



ABILITY AND IMPACT OF GOVERNMENT INVESTMENT SPENDING ON RAISING CREDITWORTHINESS INDICATORS LEVEL IN IRAQ FOR THE PERIOD (2004-2020)

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Article history:	Abstract:
<p>Received: 14th July 2022 Accepted: 14th August 2022 Published: 28th September 2022</p>	<p>Investment spending is one of the important tools that lead to the expansion of Iraqi economic activity and thus increase productivity, which leads to an increase in exports and a decrease in imports, and thus reaching a surplus in the trade balance.</p> <p>In order to achieve the goal of the study, a time series extended from (2004-2020) was used, as the study aims to measure the impact of the relationship between government investment spending in raising the level of creditworthiness indicators, by relying on the standard approach, and according to the Autoregressive Distributed Deceleration (ARDL) methodology.</p> <p>The study found that a change in the proportion of government investment spending to total public spending in the long term by 1% leads to a change in (the ratio of change in external debt to change in gross domestic product (economic growth)) by -7.5%.</p> <p>The most important recommendations made by the study were; Working on increasing investment spending and directing it towards weak sectors in order to increase their productivity, in addition to working on reducing government budget expenditures by 1%-3% annually, especially consumer expenditures, in order to reduce the amount of the deficit and thus reduce debt or resort to external loans.</p>

Keywords: Government investment spending, creditworthiness, external debt, economic growth

1. INTRODUCTION:

Maintaining a high level of creditworthiness is a source of guarantee for the state and an important element in achieving continuity of economic growth through its ability to attract foreign capital in the form of investments or loans, and despite their efforts in this direction, most countries face difficulty in providing the necessary financing To increase investments due to the decrease in private savings and the weakness of the financial system in allocating available resources towards investment channels, and this is what made the global financial markets, which are an important source of investment financing necessary to increase the volume of investment and promote economic growth, reluctant to finance investment projects in Iraq because creditworthiness indicators are low. Therefore, it was the duty of Iraq to finance investment through government investment spending, due to the weakness of private savings caused by the weak confidence of individuals in financial institutions,

in addition to the weak confidence of international financial institutions in the Iraqi economy as a result of low indicators of creditworthiness as well as security and political instability, so this study seeks to find out the size of The effect of government investment spending on some indicators of global creditworthiness High for the period (2004-2020), which is the period in which the Iraqi economy transformed from the stage of the directed economy that prevailed before 2003 and its transition to a market economy after the lifting of international sanctions, analyzing and measuring the time series of sources of government investment spending, drawing conclusions, presenting the most important results and coming up with recommendations for owners Resolution which will enhance the level of creditworthiness.

RESEARCH PROBLEM:

The research stems from a problem that is: How can the level of economic activity be raised? And then raise



the level of low creditworthiness of the Iraqi economy? Therefore, we can formulate the study problem with the following question:

- a. What is the role of government investment spending in enhancing the level of creditworthiness?

Research Objective: The research aims to:

- a. Studying the theoretical framework for government investment spending and credit rating.
- b. Determining the impact of investment spending on some indicators of creditworthiness in Iraq.

Research Hypothesis:

The research hypothesis can be formulated as follows:

The research stems from the hypothesis that there is a direct relationship between (government investment spending) and (the ratio of imports to GDP) and an inverse relationship between (government investment spending) and (the ratio of change in external debt to change in GDP (economic growth)).

Research importance:

The research derives its great importance by addressing the issue of creditworthiness indicators for the Iraqi economy, as well as its study of the determinants of credit rating and its comparison with the Iraqi reality and the impact of government investment spending on some indicators of creditworthiness and providing recommendations that will clarify the necessary ways to advance the reality of those indicators.

Research structure:

The research consists of three main sections, and the first topic represents the theoretical aspect of government investment spending and creditworthiness, while the second topic: the analytical framework for investment spending and creditworthiness in Iraq for the period (2004-2020), and the third topic: measuring the impact of investment spending on some indicators of creditworthiness

2. THEORETICAL FRAMEWORK FOR GOVERNMENT INVESTMENT SPENDING AND CREDITWORTHINESS:

2.1 What is government investment spending:

Government investment spending is a significant part of the total aggregate demand for goods and services, as investment is one of the effective mechanisms in changing the structure of the national economy, and it is an important factor in determining the rate of economic progress (Hamad and Hussein, 2020, 182). And that government spending works on the volume

of consumption and then affects the level of aggregate demand through investment (Shehab, 2017, 26).

2.2 Government investment spending trends:

There are several trends in investment spending, the most important of which are (Dahoum, 2018, 22-24):

2.2.1 Expenditure on Human Capital Formation:

The low level of skill among workers pushes the government to spend on educational and training programs in order to raise the technical level and thus contribute to increasing productivity and raising the growth rates of the national product.

2.2.2 Expenditure on investment in establishing and maintaining basic infrastructure projects:

Investment in basic infrastructure represents the most important types of government investment spending, as investment in the construction of roads, railways, dams and electric power plants leads in the long term to lower transportation and production costs for local goods and make them more competitive outside the country, and this in turn leads to an increase in exports. (Nashour, 2012, 26).

2.2.3 Public Expenditure on Subsidies:

Subsidies include four types:

- a. Subsidies for compensating losses of public projects.
- b. Encouraging subsidies for the production of a specific commodity that the economy is interested in producing locally.
- c. Export subsidies granted to emerging industries to increase their competition.
- d. Subsidies aimed at reducing the prices of consumer goods that the community consumes in abundance.

2.2.4 Public spending in productive areas:

developing countries usually resort to providing subsidies to public projects due to the weakness of the private sector and its lack of the necessary competence to carry out them. However, these subsidies did not achieve the desired goal for the following reasons:

- a. The bureaucratic relationship between the government and the management of these projects.
- b. The nature of those monopolistic projects.
- c. Reliance of projects on these subsidies without seeking to achieve productive efficiency.
- d. The absence of economic criteria governing investment decisions for these projects.

2.3 Creditworthiness concept:

The concept of creditworthiness refers to the ability of the borrower to meet the financial obligations of others, and the concept of creditworthiness refers to the ability of the borrower to meet the obligations in the process of facing the lender or the risks of non-payment to lenders (bond issuers) to fulfill the obligations represented by (the value of the loan and



its interests). For borrowers) holders of government securities, especially bonds (Hamad and Abdul Latif, 2018, 87).

Creditworthiness can also be defined as the amount of external loans that the state can obtain, and then repay them during the period agreed upon between the lender and the borrowing entity, through financial surpluses obtained by directing these loans to productive or leading investment areas. To create a new productive field and thus obtain financial surpluses that enable the borrowing state to repay the loan and the interest on it (Al-Najjar, 2016, 87)

As for the concept of sovereign creditworthiness, it shows us the government's ability and desire to repay

its loans with the interest accrued by it within the time specified for it, and agreed upon with the donor of this loan. In full and on time for payment (Al-Jubouri, 2017, 14).

It can be said that creditworthiness means the ability and willingness of the government to dispose of all its financial obligations by paying the debt installments and the interest resulting from it on time, and this comes through the desire of governments and their quest to obtain a high-level sovereign credit rating that facilitates the process of obtaining Financing and enhances their ability to repay without delay (Motwani, 2018, 2).

	Rating agency name	Year Founded	Country
1	Moodys	1909	United State
2	Fitch	1922	United State
3	Standard ana Boors	1923	United State
4	Thomson	1971	United State
5	Canadian Bond	1975	Canada
6	Rating Institute Japanese Bond	1977	Japan
7	Dominion Bond	2199	Canada
8	Duff & Phelps	1980	United State
9	Rating Agency Japan Credit	1985	Japan
10	Nippon	1985	Japan

Source: Kerwer, Dieter (1999), Credit Rating agencies and the governance of financial markets, Max Planck Project Group.

Credit rating agencies depend in building their credit ratings on the elements of safety and risk, and this is determined by the government's ability to meet its financial obligations, and that credit rating agencies relied on two types of credit risk level as follows (Bahena, 2010, 2):

- Investment grade: This indicates a low level of credit risk.
- The degree of speculation: It indicates a high level of credit risk, or an investment that contains risks.

This means that a low degree of risk indicates a high degree of safety and a high credit rating for the country, and therefore its sovereign creditworthiness has also increased, as it has a high ability to meet its

financial obligations, and that a high degree of risk means a low degree of safety and thus a low level of merit. The country's credit rating has become weak

3. ANALYTICAL FRAMEWORK FOR INVESTMENT SPENDING AND CREDITWORTHINESS IN IRAQ FOR THE PERIOD (2004-2020)

3.1 Developments of government investment spending in Iraq:

It is clear from Table (2) the time series of government investment spending in Iraq for the period (2004-2020), which is the most important series in our analysis of this topic because it represents the dependent variable in the study model.

Table (2) Developments of total government spending in Iraq for the period (2004-2020) (billion dinars)

Year	Total government spending	growth rate%	investment spending	Relative importance %	growth rate%
2004	31521	-----	3924	12	-----
2005	30831	-2.19	3765	12	-4.05
2006	37494	21.61	5276	14	40.13
2007	39309	4.84	6589	17	24.89
2008	67277	71.15	14976	22	127.29
2009	55589	-17.37	9648	17	-35.58



2010	70094	26.09	15553	22	61.20
2011	78758	12.36	17832	23	14.65
2012	105139	33.50	29350	28	64.59
2013	119128	13.31	40381	34	37.58
2014	83556	-29.86	24931	30	-38.26
2015	70397	-15.75	18565	26	-25.53
2016	67067	-4.73	15894	24	-14.39
2017	75490	12.56	16464	22	3.59
2018	80873	7.13	13820	17	-16.06
2019	111728	38.15	24427	22	76.75
2020	76083	-31.90	3209	4	-86.86

Source:

- Iraqi Ministry of Finance / Final accounts for the years (2004-2020)
- Central Bank of Iraq / Economic Reports for the Years (2004-2020)

It is clear that it was increasing during the period (2004-2013), as after it was in 2004 by (3924) billion dinars, after that it continued to increase to become in 2013 by (40381) billion dinars, noting its relative deterioration in 2009 as it became by (9648) billion dinars, due to the repercussions of the global financial mortgage crisis referred to in our analysis of total government spending and consumer spending. Government investment spending recorded a slight decline in 2005 by (-1.92%), and it recorded a qualitative leap in 2008, which amounted to double what it was to become at (14,976) billion dinars, after it was in 2007 by (6589) billion dinars, which is due to the There are two double effects related to crude oil, the first is the increase in the number of barrels exported, and the second is the increase in the selling prices of crude oil internationally. As for the period (2014-2018), the time trend of the time series of government investment spending was different from the time trend of the total government spending time series, as it continued to decrease until 2018, with a slight discrepancy in 2017, whose growth rate was positive without the rest. The negative rates for the same period, but it was a very small percentage of (3.59%), and after it was in 2014 at (24931) billion dinars, it continued to decrease to become in 2018 by (13820) billion dinars, and the reason for this decrease is due to austerity measures Taken by the government due to the repercussions of the events of June 9, 2014, referred to in our analysis of total government spending, in addition to facing the decline in international oil prices, as it reduced government spending due to the decline in its revenues, as well as reducing investment spending in order to fully pay the salaries of employees and retirees, and it has suspended many projects Increasing taxes and imposing many fees on services that were previously free (Khudair et al., 2020, 228), but in 2019, the time series of investment spending and It led to a significant increase, to double what it was in 2018, to

become by (24,427) billion dinars, and this is the formation of the new government, which reduced the austerity measures taken during the previous government since 2014, but in 2020, the time series of investment spending recorded a significant and unprecedented deterioration. It became at (3204) billion dinars and at a negative rate of (-86.86%) due to Iraq's exposure to a suffocating economic crisis resulting from the decline in global crude oil prices due to the sharp decline in global demand for it as a result of the suspension of factories and air and land transport movement due to the closure measures taken to combat the spread of the virus. Corona virus, in addition to the decline in its oil exports for the same reason.

From the above it is clear that investment spending was fluctuating throughout the study period, as a result of the weakness of public finances as a result of its dependence on oil revenue by more than 90%. The tax system in increasing tax revenues. It is also clear that the relative importance of government investment spending out of total government spending, which was the lowest value in 2020 at (4%), which is the value corresponding to the highest value in the time series of consumer spending, and its highest value was in 2013 (34%), which is the value corresponding to the lowest value in the time series of the relative importance of consumer spending, while the average relative importance for the entire period was (20%).

3.2 Imports to GDP Ratio:

The ratio of imports to GDP is one of the important indicators that demonstrate the creditworthiness of a country's economy, because the decrease in this ratio by a value less than one, means that imports are less than GDP, meaning that the country produces more than what it imports and thus it is able To cover loans or debts through their production, and that this is positive for the economies of countries, especially developing countries, including Iraq. Table (3) shows the ratio of imports to GDP in Iraq, as follows:



Table (3) Developments of the ratio of imports to GDP in Iraq for the period (2004-2020) (billion dinars)

Year	Imports	GDP	Imports/GDP %
2004	30973	53235	0.58
2005	34662	73534	0.47
2006	32508	95588	0.34
2007	24759	111456	0.22
2008	42226	157026	0.27
2009	49108	130643	0.38
2010	52128	162065	0.32
2011	57316	217327	0.26
2012	72814	254225	0.29
2013	73178	273588	0.27
2014	64771	266333	0.24
2015	56746	194681	0.29
2016	40518	196924	0.21
2017	47936	221666	0.22
2018	55158	268919	0.21
2019	69823	277885	0.25
2020	48150	198774	0.24

Source: Table from researcher' work based on:

- Central Bank of Iraq data/publications for multiple years.
- World Bank data: (<https://data.worldbank.org>).

It is clear from Table (3) the developments of the ratio of imports to the gross domestic product, and we note that its ratio was varied in most years of the study period, and to study the time course of it, it was divided into three sections (decreasing, increasing, varying), the first section combining the period (2004-2007) We note during it that the time series was constantly decreasing and its value in 2004 was (0.58), which is the highest value during the study period, but it became in 2007 by (0.22) and the reason for this decrease is due to the growth of the gross domestic product by an amount greater than the decrease in the value of Imports, due to the growth of the oil sector as well as the selling prices of crude oil. As for the second section, it included the years 2008 and 2009, in which the time series of the percentage increased continuously and in large amounts, and its value was (0.27) and (0.38), respectively.

Although the GDP grew in 2008, we note the significant increase in the value of imports, and the reason for the increase in this period is due to the mortgage crisis and its repercussions, which caused an increase in the prices of many commodities globally, especially those related to information technology, which was Iraq imports a lot.

As for the third section, it was during the period (2010-2020), in which the time series varied between rise and decline, as it became clear that the gross

domestic product tended to decline, after it was (266333) billion dinars in 2014, it reached (196924) in 2016. This decline is due to the security events that began in 2014, which greatly affected productivity inside the country.

This was offset by a decrease in imports, since most imports depend on hard currencies (dollars), which are the source of oil revenue, which decreased in 2014 as a result of security events that negatively impacted the Iraqi economy as a whole.

3.3 Developments in the ratio of change in external debt to economic growth:

The ratio of the change in the external debt to the change in the gross domestic product is one of the important indicators that show the creditworthiness in the economy of any country, because the decrease in this ratio by a value less than one, it means that the change in the external debt is less than the change in the gross domestic product, i.e. The growth rate of the external debt is less than the growth rate of the gross domestic product, meaning that the state produces more than what it borrows externally, and thus it is able to cover the debts through its production, and this is positive for the economies of countries, especially developing countries, including Iraq



Table (4) Developments of the ratio of change in external debt to change in GDP (economic growth) in Iraq for the period (2004-2020) (billion dinars)

Year	External Debt	Change Rate % (1)	GDP	Change Rate % (2)	(1)/(2) %
2003	129.630	-	29.585	-	
2004	105.066	18.6	53.235	80	0.23
2005	91.630	-13.3	73.534	38	-0.35
2006	81.925	-11	95.588	30	-0.36
2007	80.149	-2	111.456	16.6	-0.12
2008	67.215	-16	157.026	41	-0.39
2009	67.010	-0.3	130.643	-16.8	0.018
2010	67.780	-1	162.065	24	-0.041
2011	65.951	-2.6	217.327	34	-0.076
2012	63.859	--3	254.225	17	-0.17
2013	66.608	4.4	273.588	7.4	0.59
2014	67.972	2	266.333	-2.6	-0.76
2015	63.337	-6.8	194.681	-26.9	0.25
2016	78.298	23.5	196.924	1.15	20.4
2017	79.244	1.3	221.666	12.6	0.10
2018	78.410	-1	268.919	21.3	-0.04
2019	110.112	41	277.885	3.6	11.3
2020	129.630	18	198.774	-28.5	-0.63

Source: Table from researcher' work based on:

- Iraqi Ministry of Finance, Public Debt Division, Reports for the Years (2004-2020).
- World Bank data: (<https://data.worldbank.org>)

Table (4) shows the rate of change in External debt to economic growth in Iraq is as follows: It is evident from Table (4) the developments in the ratio of change in external debt to change in GDP (economic growth), and we note that its percentage was declining in most years of the study period, during the period (2004-2007) The ratio was low and its value in 2004 was (0.23), but it became in 2007 by (-0.12) and the reason for this decrease is due to the growth of the gross domestic product by an amount greater than the decrease in the value of the external debt, due to the decrease in the value of the external debt. The oil sector, as well as the selling prices of crude oil, and in 2009, in which the rate of change in external debt to change in GDP was also low, but the rate of debt decline was (-0.3), while the rate of decline in economic growth was (16.8) meaning that it is on Despite the decrease in the external debt, it decreased with the domestic product as a result of the decrease in oil prices, and that percentage amounted to (0.018), and the reason for the decrease was due to the decrease in the external debt. A greater decline as a result of the continuous decrease in the external debt and the increase in the growth rate of GDP. In 2016, the ratio reached its peak, which amounted to 20.4, meaning that the change in debt was much greater than the change in output, meaning that the increase in debt was greater than the increase in output 20

times Almost, and this is the result of the cumulative effects of the military wars during that period and the drop in oil prices, which led to an increase in debt and a decrease in the contribution of exported oil to the gross domestic product.

As for the period (2019-2020), the change in debt was positive as a result of the increase in external debt and the change in output was low in 2019 and then negative in 2020 as a result of the events of Corona and the accompanying policy of road closures and a drop in global productivity that led to a drop in oil prices, which fell The result and the debt increased to cover the shortfall in oil revenues, which cover 90% or more of the annual budget in Iraq

4. MEASURING THE EFFECT OF INVESTMENT SPENDING ON SOME INDICATORS OF CREDITWORTHINESS.

4.1 Measuring the impact of the relationship between investment spending and the ratio of imports to GDP in Iraq for the period (2004-2020):

Initially, the independent and dependent variables that are included in the Standard Model are identified. The following is a description of the variables included in the model:

- Dependent variable: It expresses the following: the ratio of imports to the gross domestic product and is symbolized by (ed)



- Independent variable: It expresses the ratio of investment spending to total spending in and is symbolized by (ie)
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4.1.1 Unit Root test results:

Phillips-Perron (PP) test:

It is one of the tests that is used to find out the inactivity of time series.

Table (5) Phillips-Perron (PP) test for model variables: the ratio of imports to GDP and the ratio of investment spending to total spending

Variable	Level			First difference		
	Fixed limit only	Fixed boundary and general direction	No fixed limit and no general direction	Fixed limit only	Fixed boundary and general direction	No fixed limit and no general direction
	Prob	Prob	Prob	Prob	Prob	Prob
The ratio of Imports to GDP	0.0158	0.1771	0.0289	---	---	---
The ratio of investment spending to total spending	0.7125	0.5904	0.8908	0.0000	0.0000	0.0003

Source: From the researcher’s work based on the outputs of the E-Views10 program.

This means that the creditworthiness index was integrated from the zero degree I(0) and that the investment spending in Iraq was integrated from the first degree I(1).

This means that the variables part of them were static at the original level and part became static at the first difference, and therefore the (ARDL) methodology can be used, the most important characteristic of which is that the variables are static at the first level and difference and that the chains are not static at the

second difference and therefore we have met the methodological conditions (ARDL).

4.1.2 Estimation of ARDL:

The application of the ARDL autoregressive model does not require that it be preceded by the time-series inactivity tests.

It is evident from Table (6) that the interface of the standard model used in measuring the relationship between the study variables (ARDL). 24% was the result of other factors affecting the ratio of imports to GDP

Table (6) results of estimating the ARDL model for the relationship between the ratio of imports to GDP and the ratio of investment spending to total spending

R-squared	0.764153	F-statistic	48.60065
Adjusted R-squared	0.748430	Durbin-Watson stat	2.138468
Prob(F-statistic)	0.000000		

Source: From the researcher’s work based on the outputs of the E-Views10 program.

Also, the value of Durbin-Watson was high and reached 2.1, which indicates that there is no autocorrelation problem in the model, and that the Fisher statistic amounted to (0.000000) and means that the model used is an acceptable statistical model to measure the relationship between the study variables, and that the value of Durbin-Watson was greater than the coefficient of determination and therefore The model is free from the problem of false

regression, and therefore other tests can be performed on the model, and this gives real results and indicates reality without falsification, such as measuring short and long-term relationships between variables.

4.1.3 Co-integration Test According to ARDL:

The ARDL Bounds test shows the integrative, or complementary, relationship between the variables used in the Standard Model



Table (7) The boundary test for joint integration according to the ARDL methodology for the relationship between the ratio of imports to GDP and the ratio of investment spending to total spending

ARDL Bounds Test		
Test Statistic	Value	K
F-statistic	4.003544	1
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
5%	3.62	4.16

Source: From the researcher's work based on the outputs of the E-Views10 program.

That is, the integrative relationship between the dependent variable and the independent variable through the ARDL model, which is defined as the critical limits test on the Fisher statistical value, by comparing it with the lower and upper limits (critical value limits) at a significant level of 5%, and Table (7) shows the results of the test as follows. It is clear from Table (7) the co-integration test for the integrative relationship between the dependent variable (the ratio of imports to GDP) and the independent variable (investment spending). Bound)) i.e. the zero limit of (3.62) and the upper limit of the parameter (I1 Bound) which amounted to (4.16) at a significant level of 5%. Therefore, this result falls in the non-decisive region, meaning that the alternative hypothesis that states the existence of a joint integration cannot be accepted. Between the dependent variable and the independent variable, the alternative cannot be rejected, and to ensure that there is a long-term relationship, the error correction model can be resorted to, as follows:

4.1.4 Short and long-term relationships according to the ARDL methodology:

It is clear from table (8) the short and long-term relationship between the dependent variable (the ratio of imports to GDP) as one of the indicators of creditworthiness, and the independent variable (the ratio of investment spending to total spending) and the results indicate that there is no The existence of a short-term relationship between the variables because the probability of them was (0.3317) which is greater than the level of significance 5%, and therefore we accept the null hypothesis which states that there is no short-term relationship between the dependent variable and the independent variable, and we reject the alternative hypothesis that states the existence of a short-term relationship Between the dependent variable and the independent variable, because the probability was greater than 5%.

Table (8) Error correction model (short and long term) according to ARDL methodology for the relationship between the ratio of imports to GDP and the ratio of investment spending to total spending

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IE)	-0.174447	0.176802	-0.986677	0.3317
CointEq(-1)	-0.268718	0.077058	-3.487211	0.0015
Cointeq = IMPORTED - (-0.2798*IE + 0.3258)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IE	-0.279841	0.397744	-0.703571	0.4871
C	0.325769	0.099291	3.280937	0.0026

Source: From the researcher's work based on the outputs of the E-Views10 program.

It is also clear from the results that the error correction coefficient was negative and significant, and less than the real one, that is, it satisfies the condition of correcting the error. However, the long-term relationship between the variables was of a very high probability if the probability of them reached (0.4871) which is greater than 5% and this indicates that there is no The existence of a long-term relationship between the variables and therefore we accept the null hypothesis which states that there is no long-term

relationship between the dependent variable and the independent variable, and we reject the alternative hypothesis which states that there is a long-term relationship between the dependent variable and the independent variable because the probability was greater than 5%.

From the foregoing, we conclude that investment spending had no effect on the creditworthiness index represented by (the ratio of imports to GDP) that is, investment spending did not perform its required role



by working to expand economic activity that increases domestic production and reduces imports, and this corresponds to The reality of the Iraqi economy, as investment spending in Iraq contains a very large deviation rate.

4.2 Measuring the effect of the relationship between investment spending and the ratio of change in external debt to change in GDP (economic growth) in Iraq for the period (2004-2020)

Initially, the independent and dependent variables that are included in the Standard Model are identified. The

following is a description of the variables included in the model:

- Dependent variable: It expresses the following: the ratio of the change in the external debt to the change in the gross domestic product (economic growth) and is symbolized by (ch.d)

- The independent variable: It expresses the ratio of investment spending to total spending and is symbolized by (ie).

4.2.1 The results of the Unit Root test:

It is first ascertained that all the variables of the model are still, by conducting the silence test (Phillips-Perron) as follows:

Table (9) Phillips-Perron test (pp) for model variables for the relationship between the ratio of change in external debt to change in GDP (economic growth) and the ratio of investment spending to total spending

Variable	Level			First difference		
	Fixed limit only	Fixed boundary and general direction	No fixed limit and no general direction	Fixed limit only	Fixed boundary and general direction	No fixed limit and no general direction
	Prob	Prob	Prob	Prob	Prob	Prob
Ratio of change in external debt to change in GDP (economic growth)	0.0213	0.0686	0.0017	---	---	---
The ratio of investment spending to total spending	0.7125	0.5904	0.8908	0.0000	0.0003	0.0000

Source: From the researcher's work based on the outputs of the E-Views10 program.

It is clear from Table (9) the results of the static test for study variables, according to the unit root test of Philips Perron. and the general direction, without a fixed limit and no general direction).

As for investment spending in Iraq, it was not stable at its original level and in the three cases (for the fixed limit, the fixed limit and the general trend, without the fixed limit or general trend), and therefore it became static when the first difference was taken, and this means that (the ratio of change in the external debt to The change in the gross domestic product) was integrated from zero degree (0) I, and the ratio of investment spending to total spending was integrated or static of the first degree (1) I.

This means that the variables part of them were static at the original level and part became static at the first difference, and therefore the (ARDL) methodology can

be used, the most important characteristic of which is that the variables are static at the first level and difference and that the chains are not static at the second difference and therefore we have met the methodological conditions (ARDL).

4.2.2 Estimation of ARDL:

It is clear from Table (10) the interface of the standard model used to measure the relationship between the study variables (ARDL). It is clear from the results that the coefficient of determination has reached 86%, meaning that changes in the ratio of loans to GDP were changing by 86% as a result of changes in investment spending And 14% was the result of other factors affecting the ratio of imports to GDP. The results also show that the value of Durbin-Watson was 1.5, which indicates that there is no autocorrelation problem in the model



Table (10) The results of estimating the ARDL model of the relationship between the ratio of change in external debt to change in GDP (economic growth) and the ratio of investment spending to total spending

R-squared	0.197334	F-statistic	3.687720
Adjusted R-squared	0.143823	Durbin-Watson stat	1.668162
Prob(F-statistic)	0.036985		

Source: From the researcher's work based on the outputs of the E-Views10 program.

The Fisher statistic amounted to 0.0000, which means that the model used is an acceptable statistical model to measure the relationship between the study variables, and that the value of Durbin-Watson was greater than the coefficient of determination, and therefore the model is free from the problem of false regression and therefore other tests can be performed on the model and this gives real results and indicates that Reality without falsification is like measuring short and long-term relationships between variables.

4.2.3 Co-integration Test According to ARDL:

Table (11) shows the co-integration test for the complementary relationship between the dependent

variable (the ratio of the change in external debt to the change in GDP (economic growth) and the independent variable (the ratio of investment spending to total spending):

The results of the test show that the statistical value of Fisher has reached (4.906172) which is greater than the value of the zero parameter (I0 Bound) i.e. the zero limit of (3.62) and the largest upper limit of the parameter (I1 Bound), which reached (4.16) at a significant level of 5% and therefore this result Demonstrate the existence of a co-integration relationship.

Table (11) The boundary test for joint integration according to the ARDL methodology for the relationship, the ratio of the change in external debt to the change in GDP (economic growth) and the ratio of investment spending to total spending

ARDL Bounds Test		
Test Statistic	Value	K
F-statistic	4.906172	1
Critical Value Bounds		
Significance	I(0) Bound	I(1) Bound
5%	3.62	4.16

Source: From the researcher's work based on the outputs of the E-Views10 program.

This is illustrated by Table (11) and therefore it is possible to accept the alternative hypothesis that states that there is a co-integration between the dependent variable and the independent variable, as well as rejecting the null hypothesis.

4.2.4 Short and Long-Term Relationships According to ARDL Methodology:

The error correction model in measuring the effect of the independent variables on the dependent variable depends on the parameters in the short and long term, and Table (12) shows the results of the error correction model test according to the ARDL methodology, as follows

Table (12) Error correction model (short and long term) according to ARDL methodology for the relationship ratio of change in external debt to change in GDP (economic growth) and the ratio of investment spending to total spending

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IE)	-5.45223	6.218555	-0.87677	0.0376
CointEq(-1)	-0.6539	0.168286	-3.88564	0.0005
(Cointeq = CHD - (-7.5141*IE + 1.2627))				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
IE	-7.51409	5.533098	-1.35803	0.0146
C	1.262685	1.319628	0.956849	0.3463

Source: From the researcher's work based on the outputs of the E-Views10 program.



It is clear from Table (12) the short- and long-term relationship between the dependent variable (the ratio of the change in external debt to the change in GDP (economic growth) and the independent variable (the ratio of investment spending to total spending). The results indicate that there is a short-term relationship between the variables This is because the probability for them was (0.0376), which is less than the 5% level of significance, as the changes that occur in the ratio of spending to total public spending by 1% lead to changes in (the ratio of the change in external debt to the change in GDP (economic growth).)) by -5.4%, i.e. the relationship is the ratio of the change in external debt to the change in GDP (economic growth) and the ratio of investment spending to total spending is an inverse relationship, that is, the more investment spending expands the economic activity and the higher the output and the lower the debt and the lower the debt ratio to the output, and this applies to the reality of the Iraqi economy.

Thus, we reject the null hypothesis which states that there is no short-term relationship between the dependent variable and the independent variable and accept the alternative hypothesis which states that there is a short-term relationship between the dependent variable and the independent variable because the probability was less than 5%.

Also, the error correction coefficient amounted to (-0.653901) which is significant and negative and its value is confined between zero and one, and indicates that the imbalances that occur in the short term can be corrected by 65% in the long term, which is a high value of corrections.

However, the long-term relationship between the variables was of a very high probability if the probability of it reached (0.0146), which is less than 5%, and this indicates the existence of a long-term relationship between the variables and therefore we reject the null hypothesis which states that there is no long-term relationship between the dependent variable and the independent variable and we accept the alternative hypothesis which states that there is a long-term relationship between the dependent variable and the independent variable, because the probability was less than 5%.

But this effect was simple, as changes that occur in the ratio of spending to total public spending by 1% lead to changes in (the ratio of change in external debt to change in GDP (economic growth)) by (-7.5%).

From the foregoing, we conclude that investment spending had a good effect on (the ratio of change in external debt to change in GDP (economic growth)), that is, investment spending if it increased by working to expand economic activity that increases domestic production and reduces external debt. , This corresponds to the reality of the Iraqi economy, as

investment spending in Iraq contains a very large deviation rate, meaning that government investments were not complete as planned and contain significant delays

5. CONCLUSIONS AND SUGGESTIONS:

5.1 Conclusions:

1. The results of the analysis prove the existence of a weak relationship between investment spending and indicators of creditworthiness in Iraq.
2. The results of the analysis proved that government spending was increasing for most of the study period, and that government spending depends on the oil sector by more than 90% of Iraqi budgets during the study period.
3. Iraq gives great importance in its investment spending to the oil sector and the electricity sector, and that the oil sector occupies the first place in investment spending.
4. The stability tests (Dickey-Fuller Extended, Phillips-Peron) proved that the variables used in the study were part of them static at the level and the other part static at the first difference, if the creditworthiness indicators were static at the original level, while spending was The investment is still at the first difference.
5. The results of the study proved that the co-integration test of the relationship between the ratio of investment spending to total public spending and the creditworthiness index represented by (the ratio of imports to the gross domestic product) is located in the non-discounted zone, meaning that the existence of integration cannot be determined or not.
6. The results of the study proved that the joint integration test of the relationship between the ratio of investment spending to total public spending and the creditworthiness index represented by (the ratio of change in external debt to change in GDP (economic growth)) in the presence of a joint integration relationship.
7. The results of the study proved that there is no long-term relationship between the dependent variable and the independent variable, that is, investment spending had no effect on the creditworthiness index represented by (the ratio of imports to GDP).
8. The results of the study proved the existence of a long-term relationship between the dependent variable and the independent variable, that is, investment spending has an impact on the creditworthiness index represented by (the ratio of change in external debt to change in GDP (economic growth)).



5.2 Suggestions:

1. Work to give more importance to investment spending over current spending, which takes the largest proportion of the importance in expenditures.
2. The use of many and varied control policies on investment expenditures in order to ensure that the investment goal is reached and to eliminate the degree of deviation in it.
3. The need to achieve a high level of internal security in order to stabilize the security situation and consequently the stability of the economic situation, in a way that encourages the attraction of foreign investments into the country.
4. Work to reduce government budget expenditures by 1%-3% annually, especially consumer expenditures, in order to reduce the amount of the deficit and thus reduce debt or resort to external loans.
5. Directing investment expenditures towards sectors with low production in order to support them and increase their productivity.
6. Working on diversifying sources of income and not relying on oil revenue, as it is depleted.
7. Working to support the productive private sector in order to contribute to increasing productivity and thus reducing foreign imports.
8. Using appropriate economic policies that contribute to raising the level of creditworthiness and thus raising the level of the credit rating of the Iraqi economy.
9. Adopting a rational and appropriate policy for debt and external borrowing, and working to direct those debts towards investment expenditures only, by following the golden rule.

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