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Analysis and measurement of the relationship between money supply and fisical policy rules in Iraq for the period 2004: 3 - 2015: 2

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Abstract :
The study is aimedat measuring and analyzing the relationship between money supply and the rules of fiscal policy in the Iraqi economy, covering data for the period (2004: 3-2015: 2). The research revealed that when the Stationary test was performed for the time series of the current variables, it was concluded that theVariable Difict of Rule(Def) was at the level. The rest of the variables were Stationary at the first difference (I). Therefore, the ARDL model was applied, Long-term Bounds Test, and a short-term equilibrium relationship. And the existence of positive and significant effect by the rules of deficit and public debt and the golden rule in the long term, where the value of partial flexibility (0.034) and (0.277) and 0.103, respectively, and this corresponds to the logic of economic theory, Are not consistent with the logic of economic theory. The negative and significant impact of the long-term (Rev / Exp) rule in the short term. In the short run, the increase in the ratio of revenues to expenditure leads to a long-term reduction in money supply. Structural imbalance in public expenditure items in favor of investment Expenditure driving the development of GDP and diversification of production base.

المستخلص
يهدف البحث قياس وتحليل العلاقة بين عرض النقود وقواعد السياسة المالية في الاقتصاد العراقي، يغطي بيانات للمدة (2015:2-2004:3). وكشف البحث عند اجراء اختبار السكون للسلاسل الزمنية للمتغيرات الحالية، بأن متغير قاعدة العجز (Def) كان ساكنا عند المستوى، أما بقية المتغيرات كانت ساكنة عند الفرق الأول $I_{(1)}$، لذا تم تطبيق إنموذج ARDL، وتبين وجود تكامل مشترك بينها على المدى البعيد باختبار (Bound Test)، وعلاقة توازنية قصيرة الأمد، ووجود أثر موجب ومعنوي من قبل قواعد العجز والدين العام والقاعدة الذهبية في الأمد الطويل حيث كانت قيمة المرونة الجزئية (0.034) و (0.227) و(0.103) على التوالي، وهذا يتوافق مع منطق النظرية

الاقتصادية، إلا أن اشارة معلمة قاعدة العجز في الأمد القصير لا تتفق ومنطق النظرية الاقتصادية. ووجود أثر سالب ومعنوي من قبل قاعدة ضبط النفقات (Rev/Exp) في الأمد الطويل وموجب ومعنوي في الأمد القصير، إذ أن زيادة نسبة الايرادات الى النفقات يؤدي الى تخفيض عرض النقود على المدى البعيد، توصل البحث الى قبول فرضية البحث، اوصى البحث في معالجة الخلل الهيكلي الحاصل في بنود الانفاق العام لصالح الانفاق الاستثماري المحرك لتنمية الناتج المحلي الاجمالي وتنويع القاعدة الانتاجية

1 . Introduction

The Iraqi economy has been suffering for a while from a lack of Fisical policy in the real sense. The Ministry of Finance's work in drawing up the government's fiscal policy has been based on recording public revenues in the accounting records and redistributing expenditures according to the allocations of ministries and institutions not affiliated with the Ministry. In the previous year, taking into account the new changes in public revenues, almost all of which come from the export of oil. After collecting these revenues, they enter the Central Bank, which processes them in a way that is almost automatic. Fisical discipline has a direct and effective impact on fiscal and monetary policies and Fisical stability. As a reaction to the legacy of Fisical crises, to tackle uncertainty and Fisical turmoil, to stabilize the economy and to save the economy from violent shocks, the need to use Fiscal Rules, which has become more widespread in the last two decades, , Fiscal policy becomes a factor in stabilizing production and increasing the effectiveness of fiscal and monetary policies. Hence the importance of research in the detection of the effectiveness of monetary policy (money supply) during the period of research, especially as there is a contradiction between the objectives of the Fisical and monetary policies in an economy depends mainly on one resource is oil.

1.1. Research problem: The question Of the Reseach is: "what is the adoption of the rules of fiscal policy to achieve the effectiveness of monetary policy (money supply) in Iraq for the period 2004: 3-2015: 2"?

1.2. The hypothesis of the research: Is adherence to the rules of fiscal policy Fiscal Rules Policy will contribute to the stability of monetary policy and improve its effectiveness in Iraq?

1.3. Research Objectives:

A. Understand the concept of money supply and its effects on macroeconomic activities.

B. Highlight the rules of fiscal policy.

C. Measuring the relationship between fiscal policy regulation (Fiscal Policy Rules) and the effectiveness of monetary policy (money supply) in Iraq.

1.4.The temporal and spatial limits of the study: The study includes the period March-2004 to Feb-2015. As for the spatial boundaries of the study, it was based on data from the Iraqi economy.

1.5. Methodology: The study is based on descriptive analytical approach in relation to the theoretical part of the study, which is the conceptualization of the rules of fiscal policy. As for the practical part of the study, it is based on quantitative analysis of the Iraqi economy.

1.6. Data used in the research are data of the Central Bank and Ministry of Finance data (budgets and research years)

1.7. Structure of the research: To verify validity of the hypothesis and reach the objectives of the research section to two axes as well as conclusions and recommendations, the first axis included the conceptual approach to the rules of Fisical policy and money supply. Finally, the second axis included economic measurement for determining and the causal relationship between the rules of fiscal policy and the variable effectiveness of monetary policy (money supply) to reach the applicability of the hypothesis of research on the Iraqi economy.

1.8. Previous Studies

A.The fiscal rules in volatile world is preposed by Carlos Garcia et al (2011). This research dealts with Fisical rules and their role in addressing Fisical turmoil and its impact on consumer welfare. The study finds that non-Ricard consumers (from hand to mouth) benefit unambiguously from the structural surplus rule (AC), unlike Ricardian consumers. Ricardo's consumers will not benefit from the consumption offered to the public. Unlike non-Ricard consumers who can actually do this work for themselves. Moreover, in the case of a structural surplus, government purchases, which are earned by Ricardo’s both consumers and non-Ricard consumers, will then occur much more within a balanced budget (BB). Thus, the structural surplus takes Ricardian consumers the opportunity to accumulate assets during the early years if they are under the balanced budget base.

B. Schaechter et al (2012) have suggested the Fiscal Rules in Response to the Crisis. This paper,addresses the fiscal rules used worldwide (national and supranational rules) covering 81 countries by the end of March 2012, which dealt with the types and number of rules, elements of the design of

the Fisical base, and its main characteristics, such as the legal basis, and make periodic amendments to the terms and conditions. The paper also addressed independent oversight bodies and Fisical liability laws.

Three main conclusions were drawn:

- The introduction of new Fisical rules and the strengthening of existing ones in response to the crisis.
- The number and comprehensiveness of Fisical rules vary in design features in economies emerging from those in developed economies.
- The next generation of Fiscal Rules is becoming increasingly complex and combines sustainability objectives with the need of flexibility in response to shocks.

C. Sacchi Salotti (2014) (Effect of national fiscal rules on the stability of fiscal policy): aims to establish the relationship between discretionary fiscal policy and stability In the 21 OECD countries during the period 1985-2012, and examined how the Fiscal Policy rules influence macroeconomic stability. Has concluded that the use of discretionary or non-discretionary fiscal policy, especially in government consumption items, leads to severe fluctuations in production and has less impact on inflation. In the development of strict Fisical rules, interventionist fiscal policy becomes an auxiliary factor in stabilizing production rather than destabilizing production. This result will be more easily achieve by a balanced budget base that is more effective than the rest of the rules of fiscal policy, rather than on the rules of expenditure, revenue or debt. On the other hand, the Fisical rules are unable to influence the inflationary instability of the stability of the discretionary fiscal policy, which has a greater impact on central banks. The rules of fiscal policy also promote welfare to be of particular importance, because austerity policies aimed at restoring fiscal discipline and reducing spending and raising taxes that negatively affect economic growth. The results suggest that the existence of rules to guide policy makers' behavior may mitigate these negative effects and increase welfare.

D. Another paper, presented by Jan Kramer, 2004, under the title Fisical Rules and Monetary Policy in the Dynamic Counterbalanced General Dynamic Counterbalancing Model of the Economic Cycle, was introduced into the Dynamic Random Balance Model with new Keynesian features. The rule allows the deficit to stay away from the target in proportion to the effect of automatic stabilizers, while any additional effect on the deficit, for example on interest expenses, must be

compensated by adjusting government consumption or taxes. The size of the automatic stabilizers is mainly determined as the change in the initial deficit caused by the economic fluctuations of a particular tax system. The model is Calibrate shows how the conditions of monetary policy to ensure stability the determination of model equilibrium depends on the basis of fiscal policy in particular, on the means used to meet the rule. Taylor proved a principle that carries reasonable values for fiscal policy criteria in the case of fiscal policy Depends on Changes in Total Taxes. This conflicts with the reference result for Leiber (1991). The same applies to cases where consumption taxes or profit taxes are imposed on Government consumption is adjusted to meet the Fisical provision. However, if they are Fisical rules are met by wage adjustments or interest tax rates and set values to monetary policy standards that ensure stability and change of determinism Significantly.

The main characteristic of this research is characterize by previous studies with a number of features including:

- It is a research that addresses the problems of the Iraqi economy because there is a distortion in the structural structure rooted in the result of the wars that have passed before and now.
- This study is a new and modest attempt to find the relationship between Fisical rules and the effectiveness of monetary policy.
- The previous studies in the countries that adopts the Fisical rules are the study of the effect of the Fisical rules on other variables, ie, a study of past periods. This research is about the reality of the Iraqi economy, which characterized by legitimacy (adoption of the government budget on oil revenues) Forward outlook for the impact of Fisical rules on the effectiveness of monetary policy if they are adopted.

2. Money supply

It reflects the purchasing power of individuals. The availability of money means that the liquid resources in the economic sector are used in the exchange of goods and services. The increase in money supply leads to the emergence of inflation in the economy.And if the money Supply Decreased leads to increase in unemployment, and low production. (Abdujman, 1999: 207-225). Money supply is defined as cash in circulation as well as money in bank accounts. Money supply does not include any other form of Fisical wealth such as equity or Fisical investments. Credit instruments, such as mortgages, Fisical loans, and other money supply tariffs, of currencies and liquid Fisical instruments

that are traded in the economy of a particular country. Money supply includes the use of more than one indicator to measure the money supply, for more details see (Abdujman, 1999: 217-227).

2.1. Effects of monetary policy

A.To illustrate the effect of monetary policy on the budget deficit, we take a range of different variables that are affected by monetary policy. In turn of affect the budget deficit although the effect of each of these variables is small if taken separately. Nonetheless, the total effect of these variables is combined Most of these variables (the rise in the general price level, the increase in public expenditure, the lack of tax revenues, and the increase in public debt) lead to an increase in the budget deficit if a contractionary monetary policy adopted due to higher interest rates. As shown in (Kamal, 2010: 10-11)

B. The Revenue Effect

Restrictive monetary policy measures slow economic growth and lower national income in the short term. Thus reducing tax revenues, which leads to higher budget deficit, and the low rate of economic growth will lead to a rise in the ratio of public debt to gross national product. The impact of revenue also depends on the elasticity of tax revenues for output.

C. The Debt Effect

Restrictive monetary policy has high rates of short-term nominal interest rates, which in turn affect medium- and long-term rates. Therefore, the burden of servicing a fixed amount of public debt will rise, and these costs may lead to a rise in the state budget deficit.To fully assess, the impact of central bank decisions regarding inflation on interest rates should be taken into account. As many central banks recently are resorted to using interest rates as a tool for achieving the target inflation rate.

D. The Prices Effect

The rate of inflation is inversely linke to interest rates and, in turn, to the amount of money. This effect arises because of the expression of the budget deficit using real variables where low prices (or low inflation) reflect a rise in the real value of the public debt. Therefore, the change in the Fisical situation as a whole (public debt, budget deficit) is complicated by the deflationary monetary policy. Therefore, monetary and fiscal policy must be coordinated, taking into account the budgetary implications of deflationary monetary policy.

E. Gross domestic product

It is an economic variable affected by the change in money supply. When money supply increases, because of expansionary monetary policy, it leads to an increase in the general price level and low interest rate, which encourages the expansion of investments. In deflationary monetary policy, the money supply is reduced, resulting in higher interest rates, and a decrease in the level of public prices, and consequently results in a reduction in the volume of investments (Hameed,2011: 1348-1361).

F. Unemployment

It means that there is no work for those who are willing and able to do so, and by using an expansionary monetary policy that leads to an increase in the general rate of prices and lower interest rates. This encourages investments that lead to increased demand for labor, (Hameed, 2011: 1348-1361).

G. Interest rate

Is the cost of capital or credit during the year, as this price is a debt and calculated as a percentage of the interest rate of capital, known as the percentage obtained by banks or Fisical institutions when providing loans, and is a proportion paid to people when keeping their money in bank accounts. Other tariffs for interest rate are the amount expressed as a percentage, and interest rates are often applied on an annual basis and include both loans, consumer products, cash, and assets such as buildings or vehicles, for more details see (Hagedorny, 2017: 1-21)

H. Inflation

The relationship between inflation and money supply is based on the theory of the quantity of money. The theory suggests that there is a proportional relationship between money supply and the level of the year for prices. The stability of the Volicty of money circulation, the stability of the level of production, and the responsibility of the monetary authority to influence the supply of money increase or decrease and affects the general level of prices and the result of inflation, For mor Details See (Al – Dabbagh,and another, 2015:374-376).

2.2. Fisical Rules

The Fisical rule is define as, long-term restrictions on fiscal policy through numerical (numerical) limits on totals budget. This means that the limits of the fiscal policy are set

2.2.1. Revenue rules

Aim to enhance revenue collection and / or prevent excessive tax burden. Most of these rules are not directly relate to the control of public debt, nor do they limit spending. One of the positives of the revenue rules is the size of the government and the prevention of cyclical trends in spending (rules restricting the use of exceptional proceeds). The disadvantages of the revenue rules are not directly relate to debt sustainability due to the lack of restriction on the expenditure side (excluding articles restricting the use of extraordinary proceeds). In addition, does not provide the advantage of economic stability (consistent with cyclical trends).

2.2.2. The Golden Rule، Growth and Public Investment

The traditional school goes, but the loan is not a real source of public revenues, such as taxes and fees. It is an urgent means of obtaining revenues. The loan will be amortized by tax, so it is a deferred tax that will burden future generations. If the next generations benefit from the benefits of public expenditures that used the proceeds of the loan to finance them

However, the slowdown in growth in 1998 and its potential effects on unemployment raised concerns and uncertainties in the EMU on the Fisical rules of the Maastricht Treaty and the Stability and Growth Pact. It has been argued that these rules may represent an overly binding obstacle to taking appropriate action to counter cyclical fluctuations and that an attempt to quickly reach a budget "close to balance or surplus may exacerbate the slowdown." The risk that rules may reduce the public sector's contribution in this context is proposed to adopt the Golden Rule (Balassone et al., 2000, pp. 207-208). Which means that borrowing is limited to the level of public investment (the golden rule requirement) or restriction of the fiscal deficit procedure (the criteria for convergence in public finance under the Maastricht Treaty of the Union) European or very near balance deficit requirement under the Stability and Growth Pact of the European Union). (IMF, 2014, p. 67-68) Any restriction of borrowing on current expenditures and seek to achieve a balance between current revenues and current expenses and allow borrowing to finance investment spending. Means achieving a budget "close to the balance or surplus, that is, most of the investment expenses will be financed from current income, so it will not be possible to charge the cost of an investment project to all generations (taxpayers) who benefit from it. : (Balassone ,et al, 2000: 209)

- The first effect: the implementation of large projects that result in deferred interest and involve a large gap between current and current expenditures.
- The second effect: While the deficit is reduced, the gap between current and current expenditures will grow in favor of expenditures if the investment flow remains unchanged. The gap will be larger than the initial level even as interest expense from debt reduction falls for the deficit.

With regard to the first effect, the Balassone and Franco (1999) study finds that the introduction of a deficit cap means a decrease in investment in a two-term model. The decision-maker and the limited horizon seek to increase disposable income. The latter is positively affected with investment with the difference Timeline (delay period). The decision-maker is concerned about economic performance only when it is in power, so the decision maker will invest less at the present time to increase disposable income with balanced budget constraints. However, this measure will reduce future disposable income because it has a positive relationship with investment.

The Barro 1979 study also suggests that the introduction of a budget deficit ceiling also reduces investment. In the case of a welfare scheme aimed at maximizing social welfare, if priority is given to spending for social welfare to reduce the loss of efficiency resulting from distorting taxes, Indivisible investment projects may result in welfare costs, but if social welfare spending is not prioritized, these costs may trigger a decline in investmen. Investments generate deferred benefits their means of financing (tax rather than debt) and affect intergenerational equity. Taxation involves loss of well-being for the current generation. The current generation pays the full cost of the project (when budget constraints are introduced) and its benefits will be partly attributable to the future generation. Measuring the Balanceual Relationship between Money Supply and the Fisical Policy Rules in Iraq for 2004: 3-2015: 2. The ratios and the analysis of the results of the Iraqi economy for the period 2004: 3-2015: 2 are measured quarterly and quarterly. The study includes measuring the relations between the money supply in the logarithmic formula (Ms / GDP) and the rules of Fisical policy (Def, Deb, Exp, Invest) explanatory variables (variables of Fisical policy) and logarithm also, using quarterly data quarterly. The research aims at measuring the dormancy of the time series Stationary and cointegration

combined, as well as Causality test, in order to reach the reality of the relationship between money supply and policy rules. Fisical and knowledge of the direction of the causal relationship between the variables in the long and short term has been analyzed the data using the statistical program (EViews.9).

3. Characterization of the variables used in the study

The process of measuring and estimating the relationship between the economic variables affecting and the budget deficit in Iraq requires examining is properties of the time series of the variable Invest. which is the Fisical policy indicator used by the Unit Root Test, for the Dicky-Fuller Augmentation Test (Cointegration Test) is required between the variables studied to determine the relationship between these variables. The co-integration test is used by the Bound test within the ARDL model. On this basis, the budget deficit function is estimated.

- Def represents the budget deficit in Iraq.
- The golden rule (Invest) is an important determinant of the deficit function.
- Building the mathematical model of the budget deficit in Iraq.

Quantitative method is an important way to explain the dimensions of economic theory at the macro level by converting the economic variables subject to research into a mathematical formula takes the form of function. After determining the economic variable affecting the function of the budget deficit in Iraq can be, formulated according to the most important economic variable of the budget deficit function as follows:

Def = F (Gold) ..... (1)

Which can take the form of a function of power (Power Function) as follows:

$Def = \beta_0 \cdot Gold^{\beta 1} \cdot e^{ut}$ ... ... (2)

The function can be rewritten in double logarithmic form to become an agency linear function.

L (Def) $= B_0 + \beta_1 LGold + u_t$ ..... (3)

The long and short term relationship can be measured according to the ARDL model as follows:

$$\Delta \mathbf{LDef} = \mathbf{la_0} + \sum_{i=1}^{r} \boldsymbol{\beta}_1 \, \Delta \mathbf{lDef}_{t-i} + \sum_{i=1}^{r} \boldsymbol{\beta}_2 \, \Delta \mathbf{lGold}_{t-i} + \boldsymbol{\lambda}_1 \mathbf{lDef}_{t-i} + \boldsymbol{\lambda}_2 \mathbf{lGold}_{t-i} + \boldsymbol{\varepsilon}_t \ldots\ldots\ldots \mathbf{(4)}$$

Where:

Def: represents the base of the deficit in the logarithmic formula.
Gold: The golden rule (ie deficit as a percentage of investment spending) is represented by the logarithmic formula.
Δ is The first difference of the variable values.
a_0 is Fixed limit
r is the number of optimal delay time
β_1 Regression model parameters represent the short-term elasticity of the budget deficit function for the study variables.
λ_1 Flexibility in the long term.
Table (1) shows the aforementioned economic variables which were adopted as inputs in the standard analysis with quarterly values and logarithmic formula.

Table 1: Standard Study Variables in Iraq for 2004: 3-2015: 2

M1/GDP	(Def/Invest) (Golden rule)	(Rev/Exp)	(Debt)	(Defict)	years
(5)	less than (%100) (4)	(%100) (3)	(%40) (2)	(%3) (1)	Standard ratios
0.191	36.1	101.5	208.2	2.8	3-2004
0.191	36.1	101.5	208.2	2.8	4-2004
0.191	36.1	101.5	208.2	2.9	1-2005
0.191	36.1	101.5	208.2	2.88	2-2005
0.155	245.6	126.6	153.7	12.9	3-2005
0.155	245.6	126.1	153.7	12.57	4-2005
0.155	245.6	125.5	153.7	12.3	1-2006
0.155	245.6	124.9	153.7	11.8	2-2006
0.162	430.9	126.6	119.0	12.0	3-2006
0.162	430.9	126.6	119.0	12.1	4-2006
0.162	430.9	126.6	119.0	12.2	1-2007
0.162	430.9	126.6	119.0	12.4	2-2007
0.195	229.3	135.2	91.1	13.7	3-2007
0.195	229.3	135.2	91.1	13.7	4-2007
0.195	229.3	135.2	91.1	13.6	1-2008
0.195	229.3	135.2	91.1	13.6	2-2008
0.180	86.4	116.1	50.6	8.4	3-2008
0.180	86.4	116.1	50.6	8.4	4-2008
0.180	86.4	116.0	50.7	8.3	1-2009
0.180	86.4	116.0	50.7	8.3	2-2009
0.284	3.9	96.5	60.3	0.1	3-2009
0.284	3.9	96.9	60.3	0.8	4-2009
0.284	3.8	97.2	60.2	1.6	1-2010

0.284	3.8	97.6	60.2	2.3	2-2010
0.324	0.3	97.0	45.8	0.0	3-2010
0.324	0.3	97.0	45.7	0.1	4-2010
0.324	0.3	97.0	45.7	0.1	1-2011
0.324	0.3	97.0	45.7	0.1	2-2011
0.287	163.3	133.7	37.1	13.5	3-2011
0.287	163.3	133.7	37.0	13.5	4-2011
0.287	163.3	133.7	37.0	13.5	1-2012
0.287	163.3	133.6	36.9	13.5	2-2012
0.251	48.7	110.4	31.2	5.7	3-2012
0.251	48.7	110.4	32.4	5.7	4-2012
0.251	48.7	110.4	31.2	5.7	1-2013
0.251	48.7	110.4	31.3	5.6	2-2013
0.272	12.8	92.7	30.8	0.5	3-2013
0.272	12.8	92.7	30.8	0.5	4-2013
0.272	12.8	92.7	31.5	0.5	1-2014
0.272	12.8	92.7	31.5	0.6	2-2014
0.279	84.4	121.9	34.2	8.3	3-2014
0.279	84.4	121.9	34.2	8.3	4-2014
0.279	84.4	121.9	34.3	8.2	1-2015
0.279	84.4	121.9	34.3	8.2	2-2015

The researcher uses all the data on a quarterly basis in order to limit the sample of the study. In view of the absence of actual quarterly data for the period (2003-2015), the researcher resorted to the (Diz Approach) equations to convert the annual data to quarterly and as follows (Rashid,and another,2013:1-69)

$$X_1 = Z_{t-1} + 7.5/12(Z_t - Z_{t-1}) \quad \text{.....(6)}$$

$$X_2 = Z_{t-1} + 10.5/12(Z_t - Z_{t-1}) \quad \text{.....(7)}$$

$$X_3 = Z_t + 1.5/12(Z_{t+1} - Z_t) \quad \text{.....(8)}$$

$$X_4 = Z_t + 4.5/12(Z_{t+1} - Z_t) \quad \text{.....(9)}$$

Where

Z_t ……. denotes the value of the variable in year (t),

Z_{t-1} …. denotes the value of the variable in the year preceding the year t,

Z_{t+1}……denotes the value of the variable in the subsequent year (t) Quarter (i = 1, 2, 3, 4).

Source: Prepared by the researcher based on data from the Ministry of Planning in Iraq.

3.1. Unit Root test for Money Supply Function Variables:

Unit Root test using Phillips-Perron (PP) unit root test (PP):

The researcher tests the null hypothesis (H0: = = 0), which state (the existence of the root of the unit), to verify the timeliness of the time series of the variables studies, whether it is still at its original level or not, Nullity, but after taking the first difference, the test results are summarized in Table (2). The results showed that the unit root test of the

economic variables studied using the Phillips-Perron (PP) test showed that the deficit base variable (Def) was still at the level and at a constant constant only with a significant degree of 6%. The rest of the variables were as shown Table (2) shows that the variables did not achieve the level of silence at the level. The calculated value (τ) was less than the critical value at a significant level (5%). (T = 0) and the acceptance of the alternative hypothesis. Since the time series of the variables (1) The study is static at its first difference. As long as there is a mixture of variables that is at the same level of variance, the long-term equilibrium relationship can be estimated by means of the joint integration test (Michael, 2010, p: 3).

Table (2) Results of the unit root test by Phillips-Perron (PP) for the variables of the study. The first formula for the period 3/2004 to 2/2015

Calculated τ value at the first difference				Calculated τ value at level				Variables	
Intercept & general Trend		Intercept		Intercept & general Trend		Intercept			
P-value	Value	P-value	Value	P-value	Value	P-value	Value		
0.0000	-6.31	0.0000	-6.39	0.55	-2.06	0.69	-1.15	LnMs/GDP	
0.0000	-7.47	0.0000	-7.58	0.19	-2.86	0.06	-2.82	Ln Def/GDP	
0.0000	-12.09	0.0000	-7.32	0.89	-1.23	0.14	-2.43	Ln Deb/GDP	
0.0000	-6.29	0.0000	-6.37	0.30	-2.56	0.11	-2.54	Ln Rev/Exp	
0.0000	-6.24	0.0000	-6.32	0.46	-2.23	0.22	-2.16	Ln Golden Rule	
	-4.19 -3.52 -3.19		-3.60 -2.93 -2.60		-4.19 -3.52 -3.19		-3.59 -2.93 -2.60	%1 %5 %10	significant at level critical values

Source: From the work of the researcher based on the data in outputs of the program (EViews.9).

3.2. Granger's Causilty Test Results: Test of Grangger Causality

Table 3 shows the results of the causal relationship between the significant variables using the Granger method in the causal test, which tests the null hypothesis (H0). There is no causal relationship between the studied variables versus the alternative hypothesis (H1). A set of causal relationships can be derived from Table 3 results as follows (Damodar, 2005: 696)

1. The existence of a causal relationship in one direction of the variable of the public debt base (Deb) towards the money supply (Ms). The value of (F) (4.69) and the meaning (0.036) at the slow period of one time, that the rule of public debt significantly affect the money supply. This is consistent with economic logic and therefore the null hypothesis (H0) is

rejected which states that there is no causal relationship between the two variables.

2. The existence of a causal relationship in one direction of the Investor rule to the deficit base. The value of (F) (3.0003) and the integer (0.04) were three time periods, ie, the golden rule has a significant effect on the deficit base (H0), which states that there is no causal relationship between the two variables and accept the alternative hypothesis (H1), which states a causal relationship between the two variables.
3. It has not been shown that there is a causality between the other variables of the study as shown in Table 3.

Table (3) Results of the Granger causal test between the studies variables

Pairwise Granger Causality Tests, Date: 10/20/16 Time: 22:12 **Sample: 2004Q3 2015Q2, Lags:(1, 2, 3)** **Null Hypothesis H_0: Zero hypothesis There is no causal relationship**			
Direction of causation	**Number of decelerations**	**F- Statistic**	**Probability**
Ln(Ms/GDP) ⟶ LnDef	**2**	**0.42420**	**0.6574**
LnDef ⟶ Ln(Ms/GDP)	**2**	**0.01195**	**0.9881**
Ln(Ms/GDP) ⟶ LnDebt	**2**	**0.66967**	**0.5180**
LnDebt ⟶ Ln(Ms/GDP)	**1**	**4.68635**	**0.0364**
Ln(Ms/GDP) ⟶ LnExp	**2**	**0.22835**	**0.7970**
LnExp ⟶ Ln(Ms/GDP)	**2**	**0.107**	**0.898**
Ln(Ms/GDP) ⟶ LnInvest	**2**	**0.25153**	**0.7789**
LnInvest ⟶ Ln(Ms/GDP)	**2**	**0.02584**	**0.9745**
LnDef ⟶ LnDebt	**2**	**0.02252**	**0.9777**
LnDebt ⟶ LnDef	**2**	**0.54437**	**0.5848**
LnDef ⟶ LnExp	**2**	**0.396**	**0.6756**
LnExp ⟶ LnDef	**2**	**1.2349**	**0.3026**
LnDef ⟶ LnInvest	**2**	**1.37111**	**0.2664**
LnInvest ⟶ LnDef	**3**	**3.00031**	**0.0440**
LnDebt ⟶ LnExp	**2**	**0.86025**	**0.4313**
LnExp ⟶ LnDebt	**2**	**0.20242**	**0.8177**
LnDebt ⟶ LnInvest	**2**	**0.54528**	**0.5843**
LnInvest ⟶ LnDebt	**2**	**0.04050**	**0.9603**
LnExp ⟶ LnInvest	**2**	**0.05604**	**0.9456**
LnInvest ⟶ LnExp	**2**	**0.07064**	**0.9319**

Source: From the work of the researcher based on the outputs of the program (EViews.9)

3.3. Bound Test for Cointegration (ARDL) the Bound Test Approach to Cointegration

The Bound Test Approach to Cointegration(ARDL)[1]

A. The ARDL model (Binuomote, 2012, pp: 168-175) is characterized by a. The ARDL test does not require that the time series be integrated from the same class where it can be applied regardless of whether the variables under study are integrated from the I (0) or I (1) or a combination.

B. The method is simple to apply and allows for estimating the relationship of co-integration using the OLS method after determining the maximum optimal delay times of the model. The number of appropriate deceleration periods can be determined taking into account sample size (number of observations) The optimal time deceleration, whether in the Akaikes Information Criteria (AIC) or the Schwarz Bayesian Criterion (SBC) or Hannan-Quinn Criterion (HQC), was selected for optimal degradation.

In order to test the long-term equilibrium relationship, the extent of joint integration between the studied variables, the Bounds Test Approach is used within the framework of the ARDL models. This test can be used whether the search variables are integrated from 0 (I) or 1 (I) (1) or combined of them, and in the ARDL models), the dormancy test (unit root) is not necessary. ARDL models can be used if the time series studied are either 0 (I) or 1 (I) , And the importance of testing the root of the unit is only to ensure that these time series are not integrated class (H0). There is no common integration between the model's variants versus the alternative hypothesis (H1). There is a common integration between the estimated model variables based on the F (F) test, (F-statistic) and W (Wald-Statistic). The results of the integration test indicate that the time series of the variables studies are first-class I (1), with some of them complementary I.(0)

Comparison of the calculated value of the F-test in Table (4) with the corresponding critical values (pesaran et al.2001). If there is only a fixed limit, the calculated value of F (41.52) is greater than the value (1%, 2.5%, 5%, 10%). This means that there is a common integration between the variables of the current study (a long-term equilibrium relationship). (AL-bdali, 2016)

Table (4) shows the Bound test of the ARDL model

ARDL Bounds Test, Date: 10/20/16 Time: 22:12 **Sample: 2005Q3 2015Q2, Included observations: 96** **Null Hypothesis: No long-run relationships exist**			
LnMS= F(LnDef, LnDebt, LnExp, LnInvest)			
F-statistic	**P-VALUE**	**K**	**Result**
41.51947	**0.00**	**4**	**There is a common integration**
Significance	**I0 Bound**	**I1 Bound**	
10%	**2.2**	**3.09**	
5%	**2.56**	**3.49**	
2.5%	**2.88**	**3.87**	
1%	**3.29**	**4.37**	

C. The test has better characteristics with small sample size (30-80), provides efficient estimates, and allows for the determination of critical values for the tests used.

D. The short- and long-term relationship coefficients can be instantaneously conceptualized in only one equation and all variables considered are internal variables.

E. The ARDL model allows the explanatory variables studied in the model to be at different time intervals and this is not allowed by other standard models.

Source: From the work of the researcher based on data on the outputs of the program (EViews.9)

3.4. Estimating money supply function using ARDL model

3.4.1. Selection of decelerations

To select the appropriate delay for each model using a self-regression for all variables and to slow down one after the other until the model that achieves the best results in the criteria (FPE, HQ, SC, AIC) and its selection. The statistical program EViwes-9 was used to obtain the evaluation results. As shown in Table (5), with the best delay at one lag (1 = 1).

Table (5) Criteria for determining the optimal number of time delays for study variables for the period 2015: 2-2004: 3

HQ	SC	AIC	FPE	LR	Lag
3.701486	3.834362	3.625389	2.58e-05	NA	0
-1.363373*	-0.566116*	-1.819950*	1.13e-07*	233.2698*	1
-0.199229	1.262408	-1.036287	2.61e-07	13.07548	2
0.711727	2.837743	-0.505812	5.16e-07	17.22594	3

Source: From the work of the researcher based on data on the outputs of the program (EViews.9).

*: Indicates the optimal number of deceleration selected by each standard, and all tests are at the level of (5%).

LR….. standard LR. , FPE……. Final prediction error: ,AIC……...Akaike information criterion (Standard Information for Akaike)., SC …(Schwarz Information Standard) Schwarz information criterion, HQ…… (Hannan-Quinn Information Standard). Hannan-Quinn information criterion:

3.4.2. Integration regression using ARDL

The second procedure, after determining the optimal delay, is the estimation of the ARDL model for the relationship between the money supply variables and the fiscal policy rules, and for two dips and for all variables and the use of the statistical program. The results of the estimation are as shown in Table 6.

Table (6) Estimates of the ARDL model for statistical indicators of the relation between money supply as a dependent variable and the Fisical rules as independent variables.

Regrssor	Cofficients	Statistics t	Probability
LNDEFICT	-0.059	-2.880583	0.0071
LNDEBT	0.155	1.892966	0.0677
LNDEBT(-1)	-0.2111	-2.705453	0.0110
LNEXP	0.5243	2.440808	0.206

LNINVEST	**-0.0133**	**-0.542650**	**0.5913**
		AIC	**-2.50**
R^2	**0.955**	**SC**	**-2.04**
$\bar{R}^2$	**0.94**	**HQ**	**-2.33**
F	**66.32**	**D.W**	**2.07**
Prop(F-statistic)			**0.000000**

Source: From the work of the researcher based on the output data of the program (EViews.9).

Table (6) shows the results of estimating the model and obtaining the statistical indicators which are the smallest values of the AIC, Sc, and HQ indicators. The explanatory power index is equal to 0.95 indicating the ability of independent variables (Fisical rules) to explain (95% (5%) was due to other variables not included in the model, and the results of the F test showes that the model is significant (66.32) and high (0.0000).

3.4.3. Estimation of error correction model and short and long term relationship according to ARDL model:

The results of the estimated model indicate that there is a short-term effect, since the parameters of the independent variables (Fisical rules of policy) With a probability of (0.000). It is clear from the long-term results of the same table that the estimated parameter signals apply with the economic theory. The results show that the relation between the money supply and the deficit and debt bases is reversed with the expenditure control base. According to the deficit base parameter of 0.034, (1%) leads to an increase in the money supply to GDP ratio by 0.0034%, while the debt base reached 0.277. This means that increasing the value of the debt base by 100% (0.0277%), which is a major influence of the debt base on the monetary policy variable (money supply) and the rule of expenditure control was the most influential. The value of the base parameter (1.308) means that increasing the base by 1% leads to a decrease in the money supply by (0.1308%) which is the biggest influence among the rules Independent variables) on the money supply variable. This confirms the hypothesis of the study that there is a relationship between growth in money supply and the rules of fiscal policy (fiscal discipline). As for the golden rule, the value of the parameter (0.103) means that the increase in the value of the golden rule by (1%) leads to increase the dependent variable by (0.0103%).

Table (7) shows the formula for joint integration and partial flexibilities in the short and long term

ARDL Cointegrating And Long Run Form,		**Dependent Variable: LnMsGDP**		
Selected Model: ARDL(2, 0, 4, 0, 1),		**Date: 10/28/16 Time: 21:48**		
Sample: 2004Q3 2015Q2,		**Included observations: 40**		
Cointegrating Form				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**

D(LNMSGDP(-1))	0.057700	0.047821	1.206592	0.2424
D(LNMSGDP(-2))	0.072360	0.042829	1.689495	0.1075
D(LNMSGDP(-3))	0.085060	0.042697	1.992206	0.0609
D(LNDEFICT)	-0.030089	0.005754	-5.229035	0.0000
D(LNDEBT)	0.249640	0.022335	11.177098	0.0000
D(LNDEBT(-1))	0.442252	0.031989	13.825023	0.0000
D(LNDEBT(-2))	0.436851	0.031573	13.836111	0.0000
D(LNDEBT(-3))	0.433803	0.031369	13.828918	0.0000
D(LNEXPENDITURE)	0.872160	0.062515	13.951275	0.0000
D(LNEXPENDITURE(-1))	-0.361010	0.063471	-5.687803	0.0000
D(LNEXPENDITURE(-2))	-0.330542	0.063400	-5.213585	0.0000
D(LNEXPENDITURE(-3))	-0.322114	0.063399	-5.080761	0.0001
D(LNINVESTMENT)	-0.063515	0.007592	-8.366279	0.0000
D(LNINVESTMENT(-1))	0.036163	0.005347	6.763022	0.0000
D(LNINVESTMENT(-2))	0.034412	0.005371	6.406620	0.0000
D(LNINVESTMENT(-3))	0.033960	0.005370	6.324230	0.0000
CointEq(-1)	-0.906112	0.044796	-20.227626	0.0000
Cointeq = LNMSGDP - (-0.0339*LNDEFICT - 0.2266*LNDEBT + 1.3082*LNEXPENDITURE - 0.1031*LNINVESTMENT - 6.2679)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNDEFICT	-0.033907	0.009757	-3.475090	0.0025
LNDEBT	-0.226587	0.010878	-20.829785	0.0000
LNEXPENDITURE	1.308242	0.135499	9.654988	0.0000
LNINVESTMENT	-0.103111	0.007741	-13.319403	0.0000
C	-6.267891	0.633368	-9.896124	0.0000

Source: From the work of the researcher based on the output data of the program (EViews.9).

The results in Table (7) for the short-term relationship indicate that there is a short-term relation. The error correction term (-0.91) is negative and significant. This means that there is a short-term relationship. This implies an integrative relationship between variables. In addition, the parameter [CoinEq (-1)] is equal to -0.91, which also means that the speed of adjustment between the value of the dependent variable in t-1 and the value of its value in period t is 91%. In other words, the deviation of the money supply value from its long-term equilibrium value is corrected by (91%) or about 1.1 years (1 0. 0.91). Indicating that the adjustment is relatively fast, meaning that there is an integrative relationship between variables within the form. In other words, the Fisical rules play an important role in the effectiveness of monetary policy during the period (2004-2015). For this reason, the null hypothesis is unacceptable here and the alternative hypothesis is accepted which means that the rules of fiscal policy are important factors in enhancing the effectiveness of monetary policy in Iraq.

3.4.4. Estimate of estimated ARDL model:

The Brown Stability Test developed by Brown and others for the estimated ARDL model for the short- and long-term relationship is carried out using the Cumulative Sum of the Recursive Residuals (CUSUM) test, the cumulative Cumulative Residual Census (CUSUMSQ) (CUSUM) and CUSUMSQ within the critical limits of 5% according to the period. We accept the null hypothesis that all estimated parameters are static, the two forms (CUSUM and CUSUMSQ) 1) and (2). It is clear that the diagram of the two tests is within the critical limits and varies around the value Lie, this means stability of long and short-term stability of the parameters of the model ARDL)) is estimated according to statistical tests. Figure (1) illustrate the Cumulative cumulative residual values and Figure 2 represent the Cumulative sum plot of squares recurdive residuals.

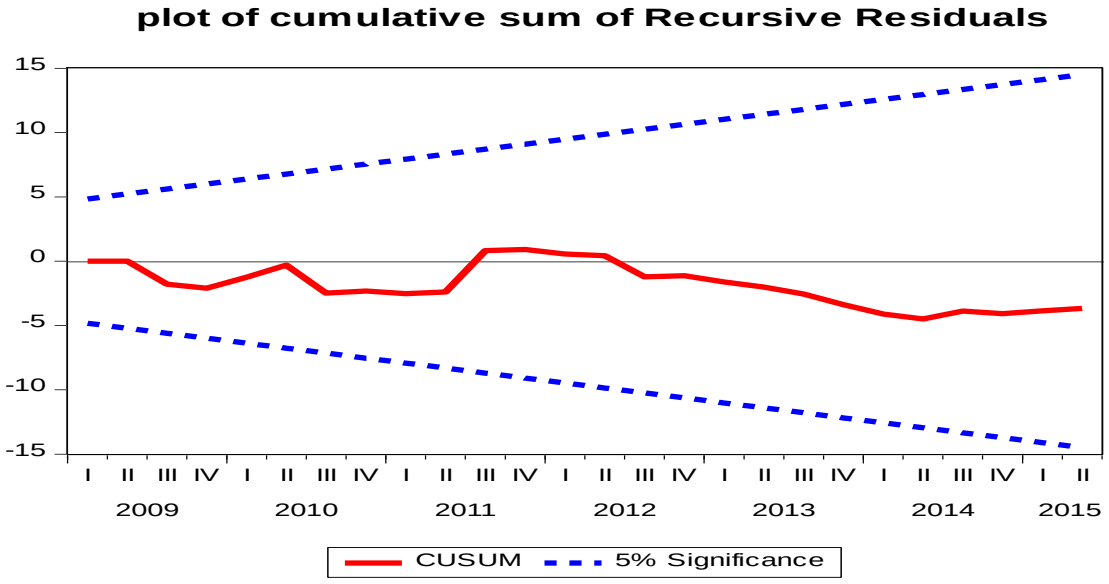

Figure (1) Cumulative cumulative residual values

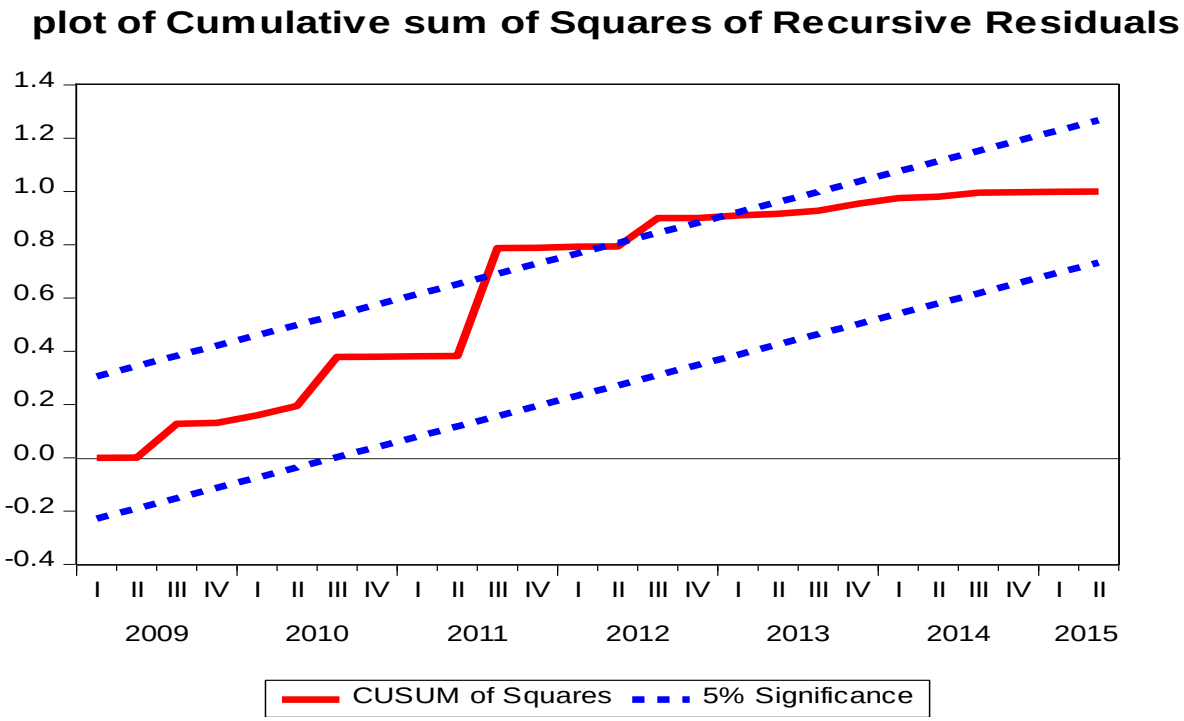

Figure 2: Cumulative sum plot of squares recurdive residuals

Conclusions

Some conclusions have been identifie and some recommendations based on these conclusions are suggested as follow.

1. The positive reason for the indicators of the rules of fiscal policy in the years 2003. Beyond is not due to the improvement of the management fiscal policy but to the explosive oil revenues achieved by the increase in the quantity of production and export on the one hand and the high rise in world oil prices on the other hand, as evinced by the financ Fisical ial situation in the country The end of 2014 and 2015. Despite the Fisical surpluses achieved, the country experienced a Fisical crisis once oil prices fell without benefiting from the Fisical surpluses of previous years.
2. The research hypothesis is accepted that the lack of Fisical discipline under the rules of fiscal policy in Iraq adversely affected the effectiveness of monetary policy (money supply), during the research period..
3. Bounds Test to test the common integration of the first model of the study, the existence of a long-term balance between the variables of the rules of fiscal policy (base deficit, the rule of religion, the rule of spending control, the rule of gold) as independent variables,) As a dependent variable, for the period (2004: 3-2015: 2).
4. The results of Kranger's causality for the period (2004: 3-2015: 2) showes a causal relationship from money supply to debt base. There is also a

causal relationship between the deficit base and the spending control base.

5. There is a negative and Significant effect on the long term, positive and moral in the short term, as the partial elasticity of the base (-1.388) and (0.794), respectively, 1%) leads to a decrease in the money supply by 0.139% in the long term. The increase in the ratio of income to expenditure leads to a reduction in the long-term supply of money due to the decrease of deficit and debt when the ratio increases, Especially external public debt, which in turn reduces money supply. Money supply in the short term increases by 0.079%, which is in line with the logic of economic theory as well. The increase in government revenues relative to expenditure, especially in foreign currency, is what happened to the Iraqi economy after 2003, which encouraged the government to increase its Expenditure and to make it the main control of money supply to own the reserves that are the basis of the Seigniorage.

Recommendations

1. Determine the acceptable maximum level of government expenditure by GDP growth rate as a fiscal Rule.
2. Determine the upper limit of government expenditure at the level of revenue obtained as a fiscal Rule to control the public debt.
3. The monetary authorities to manage the growth of money supply in line with the growth of the size of GDP to control the level of inflation and maintain price stability.
4. Giving greater importance and role to fiscal policies to compensate for the structural imbalances of the Iraqi economy to achieve economic stability through disciplined policies such as spending control policy.
5. Establishing a sovereign fund to accumulate surplus funds in the years of savings and investing them to benefit from them in the development of sources of financing the general budget, and to resort to them to reduce the impact of external shocks (including the shock of oil prices) and fill the fiscal deficit in the budget.
6. Address the structural imbalance in public expenditure items by limiting unnecessary and exploitative Expenditure in favor of investment Expenditure.
7. Address the structural imbalance in public revenue items by diversifying the sources of non-oil public revenues by taking practical measures that improve the efficiency of tax systems, the scope of taxation, and address tax evasion and informal economic activities..

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