ANALYSIS OF THE MONETARY-INFLATIONARY EFFECTS OF THE DOMESTIC PUBLIC DEBT IN IRAQ FOR THE PERIOD 2004-2020

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ABSTRACT

Variation of the inflationary monetary effects of public debt with its different instruments and sources through the monetary aggregates channel, in light of the monetary authority's reliance on a nominal stabilizer (the exchange rate) to target inflation rates and maintain them within moderate levels that enhance confidence in macro policies, especially monetary ones, on the one hand, and achieve certain overall goals It may be social and economic on the other hand, and in this way, the research concluded that the discounted remittances with the Central Bank contributed to the increase in the size of the monetary basis, to reflect that directly in the increasing levels of inflation in the economy, while the decrease in the exchange value of the dinar had the most effective effect on the rise in price levels and then Inflation rates in a very short time, and the last weakness and lack of influence of loans from financial institutions and bonds, respectively, in bringing about changes with which inflation rates may increase, and these results have been quantitatively confirmed.

Keywords *: Public Debt, Inflation , Public debt instruments and their effects*

INTRODUCTION

When the government is unable to fulfill its spending obligations towards members of society as a result of the insufficiency of its financial resources to cover those obligations, it must resort to additional revenue sources that will enable it to cover these obligations, These sources are represented in public borrowing in its various forms and types, provided that consideration is taken of the effects of each form and type of that borrowing according to the nature of the economic circumstance prevailing in the economy.

Accordingly, it is noted that the borrowing came to finance the general budget deficit, which represents an inflow, but with the continuation of this deficit and its financing, it turns into debt, and which represents the total funds borrowed by the government to finance its previous financial deficits.

The deficit becomes a debt when a full year passes. Every debt turns from aflow in the current year to a store in the following year. Thus, the debt represents the accumulation of financial deficits over time.

As long as the Iraqi government relied in financing the general budget deficit on borrowing continuously after 2003 without taking into consideration the tools through which that deficit can be financed and its effects on the overall economy in its various variables, The main intention is

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to finance the deficit and nothing else, which puts pressure on the role and effectiveness of monetary policy, which may affect the achievement of its objectives. Those in charge of debt management should inform the competent financial authorities about the costs and risks that result from sources of financing government needs and levels of debt.

Public debt management authorities, public finance authorities and monetary authorities should exchange information regarding the government's current and future cash liquidity needs, in order to reduce the monetary effects of that debt. When the easiest and fastest revenue-earning debt instruments are used without taking into account their monetary-inflationary effects on overall economic activity, this leads to the exacerbation of these effects in the absence of an actual vision of the possibility of consistency between the fiscal and monetary policies in order to achieve common economic goals and reduce those effects.

THE CONCEPT OF PUBLIC DEBT

The public debt is defined as the sum of the government's financial obligations that it undertakes to pay (the principal and service of the debt) to its creditors during the specified time period. It thus represents all the money owed by the government, whether local or international, or both, and which pledges to pay its installments with the interest accrued according to the conditions specified in that debt (Saheed et al., 2015 : 18).

The international institutions (IMF, WB, OECD, BIS) have given a clear concept of the public debt represented in "all the obligations that the government has towards its creditors and that it must pay, whether in cash or in the form of goods and services in accordance with the terms concluded(Thweeny, 2006: 139)

Researchers can define the public debt as all the financial obligations the government owes to others, which it must pay according to the agreed timetable.

It is no secret to some that the public debt is not related to the general budget deficit only, but that governments may resort to it to achieve certain goals that are consistent with the prevailing economic situation in the country. The government may resort to debts in the following cases:

❖ Public debt is issued in the event the economy achieves a positive output gap, with the aim of reducing the accompanying inflation rates (the post-complete employment stage).
❖ Public debt is issued in the event the economy achieves a negative output gap, with the aim of revitalizing the economy by providing the necessary liquidity to the private sector and encouraging investment through low interest rates to increase production and employment (pre-employment stage).
❖ Public debt is issued to finance wars and confront disasters of all kinds.
❖ Achieving tax capacity as much as possible, and then the government's inability to increase it in terms of price or base for economic, social and political reasons.
❖ Issuing debt to develop the stock market (secondary objective)

THE EFFECT OF SHORT-TERM LOCAL PUBLIC DEBT ON THE INFLATION RATE

The monetary inflationary effects of public debt vary according to its different tools and various sources through the monetary aggregates channel, in light of the monetary authority's dependence on a nominal stabilizing factor (the exchange rate) to target inflation rates and maintain them within moderate levels that enhance confidence. In the macro policies, especially monetary, on the one hand, and the achievement of certain general objectives, on the other hand, they may be social and economic. In this part of the research, the effect of each debt instrument on inflation rates will be presented separately to determine the sources of inflation caused by domestic public debt.

The effect of treasury bills on the inflation rate

The reason for the effect of securities (remittances) on the inflation rate is the result of the central bank's role in re-discounting those securities because of their impact on the monetary basis, which in turn is reflected in the narrow and broad money supply alike. taking into account the effects of the monetary multiplier to be reflected in price levels and the rate of inflation, which It is imperative for the monetary authority to identify the sources of inflationary pressures on the one hand, and work to address them with the available tools on the other hand.

It is clear from Table (1) that the inflation rates witnessed two completely different eras in terms of causes. Despite the decrease in the total debt in bills during the period 2004-2008, this period witnessed high inflation rates, which amounted to an average of (33.4%) and this is attributed to the high levels of spending The government's result of the return of oil exports to the international market after the economic blockade was lifted, as well as the shift in the local demand structure resulting from the improvement of the living situation of Iraqi families and the increase in the marginal tendency of consumer spending, and the cessation of production of many local agricultural and industrial products, which contributed to the increase in the volume of Monetary aggregates (narrow and broad) in the economy to (23.9) and (34.9) trillion dinars respectively in 2008, which was reflected in the rise in the general price index, and its arrival to the threshold of (80.4) points for the same year after it was (26) points in the year 2004.

As it became clear that that period witnessed two different aggregate shocks at the same time, the first represented by the demand-side shock as a result of the increase in aggregate spending, especially the consumption side, i.e. inflation here by withdrawing demand, and the second was a supply-side shock due to the sabotage and destruction of real public sector facilities and the accompanying looting of them. This was reflected in the increase in the volume of imports and imported inflation, i.e. inflation here by paying the cost, and despite the issuance of the Coalition Provisional Authority Law No. (56) for the year 2004, which stipulated the complete independence of the Central Bank in Article (2) of it, and became one of the priorities of its objectives to maintain Stability of price levels, but his role during that period was limited

While the period after 2008 was characterized by the fluctuation of debt levels in remittances using an upward trend compared to 2008, it reached (41.1) trillion dinars in 2020, which led to an increase in the volume of monetary aggregates (narrow and wide) until they reached (96.5) and

(112.5) trillion dinars due to the increase The monetary basis resulting from the start of banks to submit these bills to the Central Bank for their discount, which led to the increase in the low levels of inflation at the time and its gradual rise until it reached (2.2%) in 2020 after it achieved its lowest rate in 2016 at (0.1%), and this came due to The extravagance of debt by remittances, especially after the first half of 2020, and this clearly indicates the impact of debt remittances on both types of monetary aggregates, and then inflation rates despite the sterilization process carried out by the Central Bank.

Table (1) The effect of treasury bills on the inflation rate in Iraq for the period 2004 - 2020 (million dinar)

years	Total treasury bills		Ms1	Ms2	CPI 2012=100	Inflation
2004	924000		7873820.2	12254000	26	
2005	1200000		10779899.7	14684000	35.6	36.92
2006	251000		12914373.3	21080000	54.5	53.09
2007	519000		17639351.4	26956076	71.4	31.01
2008	500000		23880697.8	34919675	80.4	12.61
2009	4478000		32032390	45437918	87.2	8.46
2010	5225000		45623669.3	60386086	89.3	2.41
2011	3891000		92104236.3	72177951	94.3	5.6
2012	3392000		65052883.1	77187497	100	6.04
2013	1500000		73572905.9	89512076	102.4	2.4
2014	7064000	discounted	77009654.6	92988876	101.6	-0.78
2015	19311000	6225000	73627550.8	84527272	104	2.36
2016	32763000	16225000	74703976.4	90466370	104.1	0.1
2017	32294000	16225000	75175418.6	92857047	104.3	0.19
2018	28412000	14925000	69492139.8	95390725	104.7	0.38
2019	26002000	14125000	81661597.3	103440475	105.6	0.86
2020	46105000	40452000	96526021	112571193	107.9	2.18

Source: Central Bank of Iraq, the official statistical website.

The effect of loans to financial institutions on the rate of inflation

It is clear from Appendix (1) that loans from financial institutions constituted a good percentage in the formation of monetary aggregates (narrow and broad), at (13%) and (10.9%) respectively, as average ratios throughout the analysis period, which gave them an important role in influencing price levels. and then the inflation rate, but this depends on the size of those loans. When the Ministry of Finance started this financing tool in late 2015, it was low when compared to subsequent years, especially 2020, with the slight increase in it, which led to an increase in the inflation rate by a small percentage amounting to (0.39). %) in the third quarter of 2016 compared to the previous quarter, but due to the tripartite crisis during the year 2020 and the state of

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financial deficit experienced by the government led to an increase in the volume of those loans, reaching (14.7) trillion dinars in the third quarter of 2020, as the effects of this were clear In price levels and its rise from (104.4) points in the third quarter of 2020 to (110.3) points in the first fourth of 2021, which was reflected in the increase in the inflation rate and reached (4.1%) for the same year, and this significant increase was not the main reason for loans In it, however, bills played a role, as we previously explained Yeh, as well as the exchange rate change in the first quarter of 2021.

The effect of bonds on the rate of inflation

Appendix (1) shows the weak effect of bonds on monetary aggregates in the short term, as they are not considered one of their components on the one hand, as well as the nature of their long-term impact on the other hand, and therefore they do not contribute directly or indirectly to an increase in monetary aggregates, but their effect is reflected In the amount of government spending only. Despite its small size, it does not affect the price levels and then the inflation rate. Despite that, if we assume the possibility of its contribution to those aggregates (narrow and broad), we would have seen their decline, as they reached (2.2%) and (1.9%) respectively as the average rates for the duration of the analysis.

The effect of the dinar exchange rate on the inflation rate

As long as the local public debt in Iraq is linked to the financial deficit in the general budget, with reliance on the fastest and easiest financing methods without taking into account their effects on the overall activity, and with the exhaustion of the three aforementioned debt instruments and the continued use of treasury bills with direct monetary effects as well as Resorting to new sources of financing represented in decreasing the exchange rate of the dinar[**].Here, the pace of its effects began to be negatively reflected in all economic and social variables alike. When the consistency is not economic, but according to purely political and economic visions that are useless, this was and will be the worst consistency between the policies for which the necessary arrangements were prepared in advance, which were represented by administrative changes. High in the makers of both policies, especially the central bank, and as a result of the Ministry of Finance's monopoly on the dollar derived from the export of oil, and in order to cover the financial deficit in its budget in 2021, that ministry sought to reduce the exchange rate of the dinar as one of the options and began promoting it with statements by its representatives and forcing it to the monetary authority to accept its decisions Or it will look for other sources to monetize the dollar (government and private banks), As a result of these events, the effect of the expansion of the gap between the two prices (the window and the market) began to gradually increase in late 2020 and the first half of 2021, which led to a steady rise in inflation rates in a not long period, so this option in financing the deficit is included in the components of the debt Without interest, it is as if he created money without any equivalent cover, as shown in Appendix (2).

[**] The Ministry of Finance achieved an increase in its dinar revenues by (4.161) trillion dinars until the end of the first quarter of 2021, after the dollar revenues during that period amounted to 15.523 billion dollars.

THE MODEL ESTIMATION

The variables resulting from the analytical side of the research were used to determine the correlation and effect between the explanatory variables represented in (discounted bills at the Central Bank, bonds, loans of financial institutions, the exchange rate and the general level of prices) and the dependent variable represented in the inflation rate.

- ❖ explanatory Variables
- – inflation
- ❖ Independent Variables
- - discounted bills at the Central Bank "Tbills cbi "
- - discounted bills at the banks "Tbills"
- - loans of financial institutions "loans"
- - Bonds
- - exchange rate "ex"
- - general level of prices "P"

Cointegration test method ARDL

The results of Appendix (3) indicate the limits test, which shows the rejection of the null hypothesis and acceptance of the alternative hypothesis, which states that there is a long-term equilibrium relationship between the variables in question, and this is confirmed by the calculated F value, as its value reached (52400), which is greater than the tabular value of the upper limit. The amount of (3.1) at the level of significance (5%). In addition, the adjusted correlation coefficient shows that 99% of the changes in the dependent variable (inflation) are due to the change in the independent variables, as well as the statistical significance of the model as a whole, as the value of Prob f-statistic reached (0.00), which is much smaller than (5%), which enhances the results that have been reached. In addition, the model does not suffer from the problem of spurious skewness, and this is indicated by the DW value of (2.1), which is greater than the coefficient of correlation.

Appendix (3) confirmed the existence of a long-term equilibrium relationship between the variables in question, in terms of the value of the error correction coefficient, which came as expected, negative and significant, as its value amounted to (-1.006) and with a very low significance of (0.000000), and this confirms On the existence of a long-term equilibrium relationship between the variables in question, as the value of the error correction coefficient shows that about (100%) of the short-term imbalance in the inflation rate (the dependent variable) in the previous period (ti) was corrected in the current period (t) towards the relationship Long term when any change or shock in the independent variable.

Also shows the significant effect of the general level of prices, discounted bills at the Central Bank, and the exchange rate of the dinar on the rate of inflation, as the value of Prob for it was less (5%), as well as the positive relationship between those variables, so it rejects the null hypothesis and accepts the alternative hypothesis .

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Granger causality test results

It is clear from Appendix (4) that there is a short-term, one-way causal relationship from the central bank's discounted treasury bills, the dinar exchange rate, and the general level of prices to the inflation rate.

CONCLUSION

The central bank's discounted bills contributed to an increase in the size of the monetary basis, which was directly reflected in the increasing levels of inflation in the economy, while the devaluation of the dinar exchange value had the most effective effect on rising price levels and then inflation rates in a very short time, In addition to the weakness and absence of the impact of loans from financial institutions and bonds, respectively, in bringing about changes that could increase inflation rate.

Standard tests proved the existence of a long-term equilibrium relationship between the research variables, according to the ARDL test of joint integration. The test of short and long-term parameters also confirmed the existence of a long- and short-term equilibrium relationship between (the dinar exchange rate and the discounted bills at the Central) (explained variables) and the inflation rate. (continued variable), and finally the Granger causal test confirmed these results and a one-way trend from those debt instruments to the inflation rate.

RECOMMENDATIONS

The necessity of using non-inflationary debt instruments such as bonds and loans, in order to control excess liquidity and restrict inflationary pressures, as well as activating open market operations when relying on bonds as a source of deficit financing.

A public debt management strategy should be developed based on the use of a disciplined and intentional expansionary financial policy that works to support monetary policy through the government's issuance of securities aimed at investing the surplus reserves that commercial banks have in productive projects that serve the Iraqi economy on the one hand and activate the Iraqi market for securities On the other hand.

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3. Central Bank of Iraq, the official statistical website.

Appendix (1): Loans and bonds and their effect on the inflation rate in Iraq for the period 2020-2021

years		loans	bonds	Ms1	Ms2	CPI 2012=100	Inflation
2015	Q4	10461057	14525	69613150	84527272	104.2	0.09
2016	Q1	10461057	14525	73800840	87960801	104.6	0.38
	Q2	10461057	107756	74639658	88901115	103.8	-0.76
	Q3	10546233	1696945	76737593	91225709	104.2	0.39
	Q4	10546233	1696945	75523952	90466370	103.9	-0.29
2017	Q1	10546233	1682420	75354668	90180057	104.2	0.29
	Q2	10546233	2682420	74876608	90045251	104.1	-0.1
	Q3	10546233	2682420	74425046	89870649	104.6	0.48
	Q4	10546233	2682420	76986584	92857047	104.4	-0.19
2018	Q1	10546233	1953189	73369213	89517337	104	-0.38
	Q2	10546233	1953189	74531555	90973298	104.5	0.48
	Q3	9501043	1953189	76518872	93170025	105.3	0.77
	Q4	9501043	1953189	77828984	95390725	105.1	-0.19
2019	Q1	9501043	3934677	77742103	95606069	104.8	-0.29
	Q2	9501043	2941281	81112597	98387356	104.1	-0.67
	Q3	9151508	2836551	84859680	101802917	104.3	0.19
	Q4	8651508	1921217	86771000	103440475	104.7	0.38
2020	Q1	8651508	1921128	91841063	108214972	105.5	0.76
	Q2	8651508	1861174	94475571	110254072	104.5	-0.95
	Q3	14668508	1909488	96489616	112494374	104.4	-0.1
	Q4	14668508	1916521	103353665	119906385	106	1.53
2021	Q1	14668508	1384148	111628612	128708621	110.3	4.1

Source: Central Bank of Iraq, the official statistical website

Appendix (2): The exchange rate gap and its effect on the inflation rate in Iraq for the period 2020-2021

years		market exchange rate	window exchange rate	exchange rate gap	CPI 2012 = 100	Inflation
	Mo 1	1202	1182	20	105.4	
	Mo2	1193	1182	11	104.5	-0.9
	Mo 3	1198	1182	16	105.8	1.2
	Mo 4	1226	1182	44	104.6	-1.1
	Mo 5	1227	1182	45	104.5	-0.1
	Mo 6	1243	1182	61	104.3	-0.2
	Mo 7	1230	1182	48	104.1	-0.2
2020	Mo 8	1223	1182	41	104.5	0.4
	Mo 9	1221	1182	39	104.7	0.2
	Mo 10	1241	1182	59	105.5	0.8
	Mo 11	1248	1182	66	104.5	-0.9
	Mo 12	1351	1304	47	107.9	3.3
	Mo 1	1460	1450	10	108.8	0.8
2021	Mo 2	1460	1450	10	109.6	0.7
	Mo 3	1460	1450	10	110.3	0.6

Source: Central Bank of Iraq, the official statistical website.

Appendix (3): Cointegration Test Results (ARDL)

ARDL Error Correction Regression
Dependent Variable: D(DINFLATION)
Selected Model: ARDL(3, 0, 3, 0, 1, 0, 1)
Case 2: Restricted Constant and No Trend
Date: 09/24/21   Time: 14:21
Sample: 2015M01 2021M06
Included observations: 74

ECM Regression
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DINFLATION(-1))	0.003241	0.001224	2.648044	0.0104
D(DINFLATION(-2))	0.002269	0.000805	2.817563	0.0066
D(DEX)	7.92E-05	2.95E-05	2.686113	0.0094
D(DEX(-1))	-0.000125	3.06E-05	-4.085297	0.0001
D(DEX(-2))	-8.94E-05	2.85E-05	-3.138530	0.0027
D(DP)	0.953811	0.000817	1167.516	0.0000
D(DTBILLSCBI)	1.13E-09	3.06E-10	3.682637	0.0005
CointEq(-1)*	-1.006154	0.001469	-684.7939	0.0000

R-squared	0.999985	Mean dependent var		0.007766
Adjusted R-squared	0.999984	S.D. dependent var		0.936353
S.E. of regression	0.003782	Akaike info criterion		-8.215496
Sum squared resid	0.000944	Schwarz criterion		-7.966408
Log likelihood	311.9733	Hannan-Quinn criter.		-8.116132
Durbin-Watson stat	2.132859			

* p-value incompatible with t-Bounds distribution.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	52400.80	10%	1.99	2.94
k	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99

Source: The results of the statistical program Eviews10

Appendix (4): Granger causality test results

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Pairwise Granger Causality Tests
Date: 09/24/21   Time: 14:50
Sample: 2015M01 2021M06
Lags: 3
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Null Hypothesis:	Obs	F-Statistic	Prob.
DBONDS does not Granger Cause DINFLATION	74	0.35012	0.7892
DINFLATION does not Granger Cause DBONDS		0.41890	0.7400
DEX does not Granger Cause DINFLATION	74	2.86728	0.0430
DINFLATION does not Granger Cause DEX		1.86787	0.1434
DLOANS does not Granger Cause DINFLATION	74	1.10832	0.3520
DINFLATION does not Granger Cause DLOANS		0.36367	0.7794
DP does not Granger Cause DINFLATION	74	4.95370	0.0036
DINFLATION does not Granger Cause DP		0.06448	0.9785
DTBILLS does not Granger Cause DINFLATION	74	0.60762	0.6124
DINFLATION does not Granger Cause DTBILLS		1.28232	0.2876
DTBILLSCBI does not Granger Cause DINFLATION	74	6.27645	0.0008
DINFLATION does not Granger Cause DTBILLSCBI		0.54884	0.6507

Source: The results of the statistical program Eviews10