The Impact of Financial Depth on the Effectiveness of Monetary Policy in Iraq for the Period 2004-2018

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ABSTRACT

The financial depth and its impact on the performance of monetary policy received increased attention by researchers and those interested in financial affairs at the end of the last decade of the last century, especially after the great development in financial intermediation and the banking sector and the diversity of means of payment, so the study of financial depth and its reflection on monetary policy On the Iraqi economy has great importance because monetary policy works to control economic activity and maintain the monetary stability necessary to achieve economic growth. The problem of the study lies in the decrease in the financial depth in Iraq, which led to the weak performance of the banking sector, and this was reflected in the effectiveness of the financial policy and its transmission channels to a local total. The research objectives are summarized in the impact of financial depth on monetary policy and the channels of its transfer to output.

The research concluded that the decrease in the financial depth represented by(money supply / GDP), (the volume of private sector financing / GDP), (deposits / GDP), had a negative impact on the channels of monetary policy transmission to the economy.

Key words: Financial depth, effectiveness of monetary policy, banking depth

1. INTRODUCTION

The financial depth and its impact on the performance of monetary policy received increased attention by researchers and those interested in financial affairs at the end of the last decade of the last century, especially after the great development in financial intermediation and the banking sector and the diversity of means of payment, and some focused on the relationship between financial depth and monetary policy that It is considered an effective means of influencing economic activity, as it is believed that the financial depth and increase the effectiveness of monetary policy, and this effect arises from an important fact related to the monetary effects left by the monetary policy, which is particularly reflected in the money supply and the abundance of credit and its cost. Therefore, it is evident that the development and financial depth in the banking system and financial markets have a positive impact on the performance of monetary policy on economic activity,

especially since the effect of the policy depends on the financial sector and its degree of development.

The research aims to identify the extent of the impact of the financial depth of the banking sector on the effectiveness of monetary policy according to the characteristics of the economy and the controls of organizing the financial sector by analyzing the financial depth of the Iraqi banking sector.

2. THE CONCEPT AND MEASURES OF FINANCIAL DEPTH

There is a lack of agreement in the economic literature on a unified and accurate definition of the concept of (financial depth) by economists, the first definitions that dealt with this concept belonged to the economists (Gurly & Shaw 1960) with the aim of developing a theory to demonstrate the role of development in the financial sector in economic development.

The financial depth define as an increase in the size, role, and spread of the financial system in the economy. From a monetary policy perspective, the diversification of corporate and household portfolios is of particular importance, as they are increasingly affected by developments in the financial markets. (Bank of Russia Seminar)

Through the foregoing, financial depth can be defined as the ability of the financial sector to efficiently mobilize the savings and financial resources available in the economy in order to convert them into investments to support long-term economic growth by developing financial institutions and providing financial financing tools and services to support long-term development and growth.

3. THE IMPORTANCE OF FINANCIAL DEPTH IN FINANCIAL DEVELOPMENT

A large body of evidence indicates that the development of the financial sector plays a major role in economic development as it promotes economic growth through capital accumulation and technological progress by increasing the rate of savings, mobilizing and aggregating them, producing information on investment, facilitating and encouraging foreign capital inflows, Improving capital allocation, reducing poverty , in addition, reduces poverty and inequality by expanding access to finance for the poor and vulnerable groups, facilitating risk management by reducing exposure to shocks, and increasing investment and productivity that leads to increased income generation. It can also help sector development. Financial growth in small and medium enterprises (SMEs) by providing access to financing for them, small and medium-sized companies are usually labor-intensive that can create more job opportunities than large companies, and play a major role in economic development, especially in emerging economies. (, 2016, report world bank).

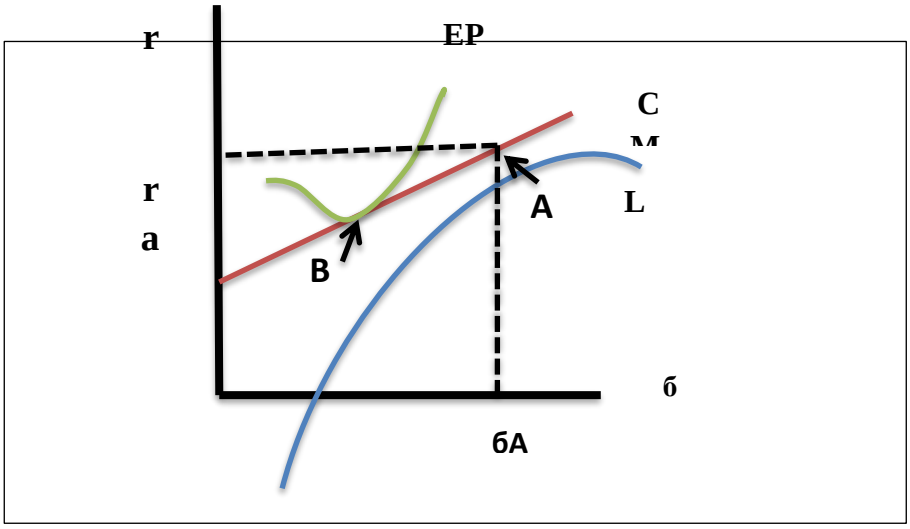
4. THE IMPORTANCE OF FINANCIAL DEPTH IN RAISING THE EFFICIENCY OF MONETARY POLICY

The current views on the monetary transmission mechanism give a decisive role for the development of the financial sector and the general financial structure in understanding the effectiveness of monetary policy measures on production and prices, and both traditional financial and credit channels work to transfer monetary policy through the financial system, and in particular the credit channel, Higher financial linkages leads to a strong monetary transmission with in the financial system and thus a significant impact of monetary policy on the real economy. Hence, the degree of development of the financial sector is important in explaining the effectiveness of monetary policy as the effectiveness of monetary policy depends critically on the structure and state of the financial system (Ekpeno Effiong, 2017, pp9)

5. ANALYZING THE IMPACT OF FINANCIAL DEPTH ON THE FINANCIAL SECTOR

Financial depth can cause changes in the selection of the banks' portfolio, and this is evident by analyzing the banking portfolio selection model shown in Figure (1-9). In this model, banks have to trade-off between expected loan return (r) and loan risk (standard deviation of loan return: б), this is indicated by loan limits (LF), which is a concave curve due to the assumption that banks are risk averse. This means that when the expected return on loans increases, banks will accept risks higher than the expected return rise

due to the increased likelihood of default. These results in the slope of the LF curve downward from point A. The capital market line (CML) shows the total mix of assets that do not involve risk (treasury bills) and risky loans in an effective portfolio. This combination is selected by banks as illustrated by the Effective Investment Portfolio Curve (EP) (Cabrio, 1996). Figure (1) A model for selecting a bank's portfolio.**Figure (1) Selection of banks for the investment portfolio**



Source: ATTASUDA LERSKULLAWAT, FINANCIAL DEVELOPMENT AND MONETARY POLICY TRANSMISSION: THE CASE OF THAILAND,p36

Figure (2) shows that (rf)is the risk-free interest rate (the interest rate on treasury bills), (ra) is the risky interest rate (the interest rate for risky loans), and point B is the point at which the chosen portfolio of banks that holds assets does not involve Risk and risky loans (Cabrio, 1996)., When there is an interest rate cap at (rc) with CML0. The choice of the banks 'portfolio will be determined at point D, with the intersection of the EP line 0 and the CML0 line (banks will not choose a portfolio in the area to the right of point c, because the same return will give them higher risk). This form is used to explain the effect of financial liberalization on the choice of bank portfolio. He explains that when the interest rate cap is abolished at RC, there is a change in the EF curve from EP 0 to EP1 and CML0 to CML1 which changes the portfolio selection for banks from point D to point E and raises the loan offer compared to a period before bank interest liberalization (Cabrio, 1996) .

6. THE COMPONENTS OF THE BANKING SECTOR IN IRAQ

The number of commercial banks operating in Iraq until the year 2018 reached (69) banks, which included (7) government banks distributed into (3) commercial banks, (3) specialized, (1) Islamic bank (62) private (private) banks, and the latter includes (24) local commercial banks, (15) foreign banks and (23) Islamic banks,.

7. ANALYSIS OF FINANCIAL DEPTH INDICATORS OF THE BANKING SECTOR

Among the most important indicators that reflect the financial depth in the banking sector in Iraq are:

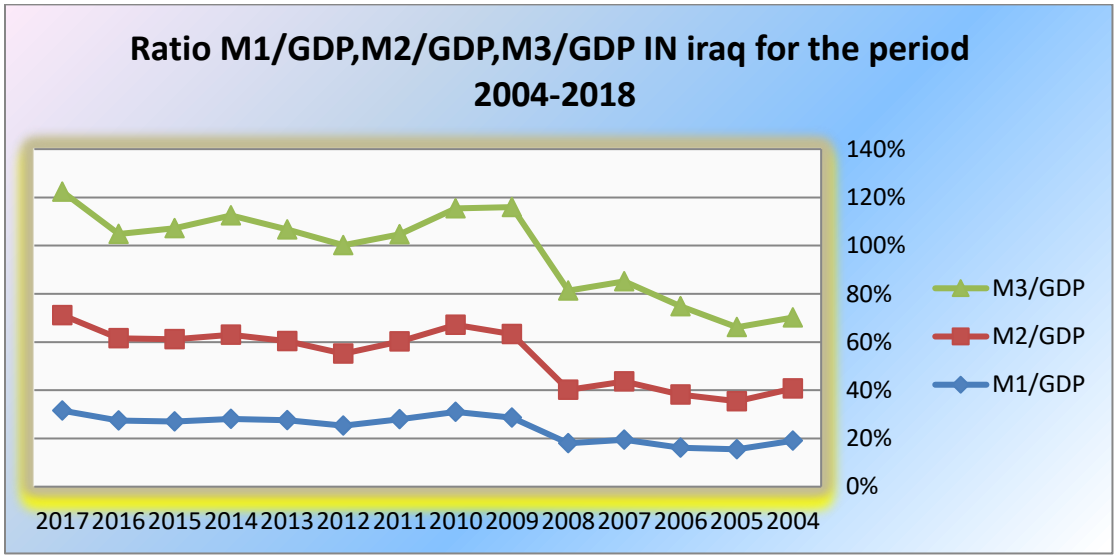
7.1. **Money supply to GDP (M2 / GDP)**

The indicator of the total cash ratio, M2 / GDP, expresses the extent of financial flexibility and depth, as the low of this ratio indicates the existence of flexibility and depth in the financial sector in the economy.

After the year 2003, changing the system and economic philosophy, issuing new laws and legislations in line with the new orientation, including Central Bank Law No. 56 of 2004 and Banking Law No. 67 of 2004, setting goals by the monetary authority, foremost among which are fighting inflation and achieving monetary stability in order to achieve economic growth and sustainable development. The Iraqi economy is witnessing monetary stability at this stage, and thus a reliable economy, and financial dominance continued on the monetary basis, but in a new way through the currency window, which is considered a gateway to the process of monetizing oil imports, which began to expand as the size of expenditures increased and its structure expanded, which led to increases in the monetary mass as expressed by the growth rates of money supply, as it is clear that these increases were not commensurate with the growth rates of GDP, which continued at low growth rates, and at the same time the result of a structural imbalance that the oil sector contributes to the majority of these rates, which created a gap between the increasing means of payment with purchasing power due to the increase in the value of the Iraqi dinar against the dollar through the exchange rate window, and that gap was reflected in the increasing domestic liquidity rates

(M2 / GDP), which express bank liquidity, we find that it increased from (20%) in 2005 to (40%) in 2017 and this growth is due in addition to the increase in the growth of M1, which represents a part of M2, the increase in the volume of fixed, saving and time deposits due to the increase in the number of private banks and the expansion of its geographical area, which reached 864 banks, between governmental, private, local and foreign, as well as the relative stability in the value of the new Iraqi currency and its exchange rate against the dollar during this period has restored confidence in the Iraqi dinar by the public, as well as that financing has become relatively done through banks.

Figure (2)Ratio M1/GDP, M2/GDP, M3/GDP in Iraq for the period 2004-2018.



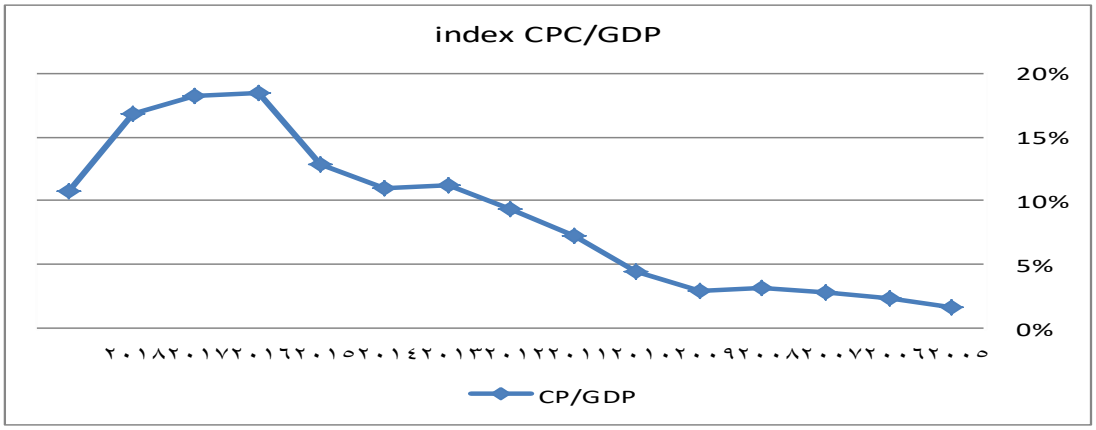
Source: Table data (1)

7.2. **Index of credit granted to the private sector to gross domestic product (CPC / GDP)**

This indicator is one of the important financial depth indicators that express the development and efficiency of the banking system in any country, this indicator shows the importance and contribution of the private sector in relation to the public sector in the formation of the gross domestic product. and financial intermediation and growth in total deposits. Therefore, the increase in the ratio of credit directed to the private sector to the gross domestic product indicates the strength of the links between the banking sector and the real economy and raises the ratio of financial depth in the economy

After 2004 and the issuance of the Central Bank Law and the Banking Law, the monetary authority set goals to stimulate investment in the economy, support and encourage the private sector, and with the rise in oil revenues and the increase in the gross domestic product, with the increase in the number of commercial private banks and Islamic banks, we notice through Table No. (2-6) An increase in The volume of credit provided by commercial banks rose from (301432) million dinars in 2004 to (10143444) million dinars in 2018, with a compound growth rate (29%). As for Islamic banks, the volume of credit provided has witnessed a noticeable increase compared to the period prior to 2004. It increased from (1787) million dinars in 2004 to (4343563) million dinars in 2018, with a compound growth rate of (74%). Despite the high volume of credit provided by the private sector banks (commercial and Islamic), The ratio total credit provided to the sector The private sector remained low compared to government banks despite the change in the economic philosophy towards a market economy and the encouragement of the private sector, as it reached an average (28%) for commercial banks, and (5%) for Islamic banks, while government banks acquired an average Contribution to total credit amounted to (68%). Which shows the weakness of the role of Islamic banks in providing credit as a banking sector to the private sector and the dominance of government banks and their competition with private sector banks, as shown in Figure (2)

Figure (3)Index of credit granted to the private sector to gross domestic product (CPC / GDP) 2004-2018



Source: Table data (1)

If we compare the financial depth (the volume of credit granted to the private sector to the GDP), we notice that this percentage did not exceed (17%) in the year (2018) and during the study period, which is a weak percentage if compared to other countries, as we find that this percentage reached in Jordan 77.7% in the UAE 78.7%, in Kuwait 89.3% and in Lebanon 105.8% in 2017, and it reached worldwide (129.73%) for the year 2018 and the highest rate was 187.2% in the USA and the lowest 2.3% in South Sudan, and in Sudan (22.4%) And (30%) in Egypt, (88.9%) in Saudi Arabia, (117%) in Malaysia and (116%) in France, (World Bank, 2018), which reflects the weak contribution of the banking sector in financing economic development in Iraq. Despite all the reforms through which the state has tried to activate the role of banks in financing the economy, the behavior of banks remains concerned about all investments that are not subsidized by the state and that are carried out by the private sector, and investment files remain idle and implementation deadlines are long, due to the weak adaptation of the system. The local financial system meets the requirements of the economic environment, while the official speech talks about financial support measures and encouragement of families investments and partnership, the reality indicates facing all these developments with complications of a financial nature, including:

1- Absence or severe shortage in the field of long-term financing, and the limitation of financing to short-term commercial loans.

2-Banks' demand for private institutions for large guarantees in kind, which may not be available to the owners of these institutions.

3-High interest rates on loans to compensate for the degree of risk, which is one of the reasons for the weak demand for private credit.

4-Limitations of financing related to formulas and procedures: conventional banking financing in Iraq is characterized by its limitations and procedural and documentary complications, as "the financial intermediation and the banking system were not able to adapt to the pace of structural transformations recorded at the macroeconomic level, so that they appeared as if they were overtaken by events".

5 - Lack of competition in light of the weakness of local and even foreign private sector banks (which are branches of foreign banks)

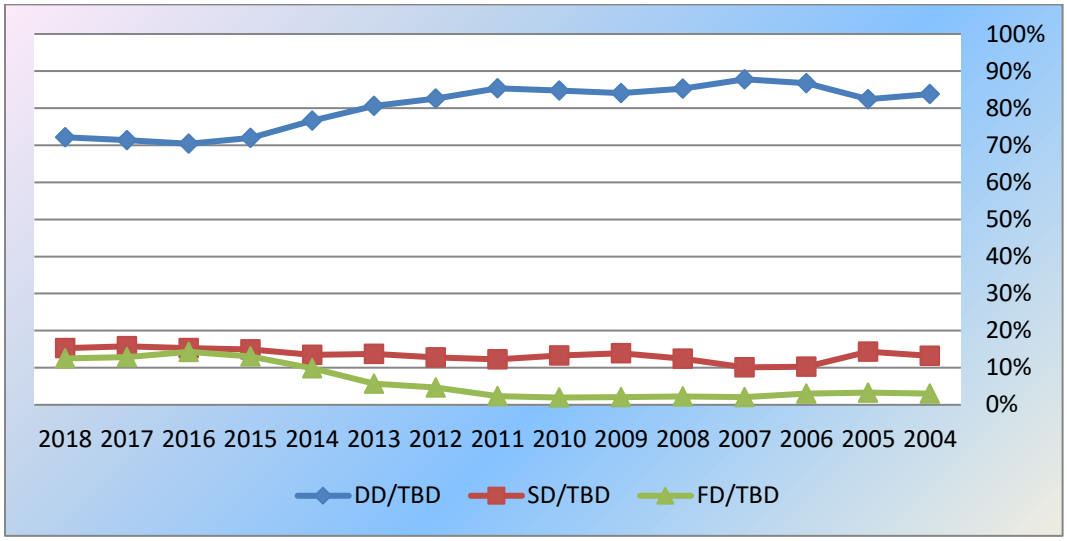
7.3. Deposits volume index to GDP

This indicator is considered one of the important indicators of financial depth and banking performance, especially after it was found that the currency (outside the banking system) represents the largest part of the balance of money supply in Iraq, and deposits of all kinds are the main and most important source of banking financing sources that they use to provide credit. Therefore, the increase in this ratio is explained by an increase in the volume of deposits that can be used to increase the volume of credit provided and increase the ability of banks to accumulate assets and thus increase the financial depth

After the year 2003 and the vast changes that took place and the change of the political and economic system in Iraq, we find through the data of Table No. (1) that there is a growth that occurred in total deposits (TBD) and in gross domestic product (GDP) in terms of volume during the study period, as the volume of deposits increased. Total from (8619809) million dinars in 2004 to (76893927) million dinars in 2018, with a compound growth rate of (17%), and the gross domestic product increased from (53235358.7) million dinars in 2004 to (254366708.7) million dinars in 2018 at a rate compound growth rate of (12%) Despite the compound growth rate of deposits was higher than the compound growth rate in output, it did not constitute only a percentage less than a third of the volume of GDP. And through Figure No. (2-8), which shows the growth rate of the financial depth index represented by the size of deposits to GDP, it increased from (16%) in 2004 to (27%) in 2009, then decreased to (22%) in 2012. Then it increased to its highest level during the study period by (32%) in 2015, then it decreased to (30%) in 2018, which means that there is a fluctuation in the growth rate of financial depth even if the general trend is towards an increase, which gives an indication of here is a positive trend towards an increase in financial depth, despite that, the ratio of deposits to output is still low and does not fulfill aspirations if we compare it with these ratios with other countries, as the ratio in Lebanon reached 240% in 2018 (Arab Development Portal, 2019, P. 2)

If we compare the types of deposits, we notice that current deposits acquired the highest rates of contribution to the total volume of deposits compared to savings and fixed deposits, as the highest ratio of current deposits to total deposits (DD / TBD) was (88%) in 2007. The highest percentage of savings deposits was (16%) in 2017, while the highest percentage of fixed deposits did not exceed (14) in 2016, although the general trend of current deposits is declining and savings and fixed deposits are rising, but the disparity remains large between them, as shown in the figure (Figure). 2-10). This increase in the volume of current deposits, for which banks do not pay high interest, which means the low level of financing costs, as well as the decrease in the financial depth index compared to the international rates of the volume of deposits to the gross domestic product. Therefore, the directions of the Central Bank towards the creation of a deposit insurance institution The resettlement of salaries, may help to raise the volume of deposits with banks, despite the fact that it is based in the resettlement in the government banks in first stage.

Figure (3)The ratio of current deposits, savings deposits, fixed deposits, to total deposits 2004-2018.



Source: Table data (1)

Table No. (1)

Money Supply M2, Gross Domestic Product (GDP), Money Supply Index / Domestic GDP / M2 / GDP, Private Sector Bracket Index / CPC / GDP, Deposit Volume Index / GDP, TBD / GDP in Iraq for the period 1991-2018

TBD/GDP	CPC/GDP	M2/GDP	GDP	M2	YEAR
0.102035	0.135467	1.488359	21313.4	31722	1991
0.156193	0.187862	1.00025	56814.8	56829	1992
0.115866	0.252336	0.808906	140518.2	113666	1993
0.090969	1.774783	0.393375	703821.3	276866	1994
0.053835	0.024463	0.34336	2252264.2	773337	1995
0.160289	0.344501	0.424116	2556307.1	1084172	1996
0.211651	0.853694	0.378034	3286925	1242569	1997
0.242759	0.311733	0.353762	4653524.2	1646240	1998
0.235114	0.097082	0.281099	6607664.5	1857408	1999
0.20126	0.753571	0.279194	7930224.3	2214072	2000
0.259993	0.189978	0.286341	9911420.1	2838048	2001
0.278973	1.087698	0.093905	41022927	3852241	2002
0.105275	-0.06012	0.235026	29585789	6953420	2003
0.161919	0.364621	0.215987	53235359	11498148	2004
0.146464	0.407262	0.199356	73533599	14659350	2005
0.177097	0.298327	0.220219	95587955	21050249	2006
0.234971	0.140519	0.241531	111455813	26919996	2007
0.219868	0.286668	0.222014	157026062	34861927	2008
0.271229	0.218459	0.347172	130643200	45355289	2009
0.267631	0.197178	0.360812	162064566	60289168	2010
0.233183	0.146296	0.322194	217327107	72067309	2011
0.224306	0.138333	0.299062	254225491	75336128	2012
0.233562	0.167268	0.32733	273587529	87526585	2013
0.277281	0.277227	0.349813	266420385	90566930	2014
0.322178	0.416369	0.341056	199715700	82438712	2015
0.306071	0.417068	0.340993	203869832	87941853	2016
0.296637	0.421464	0.396245	225995179	89441338	2017
0.302296	0.370681	0.362097	254366709	92105401	2018

Source: Central Bank of Iraq, Department of Statistics and Research, annual reports for various years (1991-20018).

MEASURING THE IMPACT OF FINANCIAL DEPTH ON THE EFFECTIVENESS OF MONETARY POLICY IN IRAQ FOR THE PERIOD 1991-2018

8.1. The model description

The relationship between financial depth and the effectiveness of monetary policy in Iraq is being tested, as despite the lack of an accurate measure of the effectiveness of monetary policy, the literature dealing with the transfer of monetary policy uses the methodology of Autoregressive Models (VAR) (Vector Autoregressive Model), which are models used to measure the regression relationship when In it, the values of the dependent variable (Y) appear slow for a previous period of time (Yt-1) as an explanatory variable as well as other explanatory variables ((Xt), to derive response functions to real macroeconomic variables such as output and prices after an unexpected monetary policy shock.

Our method in this study is based on the time-series regression framework, and enables us to provide a description of the effects of financial depth on fluctuations at the macroeconomic level. We will use the following model to estimate and clarify the relationship between GDP and the rate of money growth as an indicator of the effectiveness of monetary policy according to the following equation:

$$Y_{i,t} = B_0 + \sum_{i=1}^{S} B_{j,t}\ m_{j,t-1} + \varepsilon_{j,t} \ \ldots\ldots\ldots\ldots 11-3$$

Where: Y: GDP growth rate, B: parameters, ε: error limit

The GDP growth rate (Y) and the money supply growth rate were defined according to the following equation:

$$Y_i = \frac{(GDP_t - GDP_{t-1})}{GDP_{t-1}} \ldots\ldots\ldots\ldots 12-3$$

$$M_t = \frac{M2Y_t - M2Y_{t-1}}{M2Y_{t-1}} \ldots\ldots\ldots\ldots 13-3$$

Depending on the degree of financial depth, the following equation was used to display cash and financial depth to show the effect of monetary policy on output

$$B_i^m = \theta^m + \theta^s\ s_{i,t} \ldots\ldots\ldots\ldots 14-3$$

Where B: money supply, θ: parameters, S: financial depth measure (M2 / GDP, CPC / GDP, TBD / GDP)

If equation No. 10 and Equation No. 13 are combined, we obtain the following equation:

$$Y_{i,t} = \beta_0 + \sum_{i=1}^{s} (\theta m_{t-1} + \theta s_{t-1}) + \varepsilon_t^y \ \ldots\ldots\ldots 15-3$$

Data for Equation (3-15(

The dependent variable: Gross Domestic Product (GDP) = (ΔY_t.(Explanatory variables

Cash Show Mt Financial depth measure ((M2 / GDP, CPC / GDP, TBD / GDP,)

8.2. Temporal slowdown of the study variables

At this stage, the optimum slowdown degree was extracted for the purpose of using it in determining the degree of stability of the time series, as shown in Table:(2)

Table No. (2) temporal slowdown of the study variables

HQ	SC	AIC	FPE	LR	LogL	**Lag**
-4.55612	-4.37996	-4.62374	6.76E-09	NA	62.79671	**0**
-9.70508	-8.648109*	-10.1108	2.93E-11	142.2535	156.3845	**1**
-10.4927	-8.55492	-11.2364	1.25E-11	43.75958*	195.4556	**2**
-11.25915*	-8.44056	-12.34096*	9.80e-12*	27.94062	234.262	**3**

It is noted from Table (3-3) that the optimal degree of delay when entering all the study variables was the third degree, being significant for most of the standard criteria used, and on this basis this degree will be adopted upon the next analyzes.

8-2-1 Cranger causality test

Table (3) shows Cranger's causality for the relationship between the variables, as it is noticed that there is a causal relationship from GDP to credit granted to the private sector to GDP and with an optimal slowdown period (3) that the probability value of the F test of 0.006 is less than 5%. Likewise, the same case exists with the causal relationship of credit granted to the private sector to the gross domestic product to the gross domestic product, which leads to accepting the alternative hypothesis of the existence of the causal relationship between the two variables. This is consistent with economic theory, as the gross domestic product, when it rises, leads to an increase in the returns of the factors of production, and then an increase in savings and deposits, increases the ability of banks to grant credit and increases the financial depth. The effectiveness of monetary policy and hence the GDP.

The same applies to the supply of money and credit granted to the private sector to the gross domestic product, as we note that there is a causal relationship between the two variables, the fact that the probability values of F-test are less than the level of significance 5%, and this is also consistent with economic theory, especially that the increase in money supply (M2) Lead to increased liquidity at banks and thus their ability to grant credit,

As for the money supply to GDP (M2 / GDP) and credit granted to the private sector to GDP (CPCLGDP), there is no causal relationship between them because the probability values of the F-test are greater than the significance level of 5%,

With regard to the index of the size of deposits to gross domestic product (TBD / GDP) and credit granted to the private sector to gross domestic product (CPC / GDP), there is no causal relationship between them because the probability values of the F-test are less than 5%,

And that the relationship between money supply and GDP is a one-way relationship, and that money supply causes GDP, so the money supply to GDP has a moral reason for GDP and a one-way relationship. This is consistent with economic theory and as monetary economists believe that growth Money supply leads to GDP growth and Friedman called for a steady increase in supply to maintain growth in output.

As for the index of the volume of deposits, it does not cause the gross domestic product, and the reason here is due to the decrease in the volume of credit granted by banks despite the high deposits and liquidity they have, while the gross domestic product causes the volume of deposits due to the increase in income, savings, and then deposits. To the rest of the relationships it was immoral.

Table (3) the results of the Granger causality test

Null Hypothesis:		lag	Obs	F-Statistic	Prob.
GDP1 does not Granger Cause CPC/GDP		3	25	5.78215	0.006
	CPC/GDP does not Granger Cause GDP1	3	25	6.38535	0.0004
M2 does not Granger Cause CPC/GDP		3	25	4.44517	0.0167
	CPC/GDP does not Granger Cause M2	3	25	4.55792	0.0152
M2/GDPdoes not Granger Cause CPCGDP		3	25	2.10231	0.1357
	CPC/GDP does not Granger Cause M2/GDP	3	25	0.52309	0.6719
TBD/GDPdoes not Granger Cause CPC/GDP		3	25	0.51135	0.6795
	CPC/GDP does not Granger Cause TBD/GDP	3	25	2.87908	0.0646
M2 does not Granger Cause GDP		3	25	7.86873	0.0011
	GDP does not Granger Cause M2	3	25	0.77098	0.5252
M2/GDP does not Granger Cause GDP		3	25	5.76100	0.0006
	GDP does not Granger Cause M2/GDP	3	25	2.16539	0.1275
TBD/GDPdoes not Granger Cause GDP		3	25	1.00083	0.4151
	GDP does not Granger Cause TBD/GDP	3	25	7.29336	0.0021
M2/GDP does not Granger Cause M2		3	25	0.82696	0.4961
	M2 does not Granger Cause M2/GDP	3	25	2.43608	0.0981
TBD/GDPdoes not Granger Cause M2		3	25	0.32129	0.8099

	M2 does not Granger Cause TBD/GDP	3	25	3.41135	0.0599
TBD/GDPdoes not Granger Cause M2/GDP		3	25	0.33007	0.8037
	M2/GDP does not Granger Cause TBD/GDP	3	25	2.46134	0.5537

8-2- 2- The stages of estimating the regression of cointegration

First: estimating the slope of joint integration

Table (4) shows the estimation of the ARDL model according to the old formula that was developed in the eighties of the last century. We only care from this estimate that the best time gaps that were dealt with by a combination between the study variables and depending on the standards of ACIC information is ARDL (2, 2) 2, 2, 1) This means that the GDP is with two time gaps and that the credit granted to the private sector to the GDP is also with two time gaps, as is the case with regard to the money supply and the money supply to the GDP, as for the index of the size of deposits to the GDP The total is one time gap

Table (4) the results of estimating the regression of cointegration

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP1(-1)	0.115953	0.21376	0.542447	0.5974
GDP1(-2)	-0.84585	0.214319	-3.94669	0.0019
CPC_GDP1	-0.13412	0.06345	-2.11371	0.0562
CPC_GDP1(-1)	-0.17338	0.074227	-2.33585	0.0377
CPC_GDP1(-2)	-0.12499	0.065254	-1.91547	0.0796
M21	2.46314	0.222333	11.07861	0
M21(-1)	-0.52072	0.578004	-0.90089	0.3854
M21(-2)	1.990235	0.538096	3.698659	0.003
M2_GDP1	-2.46508	0.107034	-23.0308	0
M2_GDP1(-1)	0.15739	0.52085	0.30218	0.7677
M2_GDP1(-2)	-1.9213	0.495492	-3.87757	0.0022
TBD_GDP_3_	0.282157	0.447027	0.631185	0.5398
TBD_GDP_3_(-1)	-0.38655	0.356956	-1.0829	0.3001
C	0.443805	0.199122	2.228808	0.0457
R-squared	0.99976	Mean dependent var		17.34518
Adjusted R-squared	0.9995	S.D. dependent var		2.144194
S.E. of regression	0.047965	Akaike info criterion		-2.93296
Sum squared resid	0.027608	Schwarz criterion		-2.25552

Log likelihood	52.12848	Hannan-Quinn criter.	-2.73788
F-statistic	3842.137	Durbin-Watson stat	2.04677
Prob(F-statistic)	0		

DIAGNOSTIC TESTS

Table (4) Diagnostic tests

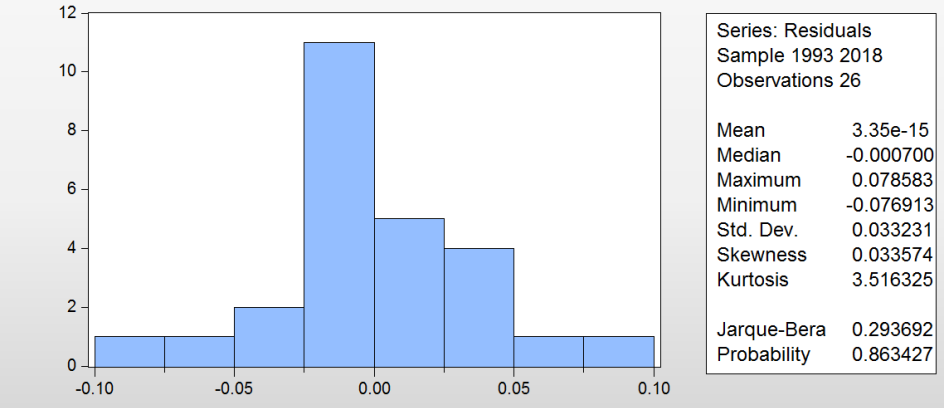
اختبارRamsey test	**p-value=0.1073**
Normal distribution test	**p-value=0.8603427**
Self-correlation test	**p-value=0.4819**
The homogeneity of contrast instability test	**p-value=0.3071**

9.1. The Ramsey test

Table (4) refers to the Ramsey test, where it is noted from the table that the probability values are not significant, and this means that the functional form of the model is correct.

9.2. **Jarque-Bera test:**

Table (4) indicates that the Jarque-Bera test statistic is not significant, as the probability value of the test is greater than 5%, which means that the null hypothesis that random errors are normally distributed in the model being estimated, is not rejected, and as shown in the figure below:



9-2-1 The Breusch-Pagan-Godfrey Test

This test is used to find out if the errors are not homogeneous, as it is noted that the probability value of each test statistic is not significant, and this means accepting the null hypothesis that the errors are homogeneous.

9-2-2 The Breusch-Godfrey Serial Correlation LM Test:

This test is used to find out whether the errors are self-related, as it is noticed that the probability value of each test statistic is not significant, and this means accepting the null hypothesis that the errors do not suffer from self-correlation.

10. EXAMINING THE COMMON COMPLEMENTARITY USING THE BOUNDARY APPROACH

There will be a common complementarity between the study variables according to the boundary approach if the calculated value of F is greater than the upper limit of the critical values, and therefore we reject the null hypothesis that states that there is no long-term equilibrium relationship and accept the alternative hypothesis that there is a common complementarity between the study variables, but if the calculated value is Less than the minimum critical values, we reject the alternative hypothesis and accept the null hypothesis, meaning the absence of the equilibrium relationship in the long term.

Table (5) the boundary test results

Test statistic	**value**	**k**
F- statistic	5.580639	4

Table (6)

Signif.	I(0)الحد الأدنى	I(1)الحد الاعلى
10%	2.2	3.09
5%	2.56	3.49
2.50%	2.88	3.87
1%	3.29	4.37

It is noticed from Table (6) that the calculated F value of 5.580639 is greater than the upper limit of the critical values below the level of 1%, 5%, 10%. Therefore, we reject the null hypothesis which states that there is no long-term equilibrium relationship and accept the alternative hypothesis that there is a common complementarity between Study variables, this means that there is a long-term relationship between the study variables, and a long-term balance is achieved between them.

11. ESTIMATING THE ARDOL MODEL ACCORDING TO THE ERROR CORRECTION (ESTIMATING THE PARAMETERS IN THE SHORT TERM)

Table (7) shows the results of estimating the ARDOL model according to error correction

Table (7) the results of estimating the ARDOL model in the short term according to the error correction

Variable **المتغيرات**	Coefficient المعالم	Std. Error	t-Statistic	Prob.
D(GDP1(-1))	0.845849	0.174683	4.842189	0.0004
D(CPC/GDP1)	-0.13412	0.03453	-3.88398	0.0022
D(CPC/GDP1(-1))	0.124991	0.036958	3.381986	0.0054
D(M2)	2.46314	0.149154	16.51405	0

D(M2 (-1))	-1.99024	0.437807	-4.54592	0.0007
D(M2/GDP1)	-2.46508	0.071833	-34.317	0
D(M2/GDP1(-1))	1.921303	0.403692	4.759333	0.0005
D(TBD/GDP)	0.282157	0.250139	1.128001	0.2814
CointEq(-1)*	-1.7299	0.25117	-6.88734	0

It is noticed that the error correction limit is negative and significant, which means 172.98% of the short-term errors can be corrected in the unit of time in order to return to the equilibrium position in the long term, meaning that there is a possibility to return to the equilibrium position and thus the existence of a long-term relationship and this is what will be proven when studying the test the border.

From the above table, the estimated equation can be written as follows:

D(GDP1)= 0.443805+ 0.845849* D(GDP(-1))-0.134115* D(CPC/GDP)+0.124991* D(CPC/GDP(-1))+ 2.463140* D(M2/GDP)-1.990235* D(M2/GDP(-1)) -2.46508* D(M2/GDP) + 1.921303* D(M2/GDP(-1))+0.282157* D (TBD/GDP(-1))(

As noted from the above table, the following:

•The short-term model is significant because the probability value of the F-test of 0.000 is less than 5%, meaning that the study variables have a significant impact on the GDP.

•The value of the coefficient of determination for the estimated model was 0.995022, which means that the study variables explain about 99.5022% of the changes in the gross domestic product.

•The estimated value of the first difference of the slowing GDP variable for one period of time reached 0.845849, which is a significant value because the probability value of the T-test of 0.0005 is less than 5%. This means that increasing the first difference of the slowing GDP variable for one period of time by 100% leads to an increase In the GDP by 84.5849%.

•The estimated value to the first difference of the variable credit granted to the private sector to GDP is -0.134115, which is a significant value because the probability value of the test of 0.0028 is less than 5%. This means that the increase in the first difference of the variable credit granted to the private sector to GDP by 100% leads To a decrease in the gross domestic product by 13.4115%, this reflects the significant decrease in the degree of financial depth and that the granted credit is not directed towards investment, but rather the consumer side occupies the largest share of the credit allocations in Iraq during the study period.

•The estimated value of the first difference of the variable credit granted to the private sector to the slowing GDP for one period of time reached 0.1244991, which is a significant value because the probability value of the T-test of 0.0071 is less than 5%. This means that the first difference of the variable of credit granted to the private sector increases to GDP A slowing one-time period of 100% leads to an increase in GDP by 12.449%. This is consistent with economic theory and the study hypothesis proves that the financial depth represented by increasing the amount of credit granted to the private sector to output will support the effectiveness of monetary policy.

•The value of the first difference of the money supply variable was 2.463140, which is a significant value because the probability value of the T-test of 0.000 is less than the level of significance 5%. This means that increasing the first difference of the money supply variable by 100% will lead to an increase in GDP by 246.314% in the short term

•The value of the first difference for the slowing money supply variable reached one time period -1.990235, which is a significant value because the probability value of the T-test of 0.0009 is less than 5%. This means that increasing the first difference of the slowing money supply variable for one period of time by 100% leads to a decrease in GDP The total increased by 199.0235% in the short term.

•The value of the first difference of the money supply variable to GDP was -2.465080, which is a significant value because the probability value of the T-test of 0.0000 is less than the significance level of 5%. This means that increasing the first difference of the money supply variable to GDP by 100% leads to a decrease in GDP increased by 246.508% in the short term. In other words, when the value of the supply to the product decreases, it means an increase in the financial depth, especially in the banking sector, which leads to an increase in the growth of output through improving the effectiveness of monetary policy, and this applies with the hypothesis of the study.

•The value of the first difference of the money supply variable to the slowing GDP for one period of time was 1.921303, which is a significant value because the probability value of the T-test of 0.0006 is less than the level of significance 5%. This means that the increase of the first difference of the money supply variable to the slowing GDP is one period of time By 100%, it leads to an increase in GDP by 192.1303% in the short term.

• The value of the first difference in the index of the size of deposits to the GDP was 0.282157, which is a non-significant value, since the probability value of the T-test of 0.2969 is greater than the level of significance 5%. Therefore, increasing the first difference of the index of the size of deposits to GDP by 100% leads to an increase in output GDP increased by 28.2157% in the short term. This is consistent with the study's hypothesis that higher fiscal depth leads to enhanced monetary policy effectiveness and output growth.

12. ESTIMATING THE EQUATION OF JOINT INTEGRATION IN THE LONG TERM

Table (8) represents the long-term model estimate**:**

Table (8) the results of estimating the ARDOL model in the long term

Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**			
CPC/GDP	-0.25001	0.075212	-3.32407	0.0061			
M2	2.273348	0.012418	183.0734	0			
M2/GDP	-2.44465	0.044801	-54.5666	0			
TBD/GDP	-0.06035	0.269912	-0.22357	0.8269			
C	0.25655	0.103247	2.484816	0.0287			
EC = GDP1 - (-0.2500*CPC_GDP1 + 2.2733*M21 -2.4447*M2_GDP1 -0.0603							
***TBD_GDP_3_ + 0.2566)**							

From the results above, the estimated model can be written in the following form:

EC = GDP1 - (-0.2500*CPCGDP2 + 2.2733*M21 -2.4447*M2GDP1 -0.0603*TBDGDP)

It is noticed that the variable of credit granted to the private sector to the gross domestic product has a significant effect in the long run, since the probability values of the T-test of 0.0061 are below the level of significance 5%, as its value reached -0.250009. This means that the credit granted to the private sector to the GDP increased by 100 % Leads to a decrease in GDP in the long run by 25%

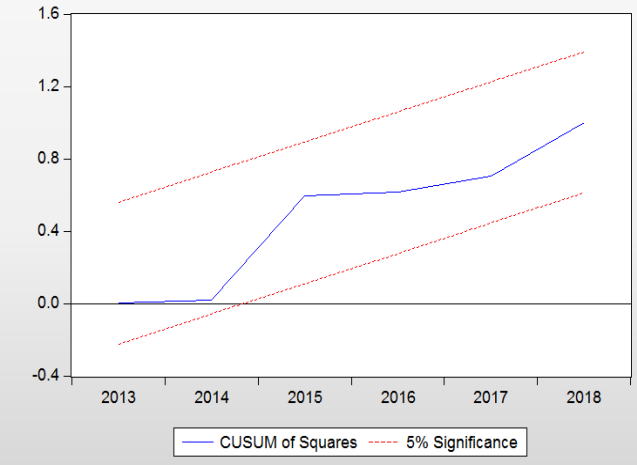
Also, the money supply was a significant value, since the probability value of the T-test of 0.0000 is less than 5%, as its value was 2.273348. This means that an increase in the money supply by 100% in the long run leads to an increase in the GDP by 227.3348%, as for the variable The money supply to GDP is also significant because the probability value of the T-test of 0.0000 is less than the level of significance 5% and its value was -2.444653. This means that an increase in the money supply to GDP by 100% leads to a decrease in GDP by -244.4653 While the value of the variable index of the size of deposits to GDP was not significant, since the probability value of the T-test of 0.8269 was greater than 5%

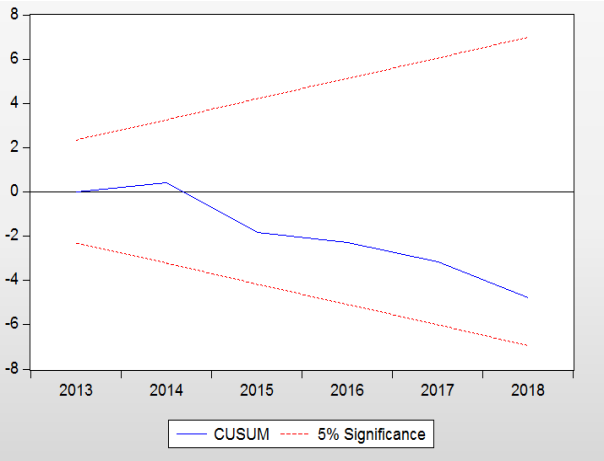
The long-term results reflect the significant decline in the financial depth in Iraq and its tendency to decline with the passage of time, as was evidenced in the second quarter by the indicator of the volume of credit granted to the gross domestic product. The effectiveness of monetary policy.

It is noteworthy that the indicators of market value to GDP and number of shares to GDP were excluded, due to the statistically insignificance of these two indicators, as results showed that the estimated model is not significant because the probability value of the F-test of 0.071180 is greater than 5 % That is, the study variables do not have a significant effect on the gross domestic product. The value of the coefficient of determination for the estimated model was 0.356236, which means that the study variables explain about 35.6236% of the changes in the gross domestic product. It is a weak ratio, as a whole, the market value of the GDP is not significant, because the probability value of the T-test of 0.0633 is greater than 5%, the number of shares to the gross domestic product is a non-significant value, because the probability value of the test of 0.0728 is greater than 5%, and because of the weakness of the model and the lack of significance The estimated variables represented by both the market value to the gross domestic product and the number of shares to the gross domestic product, these two variables were excluded. (Statistical Appendix)

13. TESTING THE STRUCTURAL STABILITY OF THE MODEL

The structural stability test for the short and long term transactions is that the data used in this study do not have any structural changes in them over time, and to achieve this, two tests are used: the cumulative total of residuals test (Cusum) and the cumulative sum test of the remainder squares follow-up (Cusumsq) and the stability is achieved The structural parameters of the estimated coefficients in the form (Uecm) of the ARDOL model if the graph of the statistic of both the cumulative sum of the follow-up residues (Cusum) and the cumulative sum of the following residual squares (Cusumsq) within the critical limits at the level of significance 5% and then these coefficients are unstable if the figure moves The graph of the count of the two tests mentioned for this model is out of bounds at this level.





13-1 It is evident through the two figures that the estimated coefficients of the ARDOL model used are structurally stable over the period under study, which confirms the existence of stability between the study variables and the consistency in the model between the results of correcting the error in the short and long term, as the By conducting the standard analysis of the model to show the effect of financial depth indicators on the effectiveness of monetary policy, as the value of the coefficient of determination of the estimated model reached (0.999546) and this means that the study variables explain about (99.9546%) of the changes occurring in the money supply. And the estimated value of the money supply to GDP is (1.020863), which is a significant value because the probability value of the T-test of (0.0000) is less than 5%, which means that the increase in the money supply index to the gross domestic product (M2 / GDP) by (100%) It leads to an increase in the money supply by (102.0863%), meaning that there is a positive effect for this indicator on the effectiveness of monetary policy. The estimated value of the index of the size of deposits to gross domestic product (CPC / GDP) reached (0.131553), which is an insignificant value as the value The probability of testing (0.1524) is greater than (5%). This means that increasing the deposit volume index to GDP by 100% leads to an increase in the rate of money supply by (13.1553%), meaning that there is a positive impact of this indicator on the effectiveness of monetary policy The estimated value of the credit granted to the private sector to the gross domestic product (0.435086) is a significant value because the probability value of the T-test of (0.0000) is less than (5%), which means that the credit granted to the private sector to the GDP increased by (100) %) Leads to an increase in the stomach The money supply increased by (43.5086%), which means that there is a positive impact of this indicator on the effectiveness of monetary policy

13-2- By conducting the standard analysis of the model to show the effect of financial depth indicators on the effectiveness of monetary policy on the gross domestic product, the short-term results showed that the short-term model is significant that the probability value of the F-test of (0.000) is less than 5%, meaning that the study variables have a significant effect. The value of the determination coefficient of the estimated model was (0.995022), which means that the study variables explain about (99.5022%) of the changes in the gross domestic product. The indicators of credit granted to the private sector to GDP, money supply to GDP, volume of deposits to GDP, slowing positively affect the effectiveness of monetary policy and then its transfer to the economy and then the growth of investment and output and this needs to restructure the sector The Iraqi banker in line with the goal of shifting towards the private sector and raising the value of financial depth. The long-term results showed that the indicators of financial depth, money supply / GDP were negative indications, that is, it has an inverse relationship with the growth of GDP in the long term and this is consistent with Economic theory, where the lower the value of the index, the higher the value of the financial depth, and thus the increase in financial depth will positively affect the effectiveness of monetary policy in its effect on GDP in the long term. Also, the credit volume index to GDP was negative, that the relationship is inverse with the growth of output Which means an inverse relationship to the effectiveness of monetary policy, which

is due to the weak performance of the banking sector and the low financial depth, which was reflected in the results of the dissolution Yel for the long term.

From the foregoing, it can be said that the financial depth has a positive effect on the effectiveness of monetary policy in its impact on the gross domestic product in Iraq, especially graph fell within the limits of confidence.

CONCLUSIONS

1- The financial depth has a great influence on the transmission channels of monetary policy and their effectiveness in influencing the money supply and gross domestic product.
2- The financial depth in Iraq was not at the required level, which is compatible with the trends towards the market economy, as the results of the analysis of the indicators used in the study showed that the depth of the banking sector is still in its infancy, and the weakness in the depth of the Iraqi stock market due to the limited size and impact in comparison to the gross domestic product .
3- The decrease in the financial depth represented by the volume of credit provided to the private sector to the GDP was negatively reflected on the credit channel, and led to a decrease in the effectiveness of monetary policy through this important channel, as despite the size of the initiatives provided by the central bank and the liberalization of interest rates, monetary policy did not effect On economic activity due to the high liquidity of banks and the reluctance of investors to borrow as a result of high interest rates on loans, high ceiling of required collateral, and high risks.
4- Financial depth has a positive relationship on monetary policy through the effect of financial depth indicators (M2 / GDP, CPC / GDP, TD / GDP) on money supply (M2) as an indicator of monetary policy. It also shows that financial depth affects the effectiveness of monetary policy in its impact on Gross Domestic Product If the tests showed a causal relationship in two directions, from financial depth to GDP and vice versa, the results of the joint complementarity test also showed a positive effect of financial depth on the effectiveness of monetary policy and output in the short term, and the results were consistent with the hypothesis of the study, also the relationship was negative In the long term, between some variables of financial depth, which reflects the low financial depth and the ineffectiveness of monetary policy in its impact on output in Iraq.

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