 banks. The research sample consists of (4) private commercial banks: (Business Gulf Bank, Iraqi Credit Bank, Mosul Development and Investment Bank, and Baghdad Bank).

## Sixth: Research Limits

**Spatial boundaries:** The spatial boundaries of the search are the banks operating in the Baghdad governorate as a certified sample (Commercial Gulf Bank, Iraqi Credit Bank, Mosul Development and Investment Bank, Baghdad Bank).

**Time limits:** The time limits for research are the period (2020-2005) to measure and analyze the impact of research variables, come up with explanations for research questions, and solve the research problem.

**Theoretical aspect**
**First: monetary policy: Concept and Tools**
**1-1: Concept of monetary policy**
Monetary policy is one of the most important economic policies that play an essential role in economic activity. It is one of the Central Bank's most important functions. Kent has defined monetary policy as "managing the expansion and contraction of the supply of cash to achieve certain objectives" If the monetary authority wishes to increase aggregate demand to achieve a high level of usage, it increases the offer of cash, i.e., to pursue an expansionary monetary policy and vice versa if it wishes to shrink aggregate demand. It uses an approach to reduce the supply of cash, which is a deflationary monetary policy (Al-Qureshi, 16:2016).
It is also defined as a set of tools used by the country's monetary authorities (central bank) to control cash supply and interest rates (Abdelhadi Wakhir, 953:2013).

**Monetary policy tools:**
The monetary policy seeks to achieve its objectives through the quantitative control tool. Quantitative control tools
They are called indirect instruments and seek to influence the size and quantity of payment methods by influencing commercial banks' liquidity or interest rates.

1. **Discount Rate Policy**
The discount rate means the interest rate that the central bank withholds from commercial banks for the rebate of its securities or the bank's loans and advances to commercial banks secured by the commercial and financial securities held by banks (Youssef, 93:2014).
However, some things limit the effectiveness of the rebate rate change policy as a tool to change the cash offer. In some instances, some banks may not want to borrow from the central bank and promise it the last resort to borrowing (Abdul Mutaleb, 27:2013)

2. **Open market operations:**
One of the most important monetary policy instruments in many countries, especially developed ones. Open market operations are the central bank's sale and purchase of government bonds and treasury authorizations. Their broad meaning means the

purchase and sale of securities, gold, and foreign currencies, as well as the sale and purchase of government bonds. (Periodic and Samaritan, 204:2013)

Monetary policy to achieve its objectives can use open market policy to support the discount rate. Entering the money market as a securities seller will absorb liquidity. Lower securities prices will also give an impetus to banks to use their liquidity to purchase securities and prefer them to credit owing to the low cost of deposits and their possible future return. The simultaneous use of the two tools thus results in a stable price and balance of payments (periodic, 204:2013).

## -Representation of legal reserve ratio:

Do central banks impose a percentage on each deposit that enters commercial banks? The change in this ratio results in a difference in the cash supply through a difference in the cash multiplier. When this ratio increases, the value of the cash multiplier will decrease, and the number of deposits that can be granted will decrease. (Shendi, 167:2010) The cash multiplier can be extracted as follows:

Cash supply multiplier =1/( legal reserve ratio)

## Fiscal policy: theoretical framing of policy and its instruments
### 2.1: Concept of Fiscal Policy:

The name of fiscal policy goes back to the French word "Fisc," meaning the cash and treasury portfolio (Lahadj, 201:1999).

The concept of fiscal policy has differed over time, time stages, and economic, social, and intellectual conditions. Fiscal policy can be defined as determining public revenues, expenditures, and budgets appropriate to achieving the State's objectives. And its guidance and use as a means of developing banking performance and raising the State's economic level (Al-Khatib and Shamia, 16:2003). Fiscal policy is defined as a set of measures taken by the Government to achieve financial balance using public spending, public revenues, and the public budget to influence economic activity and achieve the objectives of the State's monetary policy (Naga and others, 230:2019).

## 2  Financial Policy Tools:

Fiscal policy has critical tools that can influence all aspects of society, whether economic, social, or political. These tools can be explained as follows: -

I: Public Expenditures

It is one of the essential instruments of fiscal policy. It is defined as "a sum of money used or paid by the State or a person under public law within the limits of the general budget to satisfy public needs. Through the provision of public services and achieving economic objectives "(Ismail, 5:2002).

It is also a sum of money (monetary or economic) issued by the state or any public moral person to achieve public benefit (Shamiya and Al-Khatib, 43:2013).

## Public Revenues:

Public revenues are the state's most important financial policy instruments for implementing its comprehensive development plans. It has always sought to increase and sustain its revenues. It is also an accurate indicator of the effectiveness and activity of the Government's economic and financial performance. They represent a significant part of the public finance concept. General revenues are the primary source on which the State relies to obtain the funds necessary to cover its expenses to satisfy the public needs critical for society (Mushkulu, 50:2020). Hence, general revenues are multiple and varied (Issa, 10:2011).

## Third: General Budget:

The general budget comprises two main aspects: general income and expenditure. The emergence of a deficit or budget surplus is evidence of the disparity between revenue and spending. An excess or budget deficit is a general fiscal total—one of the oil economy's most essential pillars of budgetary policy. The deficit represents an amount of government demand financed by a decrease in government funds, borrowing, or liquidity exchange to finance the deficit. The budget deficit is the actual increase in public expenditure by budget compared to the Government's general revenue during one fiscal year. A budget surplus is a rare case in a stable economy. Therefore, the rest in the non-oil economy means that part of the national income is withheld from the course of aggregate demand, with a deflationary effect that States have to pay off their debt. In the oil economy, the surplus achieved due to higher oil prices has no deflationary impact (Ali, 1:2012).

## Third: Concept and indicators of bank performance evaluation
### 3-1: Concept of bank performance appraisal

Performance appraisal is an extrapolation of the Organization's behavior from planning to oversight through the organization, production decision-making, identification of deviation points, correction of each stage, and demonstrating and strengthening the strengths. (Al-Tai, 56:2016)

Performance appraisal is: monitoring the phases of operations within the economic unit, which begins from the stages of identifying the objectives to be achieved and according to the resources available in the monetary unit to perform the goals already achieved (Masaudi, 27:2015).

The evaluation of bank performance also indicates that it compares actual performance with target performance in advance according to specific indicators (preset criteria). (Dowad and Jadwa 'a, 21:2017).

### 3-2: Concept of bank performance appraisal indicators

Financial indicators are one of the essential tools in evaluating the performance of economic units, including banks. They are also necessary tools used in financial

analysis through which the bank's performance is measured in several directions, most notably the achievement of the goals (Al Tai, 63:2016).

The need to distinguish between performance indicators and rates must also be stressed here. Performance rates are the work completed with total effort over a specified period or the time required. At this time, we find that performance rates are intended to differ from performance indicators for the following reasons:

**A-** Performance indicators represent a standard input or methodology for expressing performance efficiency instead of actual performance rates.

**B-** Performance indicators need to be rationalized and changed from time to time due to the change in conditions associated with the conduct of activities, whether internal or external. Performance rates reflect realities (1, 68:2015).

## Bank Performance Appraisal Index

The performance of banks of all kinds is assessed, whether government or private and commercial or specialized banks, with many indicators as lightly focused on the profitability index. This indicator will be addressed in some detail to identify its mathematical formulations, connotations, and objectives through a range of highlights: -

## - Profitability ratios:

1. ROA asset return = net income/total assets
   Also formulated as follows: return/total assets
2. ROE Return = Net Income/Equity
3. profitability ratios = net profit/total deposit.
4. profitability ratios = net available income/funds.
5. Net profit/available resources.
6. Net profit/loans + financial investments (IFAD).
7. Indicator of the bank's ability to diversify profits

**The first topic: analysis of the paths of the monetary and financial policies and their role in evaluating the banking performance of a sample of Iraqi commercial banks, a general review for the period from 2005-2020**

**The second topic: the standard analysis of the study data**

In this chapter, the researcher intends to employ advanced statistical treatment methods in analyzing the data of the current study related to the statement of analysis and measurement of the impact of monetary and financial policies on the profitability index of banking performance for a sample of commercial banks for the period between 2005 and 2020 based on longitudinal cross-sectional data for four banks (Al Khaleej Commercial Bank, Iraqi Credit Bank, Mosul Bank for Development and Investment, Bank of Baghdad) within sixteen years. As for determining the model for the best effect of monetary and fiscal policy on the profitability of banking performance, the researcher relies on two longitudinal data models (Panel Data Models). At the same time, the researcher will depend on the method of statistical treatment represented by the test (Durbin-Watson) to infer the existence or absence of the problem of self-correlation between the studied data. As for testing the

hypotheses of the study related to the impact of monetary and financial policy on the profitability index of banking performance, the researcher will rely on the method of statistical treatment represented by the (F-test) and according to the best model between the aggregate regression model and the fixed effects model. The hypothesis of the impact of the independent variables (legal reserve, open market operations, discount rate, general expenditures, operating expenses, investment expenditures, public revenues, oil revenues, non-oil revenues, surplus rate, or deficit rate) on the dependent variable (profitability ratio index). As for diagnosing the percentage of interpretation of the independent variables for the changes that occur in the dependent variable, the researcher relies on the coefficient of determination (the coefficient of interpretation) (R - squared). To obtain these results, the researcher benefited from the standard statistical analysis program (EViews 10), the tenth version, and the statistical analysis program (SPSS), the twenty-sixth version, and the program (Microsoft Excel 2016).

**The main hypothesis:**
There is a statistically significant effect of the monetary and fiscal policy on the profitability ratio index. Two sub-hypotheses are derived from it, as follows:

1. There is a statistically significant effect of the monetary and fiscal policy on (the ratio of total assets to net income index).
2. There is a statistically significant effect of the monetary and fiscal policy on (the index of the ratio of total deposits to net profit).

First: Choosing the best model for the impact of monetary and fiscal policy on the ratio of total assets to net income.

The following table (1) is documented using data from four banks (Al Khaleej Commercial Bank, Iraqi Credit Bank, Mosul Bank for Development and Investment, and Bank of Baghdad). The data of the combined regression model (Common effect model) is that there is no aggregate effect for the variables (legal reserve + open market operations + income excluding interest to total income + total loans to total assets + operating expenses + investment expenses + public revenues + oil revenues + non-oil revenues + The surplus rate or the deficit rate (in the dependent variable (the indicator of the ratio of total assets to net income) because it is not statistically significant and with an interpretation rate of (13.78%) according to the interpretation coefficient (R - squared), especially that the value of F calculated (F - statistic ) recorded (0.847), which is not significant because the corresponding probability value was recorded (0.5869), which is higher than the level of significance (0.10). At the same time, the result of the Darbin-Watson test was positive, which indicates no autocorrelation problem in the data because the statistical value (Durbin-Watson stat) for the aggregated model amounted to (0.819), which is greater than the interpretation coefficient before multiplying it by.

| Statistical significance | F-TEST | | Interpretation % coefficient | D.W | model | influencing variables |
|---|---|---|---|---|---|---|
| | probability value | F calculated | | | | |
| Not statistically significant | 0.5869 | 0.847 | %13.78 | 0.819 | Common effect model | Legal Reserve + Open Market Operations + Income Excluding Interest to Total Income + Total Loans to Total Assets + Operating Expenses + Investment Expenses + Public Revenues + Oil Revenues + Non-oil Revenues + Surplus Rate or Deficit Rate |
| Statistically significant | 0.048 | 1.937 | %33.49 | 1.062 | Fixed effect model | |

Source: prepared by the researcher according to the bank's data, the statistical analysis results, and the EViews 10 program data.

**Table (2) compares tests to diagnose the best model for the impact of monetary and fiscal policy on the ratio of total assets to net income index.**

| The best model, according to the test result | Test | | Type of the test | Comparison between | |
|---|---|---|---|---|---|
| | P -Value | The value of the test statistic | | The second model | The first model |
| Fixed effect model | 0.004 | 4.941 | CHOW TEST | Fixed effect model | Common effect model |

Source: prepared by the researcher according to the bank's data, the statistical analysis results, and the EViews 10 program data.

The best model for predicting the ratio of total assets to net income (yit), as shown in the following table (3), becomes as follows:

$$y_{it} = 3.34266 + 3.4745X_1 + 0.0007X_2 - 0.6177X_3 - 0.0299X_4 - 0.0393X_5 + 0.0314X_6 + 0.0037X_7 + 0.00366\,X_8 - 0.0092X_9 + 0.000011X_{10} - 0.50625\,K_2 + 2.46750\,K_3 + 0.24875\,K_4$$

**Table (3) Parameters of the indicator model of the ratio of total assets to a net income estimated using (the best model and fixed effects model)**

| Fixed effect model | code | Illustrative and illusory variables |
|---|---|---|
| 3.34266 | constant | fixed limit |
| 3.4745 | $X_1$ | legal reserve |
| 0.0007 | $X_2$ | open market operations |
| -0.6177 | $X_3$ | Income excluding interest to gross income |
| -0.0299 | $X_4$ | Total loans to total assets |
| -0.0393 | $X_5$ | operating expenses |
| 0.0314 | $X_6$ | investment expenditures |
| 0.0037 | $X_7$ | public revenues |
| 0.00366 | $X_8$ | Oil-revenues |
| -0.0092 | $X_9$ | Non-oil revenues |
| 0.000011 | $X_{10}$ | Surplus or deficit rate |
| -0.50625 | $K_2$ | An imaginary variable equal to one true to the Iraqi credit bank |
| 2.46750 | $K_3$ | An imaginary variable equal to one true to Mosul Bank for Development and Investment |
| 0.24875 | $K_4$ | An imaginary variable equal to one for Baghdad Bank |
| %33.49 | $R^2$ | Interpretation coefficient |

Source: Researcher's preparation according to bank data, statistical analysis results, and EViews data 10

Second: Select the best model for the impact of monetary and fiscal policy in the ratio index of total deposits to net profit: Achieves the following table (4) according to the data of four banks (Gulf Commercial Bank, Iraqi Credit Bank, Mosul Development and Investment Bank, Baghdad Bank) Common effect model data No combination effect

of variables (Statutory Reserve + Open Market Operations + Interest-to-gross income + Total loans to total assets + Operating expenses + Investment expenses + General revenues + Oil revenues + Non-oil revenues + Surplus rate or deficit rate) in the dependent variable (total deposit to net profit ratio index) It is not statistically D and has a percentage explanation rate of 19.52% according to the interpretation factor (R-squared). In particular, F's calculated value (F-statistic) was recorded (1.285) and is immoral because its corresponding probability value was recorded (0.2626), which is higher than the morale level (0.10). While Darbin Watson tested positive, indicating no self-correlation problem in the data, the Durbin-Watson stat value of the compilation model was 1.462, which is greater than the coefficient of interpretation before hitting a percent.

**Table 4. Selection of the best model for the impact of monetary and fiscal policy in the ratio index of total deposits to net profit.**

| statistical significance | F-TEST | | Interpretation %coefficient | D.W | Model | variables affecting |
| | Probability Value | F calculated | | | | |
|---|---|---|---|---|---|---|
| Not statistically D | 0.2626 | 1.285 | %19.52 | 1.462 | Common effect model | Statutory Reserve + Open Market Operations + Interest Excluding Interest to Gross Income + Total Loans to Total Assets + Operating Expenses + Investment Expenses + General Revenues + Oil Revenues + Non-Oil Revenues + Surplus Rate or Deficit Rate |
| D. Statistically | 0.098 | 1.668 | %30.25 | 1.687 | Fixed effect model | |

Source: Research prepared according to banks' data, statistical analysis results, and EViews 10 data.

### Table (5) Selection of comparisons to diagnose the best model for the impact of monetary and fiscal policy on the indicator of the ratio of total deposits to net profit

| The best model, according to the test result | Test | | Type of the test | Comparison between | |
|---|---|---|---|---|---|
| | P -Value | Test Count Value | | Model two | Model one |
| Fixed effect model | 0.065 | 2.565 | CHOW TEST | Fixed effect model | Common effect model |

Source: Research prepared according to banks' data, statistical analysis results, and EViews 10 data.

to become the best model for forecasting the ratio of total deposits to net profit (yit) as shown in table (6) below and as follows

$$y_{it} = 5.46545 + 2.16592X_1 - 0.00687X_2 - 0.34977X_3 - 0.55001X_4 - 0.025203X_5 + 0.055493X_6 - 0.02055X_7 + 0.014849\ X_8 - 0.001628X_9 + 0.000038X_{10} - 0.59625\ K_2 + 0.033125\ K_3 - 2.6475\ K_4$$

### Table (6) Index Parameters of Total Deposit Ratio to Net Profit Estimate Using(Best Model and Fixed Effects Model)

| Fixed effect model | code | Illustrative and illusory variables |
|---|---|---|
| 5.46545 | Constant | Fixed limit |
| 2.16592 | $X_1$ | legal reserve |
| -0.00687 | $X_2$ | open market operations |
| -0.34977 | $X_3$ | Income excluding interest to gross income |
| -0.55001 | $X_4$ | Total loans to total assets |
| -0.025203 | $X_5$ | operating expenses |
| 0.055493 | $X_6$ | investment expenditures |

| | | |
|---|---|---|
| -0.020055 | $X_7$ | public revenues |
| 0.014849 | $X_8$ | oil revenues |
| -0.001628 | $X_9$ | non-oil revenues |
| 0.000038 | $X_{10}$ | Surplus or deficit rate |
| -0.59625 | $K_5$ | An imaginary variable equal to one true to the Iraqi credit bank |
| 0.033125 | $K_6$ | An imaginary variable equal to one true to Mosul Bank for Development and Investment |
| -2.6475 | $K_7$ | An imaginary variable equal to one true to the Baghdad Bank |
| %30.25 | $R_5$ | Interpretation coefficient |

Source: Research prepared according to banks' data, statistical analysis results, and EViews 10 data.

All the results of the test of the two sub-hypotheses arising from the first secondary hypothesis indicate acceptance of the two hypotheses with confidence (90%), confirming acceptance of the first secondary hypothesis to demonstrate a clear and remarkable influence of monetary and fiscal policies in the commercial banks' profit ratio index sample study.

## Conclusions

Through the research's statistical analysis, the researcher, in light of the statistical findings, came up with a set of

## Conclusions Important:

1. There is a clear impact of monetary and fiscal policies on the indicator of the ratio of total assets to the net income in commercial banks to reflect the factor of interpretation valued at (33.49%).
2. The existence of a clear impact of monetary and fiscal policies in the ratio index of total deposits to the net profit of commercial banks, indicating the factor of interpretation valued at 30.25%.
3. A clear and remarkable impact of monetary and fiscal policies on the commercial banks' profitability index sample study.
4. Visible impact of monetary and financial policies on the banking performance of a sample of commercial banks in Iraq for the period 2005-2020

## Recommendations:

1. The conclusions are reinforced by the apparent influence of monetary and fiscal policies on the ratio of total assets to the net income in commercial banks to increase the banking profitability index.

2. The conclusions are reinforced by the apparent influence of monetary and fiscal policies in the ratio index of total deposits to the net profit of commercial banks to increase the banking profitability index.

3. Seeking to increase this impact is evident by the outcome and remarkable monetary and fiscal policies in the commercial banks' profitability index sample study. Because the higher the profitability index, the higher the performance and, therefore, the higher the banking activity.

4. 4 previous findings noted the impact of monetary and financial policies on the banking performance of a sample of Iraqi banks in Iraq for 2005- 2020. and thus, the majority of the policy tools have positively impacted Iraq's commercial duration of between 5002 bank performance indicators, which corresponds to the search hypothesis. The researcher, therefore, recommends that consideration be given to other aspects of the extent to which the policies affect investment, finance, and others.

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