MEASURING THE LONG-TERM EQUILIBRIUM RELATIONSHIP AMONG THE INTEREST RATE, INVESTMENT EXPENDITURE AND GROSS FOREIGN DIRECT INVESTMENT IN IRAQ FOR THE PERIOD (2004-2020)

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A B S T R A C T	K E Y W O R D S
Most countries indiscriminately view investment as an imperative and a necessary tool for economic growth and effective management to promote the economy. After 2003, the Iraqi economy entered a new phase represented by the trend towards the application of a free market economy and support for the private sector. Accordingly, the Iraqi state has enacted a number of investment promotion laws, perhaps the most prominent of which is Investment Law no. 13 (2006) and its subsequent amendments for providing an appropriate and attractive environment for foreign investment within the framework of economy and its variables. Since investment of both types has clear effects on the level of its economic variables, this research aims at investigating the existence of a long-term balance among interest rates, investment expenditure and foreign direct investment (FDI), building the measurement model and verifying its quality, in addition to discovering and addressing the problems. The results revealed a long-term balance between the research variables, and the degree of adjusted r-squared coefficient was good represented by (73%). The measurement results indicated the lack of problems related to the model.	direct investment in Iraq, domestic direct investment, foreign direct investment (FDI)

Introduction

Most countries indiscriminately view investment as an imperative and a necessary tool for economic growth and effective management to promote the economy, with significant increases in production capacity and exploitation of human resources. However, managing and directing investments is the key and necessary aspect to serve economic development. The countries worldwide, regardless of their

development levels, pay a great attention to investment as one of the most prominent motives of economic growth. After 2003, the Iraqi economy entered a new phase represented by the trend towards the application of the free market economy and support for the private sector. Therefore, the Iraqi state has enacted a number of investment promotion laws, perhaps the most prominent of which is Investment Law no. 13 (2006) and its subsequent amendments for providing an appropriate and attractive environment for investment within the framework of macroeconomics and its variables, since investment of both types has clear effects on the level of macroeconomic variables.

Research Problem

Most developing countries, including Iraq, suffer from the problem of weak direct investment and domestic and foreign investment projects, which weakens the role of investment in the development of the Iraqi economy.

Research Objectives

This research aims at:
1. Investigating the stationarity of time chains of research variables.
2. Verifying a long-term equilibrium relationship among interest rates, investment expenditure and direct investment.
3. Building the measurement model and verifying its quality, in addition to discovering and addressing related problems.

Research Hypothesis

The research is based on the hypothesis that there is a long-term balance among interest rates, investment expenditure and direct investment in Iraq.

Research Significance

The importance of research lies in the need to demonstrate the role of changes in interest rate and investment expenditure in changes in domestic and foreign direct investment and the important and clear consequences of these indicators on improving the effectiveness of investment by providing the appropriate investment environment in the Iraqi economy.

Research Method

The research is based on the descriptive and quantitative method of studying the balance among interest rates, investment expenditure and direct investment.

Research Organization

The first section is about the theoretical framework of research variables; the second section is about measuring the effect of interest rates and investment expenditure on direct investment in Iraq for the period (2004-2020).

Previous Studies

1. Al-Samarrai, S. (2018) studied the Impact of domestic investment on sustainable development in selected Arab countries (Egypt, Jordan, Lebanon) for the period (2000-2016) through considering

the investment and development indicators in these countries. The study found that domestic investment in Egypt recorded the highest value of annual growth in 2007, with an annual growth rate of (23.08%) million dollar. While the domestic investment in Jordan recorded the highest value of annual growth in 2014 reaching (7827) million dollar. As for the domestic investment in Lebanon, it recorded the highest annual growth value in 2016, with an annual growth rate of (11189) million dollar.

2. Al-Janabi, M. (2022) conducted a study on measuring and analyzing the impact of domestic and foreign direct investment on some macroeconomic variables in Iraq during the period (2004-2019). The study aimed at analyzing the reality of domestic and foreign direct investment and its sectoral trends, in addition to measuring the impact of domestic and foreign direct investment on some of Iraq's macroeconomic variables. The results showed a positive and reverse long-term equilibrium relationship, heading from the independent variables of domestic and foreign direct investment, banking proliferation, interest rates and exchange rates to the dependent variables of gross domestic production, unemployment, export and revenues inflation during the research period. The study proved the validity of research hypothesis.

Section One: Theoretical Background of Research Variables

1. The Concept of Investment

According to the economic concept, investment is the productive employment of capital towards uses that lead to the production of goods or employment services by managing savings and satisfying the economic needs of society and increasing its well-being. Alternatively, it is that part of non-consumed income with the aim of increasing production, which makes it achieve real additions in productive processes (Al Shabib, 2009: 17).

Conventionally, investment depends on the analysis of nations wealth and that wealth is concentrated in precious metals. Additionally, Adam Smith did not mention the investment climate, but he differentiated between a closed economy that does not deal with the outside world and depends on internal resources, and an open economy that aims at increasing output, achieving a capital surplus and increasing capital additions (Lotfi, 2009, 19).

2. Investment Objectives

Investment objectives vary depending on who is making the investment, as it may be to achieve the public benefit as in public projects carried out by the state (e.g., the establishment of a public hospital, university or school ... etc.), or to make a profit as in private projects. Most of the studies on investment have focused on investment that aims to achieve an acceptable return accompanied by a certain level of risk. The most important objectives of investors can be summarized as follows (Alwan, 2009: 35):

1. Achieving a satisfactory return for the investment project that helps the investor to make a profit.

2. Maintaining the value of real assets, i.e., maintaining the value of the investment project and the value of the original capital invested in the project. In order to maintain the value of the capital, it is necessary to choose the proposed investment alternative that achieves the largest return and the lowest degree of risk. The investor can maintain his investment assets through diversification of investments and the formation of investment portfolio so that the value of his assets (wealth) does not decrease over time by virtue of the increase in prices and their fluctuations.

3.   Achieving the return (profit or income), as this is the general aim of investment. It is difficult to find an individual who invests his money whatever the type of investment without the aim of achieving profit or return, so that the value of assets at which the investor seeks to diversify in his investment areas is maintained. Therefore, the value of his assets (wealth) does not decrease over time due to the factors of the increase in prices and their fluctuations, as the investor seeks to achieve future income and to create and develop wealth in the future (Hardan, 2009: 16).

4.   The investor must develop a comprehensive financial plan because the process of investing funds in different assets is part of a comprehensive financial decision and a plan that the investor will have to work on because such a plan will be the basis of capital safety. The first element that the investor must take into account is the amount of risk that s/he may be willing to accept. According to an efficient capital market environment, the risk tends to be closely linked to return. The investor's goal should generally be within the framework of risk and return, as the relationship between return and risk requires that the objectives set should not be only within the concept of return. This is due to that if these objectives are presented within this concept, this may lead to conducting investments with higher rates of risk than the normal investments. There are many tests that the investor can rely on when managing the investment to choose investment objectives, the most important of which are: risk and capital safety, current income against high capital value, investment time horizon, liquidity considerations, tax interests, and regulatory and legislative factors) (al-Douri, 2010: 26-29).

3.   The Concept of Domestic Investment

The World Bank defines domestic direct investment as the gross capital formation (i.e., the gross capital formation previously). It consists of total expenditures on increasing the fixed assets of the economy, in addition to net changes in the level of stocks. In the case of capital formation, there are two different decisions: the first relates to determining the optimal level of capital, while the second relates to the rate of investment flows (Hussein & Ebadi, 2013: 431). Domestic investment is particularly important as one of the main cornerstones of Arab countries. Undoubtedly, the economic potential of Arab countries including resources, raw materials, agricultural land, labor and capital, as well as calls for national rally to rise up the values of accreditation and to request the promotion of integration into the regional and global economies from fair and balanced positions has led to the development of domestic investments (Allam, 2015: 3).

4.   Determinants of Domestic Investment

Investment is the key to capital accumulation, which is the basis for any economic progress. Domestic investment is determined by various factors affecting its effectiveness as follows (Abdul Adhim, 2007:15):

1.   Real determinants: refer to factors affecting the effectiveness of investment, such as high unemployment, fluctuations in economic growth, exports and domestic savings rates.

2.   Financial determinants: refer to exchange rate fluctuations and escalating external indebtedness.

3.   Direct markets Determinants: refer to factors affecting investment directly or indirectly represented by the number of domestic and foreign companies, shares, bonds and stock turnover ratio.

4.   Determinants relating to codifying or rationalization of domestic credit: refer to the availability of real exchange rate, foreign exchange, public investment, economic instability and the impact of the external debt burden.

5.   The Importance of Domestic Investment

Domestic investments play a key role in the economic growth of States and lead to increasing real shares of GDP for individuals and solving many problems, such as reducing unemployment in the labor market and reducing poverty. Most of the previous studies found that domestic and foreign investment flows positively affect economic growth, through integration of production, or by increasing production through technology transfer. This is clearly manifested when FDI enters an economic sector where domestic investment is rare, so it presents a new product. According to the Investment Promotion Act, the investment sectors of national priority are food products, pharmaceutical products, tourism, and informatics. The relationship between foreign and domestic investments appears to be more important in developing countries than in developed countries. In fact, FDI accounts for at most (15 %) of the world's total capital formation. This implies that domestic investment is behind the bulk of economic growth. Although the value of foreign firms' investments is higher than that of domestic firms, yet the presence of large foreign companies in these countries may affect domestic companies and may sometimes keep them out of the market (Abu Murad, 2015: 4).

6.   The Concept and Importance of Foreign Direct Investment (FDI)

FDI is defined as a direct investment in production in a country by a company located in another country. This is done either by purchasing a company in the target country or by expanding existing business operations in that country, with the aim of benefiting from cheap wages and benefiting from the privileges, facilities and tax exemptions granted by the host country government (Allam, 2015: 76).

The importance of FDI lies in supporting and promoting the country's economic growth by increasing macroeconomic production capacities and correcting its structural imbalances, closing the domestic savings gap needed to finance investment plan programs, as well as closing the gap in technological progress through the introduction of modern machinery and equipment. It also contributes to increasing employment opportunities, reducing unemployment rates, and finally helping foreign companies to open new export markets through their experience in this field (Abu Murad, 2015: 20).

7.   Investment Expenditure

Investment expenditure refers to the amounts that the State spends in order to achieve an increase in production, such as expenditures for access to goods and services, which are called investment expenditures, when the State uses its purchasing power of public expenditures, resulting in its access to labor, goods and services. Expenditure reflects the purchase or acquisition price of the commodity paid by the state for it, as the state receives an increase in national income, which is a direct increase in gross national product through the formation of a new production volume when measuring government expenditure (Atlam, 1998: 84). Investment expenditure is to obtain fixed capital from land stocks, buildings and other non-material assets, with the aim to expand production capacity to achieve economic growth, and is characterized by high flexibility and its response to fluctuations in the

financial capacity of the state. Such expenditure departs from the cyclical status of public expenditure classification, and is in line with the development of the states' role in the economy and its increased intervention at the economic and social levels. Thus, government investment expenditure is capital expenditure because it aims to increase the national wealth of the state (al-Wadi & Azzam, 2007: 67). Government investment expenditure includes all aspects of investment made by the state, which are in the form of infrastructure of productive roads, bridges and public projects that are not different in nature from private enterprises except as they belong to the public sector. It also includes all aspects of financial investment made by the state. This measure is a proof of the size of the state's intervention in economic activity, as it demonstrates the extent to which the state participates in the production process and the creation of new capital along with capital in the private sector (Khalaf, 2008: 89).

Section Two: Measuring the Impact of Interest Rates and Investment Expenditure on Gross Direct Investment in Iraq for the Period (2004-2020)

1. Study Sample

Table (1) shows gross investment and some macro variables in Iraq.

Table 1: gross investment and some macro variables in Iraq

Year	Direct Investment (Million Dinar)	Interest Rates (%)	Investment Expenditure (Million Dinar)
2004	843300	6.0	3014733
2005	1277635	7.0	4572018
2006	1290180	16.0	6027680
2007	1426310	20.0	7723044
2008	5395297	16.0	11880675
2009	4165900	8.8	10513405
2010	5589700	6.25	16130866
2011	7787950	6.0	17832113
2012	11382438	6.0	29350952
2013	13636128	6.0	40380750
2014	10926882	6.0	36731844
2015	6941800	6.0	18584676
2016	8896590	4.3	15894009
2017	8941300	4.0	16464461
2018	12220455	4.0	13820189
2019	13450212	4.0	24422523
2020	5865226	4.0	15216488

Source: prepared by the researcher based on the data of the annual reports of the Economic Department of the National Investment Authority for various years during (2008-2020), separate pages.

2. Variables Included in the Model

There will be two types of variables:

a. Dependent variables: gross direct investment in Iraq.

b. Independent variables: interest rates and investment expenditure in Iraq.

The variable symbols involved in this research: (Y) is gross direct investment in Iraq, (X1) refers to interest rates in Iraq, and (X2) refers to investment expenditure in Iraq.

3.   Tests Employed in the Research

In order to select the best methods, the following tests will be adopted:

a.   Stationarity Test

It is one of the important tests in the stationarity of variables and the accuracy of the analysis results. Based on the null hypothesis (H0), the time chain is non-static, while the alternative hypothesis (H1) stipulates that the chains are static and stable. Dickey adjusted test was adopted, according to Schwartz Information Criterion (SIC) for ADF test. Through this test, the calculated and tabulated values were compared. According to the terms of this test, if the calculated value is greater than the tabulated value, the time chain will be stable and do not include root of unity, or through the significance of the T-test at the level (5%). Otherwise, the time chain will be unstable and include root of unity (Hamad, 2015: 153-154).

b.   Co-integration Test

Co-integration is defined as a match between two or more time chains so that fluctuations in one lead to the elimination of fluctuations in the other chain. Co-integration is one of the methods used to detect the nature of the equilibrium relationship between the variables subject to this test, whether they are stable in the long-term. This requires these variables to be unstable at their level but have a degree of stability when taking the first or second difference. According to this test, the variable can be static if the integration score is equal to (0)1. There are two tests to determine the number of co-integration vectors, namely, trace test and maximal Eigen Value (Hamad, 2015: 154-155).

c.   Multiple Linear Regression Equation (Rahe, 2013: 227):

$Y = Bo + B1X1 + B2X2 .... + BnXn + e$

Where (Bo) is the static function limit or parameter of regression line intersection with vertical axis of GDP; (Bi) represent parameters of partial regression or partial tendencies; (e) is random error, which is the difference between the real value of (y) and the estimated value, and is known as the residuals and its general law is as follows:

$e = y - y^\wedge$

The value (Bo) represents the value (y) when the value (X1) and (X2) =0.

d.   F-Test

This test is used to determine the significance of the supposed linear relationship between independent variables (X1, X2,… XK) and dependent variable. It is based on two types of hypotheses (Hadi et al., 2013, 344):

Null hypothesis: when the value of (F) is significant according to the indication used, it means that the hypothesis is accepted, which states that there are no significant differences between the variables in the measurement model, i.e.:

$H0: B1 = B2 = ... = BK = 0$

Alternative hypothesis: when the value of (F) is not significant according to the indication used, it means that this hypothesis is accepted, which states that there are significant differences between variables in the measurement model, i.e.:

$H1: B1 \neq B2 \neq ..... \neq BK \neq 0$

The value of (F) is calculated and compared to its tabulated value to determine the acceptance or rejection of null hypothesis and then to evaluate the significance of the estimated relationship in the model.

e.   T-Test

It is one of the best important tests used to test the significant differences between the variables included in the mathematical model and is represented by (1%) or (5%). It is used to evaluate the significance of independent variables (X1, X2, ...XK) individually in the dependent variable (Y) in a multiple linear regression model. It depends on two hypotheses (Amin, 2008:3):

Null hypothesis: when the value of (T) is significant according to the indication used, it means that this hypothesis is accepted, which states that there are no significant differences between the variables in the measurement model, i.e.:

H0: B1 = B2 = ...=BK = 0

Alternative hypothesis: when the value of (T) is significant according to the indication used, it means that this hypothesis is accepted, which states that there are significant differences between the variables in the measurement model, i.e.:

H1: B1 ≠ B2 ≠ .....≠ BK ≠ 0

After calculating (T) value, it is compared with its tabulated value to determine the acceptance or rejection of null hypothesis and then to evaluate the significance of the estimated model.

f.   Pearson Test

It is used when there are measurable quantitative variables, such as national income, national expenditure, GDP and other quantitative variables. The purpose of using this test is to determine the extent to which the variables in the measurement model are related, as it measures the relationship between independent variables and the dependent variable, as well as the relationship of independent variables with each other. Among the conditions of this test is that independent variables are associated with the dependent variable with a stronger relationship than with each other; otherwise, this association becomes multiple, i.e., a measurement problem affecting the model. It is necessary that the relationship should be according to the economic theory where there is positive and negative results (Hadi et al., 2013, 295).

g.   Durbin-Watson (D-W) Test

It is used to detect whether there is an autocorrelation in the model or not. Its value is limited to (0-4), and the closer it is to number (2), it is better. This means that the model does not suffer from a problem of autocorrelation. It is based on two basic hypotheses (Amin, 2008: 20):

Null hypothesis: which states the lack of autocorrelation (H0: P = 0).

Alternative hypothesis: which states the existence of autocorrelation (H1: P ≠ 0).

h.   R-Squared Coefficient Test

It is used to show the impact of the independent variable on the dependent variable. Its value can be obtained from R-squared coefficient (r^2). Its value is between (0-1), the closer its value to the integer, this indicates the role of the independent variable in the change of the dependent variable. R-squared

is used when there is one independent variable in the model, while adjusted R-squared is used when there is more than one independent variable in the measurement model (Musa, 2016: 6).

4.   The Method Used in Building the Measurement Model

Ordinary least squares (OLS) method is used in this study, which is one of the best ways to build the optimal model. It requires determining the nature of the relationship between the available data and the theoretical requirements in the economic variables involved in the formulation of the function, which assumes a number of conditions related to inputs and outputs.

5.   Estimating the Measurement Model
a.   The Unit Test of Stationarity by Augmented Dickey-Fuller (ADF) test

Table 2: results of root of unity test for the measurement model

Variable	Calculated value		Degree of significance			Decision
	Level	The first difference	At 1%	At 5%	At 10%	
X1	-3.814		0.87	0.87	0.87	Insignificant
X1		-3.548	0.00	0.00	0.00	Significant
X2	-0.534		0.46	0.46	0.46	Insignificant
X2		-3.126	0.00	0.00	0.00	Significant
Y	-0.522		0.47	0.47	0.47	Insignificant
Y		-2.698	0.01	0.01	0.01	Significant

Source: prepared by the researcher based on the results of the statistical program EView12.

Based on the results of ADF test, table (2) shows that the time chain is not static at the level, as the calculated (T) value is not significant at all significance levels. This indicates the problem of root of unity and that the time chain of the three variables are unstable at the level. However, after taking the first difference, the value of calculated (T) value is significant at all significance levels for all time chains. The time chain of the three variables (gross direct investment, interest rates and investment expenditure) in Iraq is stable and all data are static at the first difference and there is no problem of root of unity. Therefore, co-integration can be conducted with studying the long-term relationship. This means that it has a relationship with time, which is confirmed by the increasing values of the variables in question.

b.   Johansen Co-Integration Test

This test requires the variables to be integrated with the same degree and linked to a long-term relationship. To achieve this, there must be two conditions:
- All variables in the model are stable at the same level.
- This level is greater than (0) 1.

Table 3: results of Johansen Co-Integration Test of the measurement model

Trace test			
Number of co-integration vectors (r)	Calculated value	Tabulated value at 5%	Significance
r =0*	40.347	29.797	0.00
r =1	9.935	15.494	0.28
r =2	1.736	3.841	0.18
Maximal Eigen Value			
Number of co-integration vectors (r)	Calculated value	Tabulated value at 5%	Significance
r =0*	30.412	21.131	0.00
r =1	8.198	14.264	0.35
r =2	1.736	3.841	0.18

Source: prepared by the researcher based on the results of the EView12 program.

Table (3) presents the results of Trace and Johansen Maximum value tests. It is clear that the hypothesis of the absence of co-integration vector at a statistical level (5%) is rejected, indicating the acceptance of the alternative hypothesis that there is co-integration of zero rank for trace test. The calculated value (40,347) is greater than the tabulated value, which is 29,797 at a significance level of (5%). In addition, the hypothesis that there is no co-integration vector at a statistical level (5%) is accepted, i.e. the alternative hypothesis that there is a co-integration of (1) rank of trace test is rejected. The calculated value (9.935) is smaller than the tabulated value (15,494) at significance level of 5%. It is clear that the hypothesis that there is no co-integration vector at a statistical level of 5% is accepted, i.e., the alternative hypothesis that there is co-integration of rank (2) of trace test is rejected, as the calculated value (1.736) is smaller than the tabulated value which reached (3.841) at a significance level of 5%. The method of maximum value shows a co-integration of rank (0) by observing the calculated value (30.412), which is greater than the tabulated value (21,131) at a significance level of (5%). Moreover, the hypothesis that there is no co-integration vector at a statistical level (5%) and that there is no co-integration of rank (1) to test maximum value is accepted, as the calculated value (8.198) is smaller than the tabulated value (14.264) at a significance level (5%). It is also clear that the hypothesis that there is no co-integration vector at the statistical significance level (5%), and the absence of a co-integration of rank (2) to test of maximum value is accepted, as the calculated value (1.736) is smaller than the tabulated (3.841) at a significance level (5%). Accordingly, the variables represent a set of zero rank by using the third suggestion, which provides for a constant and slope of the co-integration function according to Johansen test. As two periods of slowness were chosen, this clarifies the presence of co-integration. Therefore, there is a long-term equilibrium relationship between gross direct investment in Iraq as a dependent variable and interest rates and investment expenditure as independent variables.

c.　　Estimating the Equation of Multiple Linear Regression of Measurement Model

By using the available statistical data and their introduction into EView12 statistical testing program, adopting the normal approach to such data, representing gross direct investment in Iraq as a dependent variable, interest rates as a first independent variable, and investment expenditure as a second independent variable, the following multiple linear regression equation was obtained:

Y = B0 + B1X1 - B2X2 + e

Y = 5094263 - 305267.6 X1 + 0.264917 X2......... 1

Statistically, equation (1) clarifies that the function constant reached (5094263), representing the value of (Y) when the value of both X1 and X2 is equal to zero. While the function slope of the first independent variable (X1) reached (-305267.6). This means that increasing X1 by one unit will result in decreasing Y by (-305267.6), i.e., there is a reverse relationship between X1 and Y. The function slope value of the second independent variable X2 reached (0.264917). This means that increasing X2 by one unit will result in increasing Y by (0.264917), i.e., there is a direct proportionality between X2 and Y variables.

Economically, the values of regression equation revealed that the value of gross direct investment in Iraq is (5094263) million Iraqi dinars when interest rates and investment expenditure are equal to zero, which is a positive value indicating that any decrease in these variables has a negative impact on gross direct investment. When interest rates increase by (1%), this means a decrease in gross direct investment in Iraq by (-305267.6) million Iraqi dinars, leading to a decrease in the contribution of interest rates to the growth of gross direct investment by the same amount. When investment expenditure increases by one million, gross direct investment in Iraq will increase by (0.264917) million Iraqi dinars. This increase results from directing investment expenditure towards infrastructure development projects, which in turn will create an appropriate investment environment and reduce investment costs. This will therefore encourage domestic and foreign investors towards productive investments, i.e., direct investments instead of unproductive financial investments.

Table 4: quality standards of measurement model

Quality standards of model	Value	Significance
Adjusted R-squared	0.7334	-----
t-B0	2.770	0.01
t-B1X1	-2.436	0.03
t-B2X2	4.347	0.00
D-W	1.252	-----
F	21.639	0.00

Source: prepared by the researcher based on the results of the EView12 program.

The results of estimated model in table 4 showed that the value of the adjusted R-squared (adj R2) was (0.7334), which means that the two independent variables (X1,X2) explain about (73.34%) of the change in the dependent variable (Y), and the remaining (26.66 %) represents the effect of other variables not included in the equation (multiple linear regression function). It is clear that interest rates and investment expenditure in Iraq explain about (73%) of the change in GDP and the rest (26.66%) represents economic variables and activities that are not included in the measurement model, including inflation, unemployment, exports, imports and other economic variables that affect gross direct investment.

Based on results in table (4), T-value of the calculated B0 (2.770) was greater than the tabulated value at a significance level (5%) and a degree of freedom (14) reaching (2.1315). Accordingly, null hypothesis (H0: B0 = 0) is accepted and alternative hypothesis (H1: B1 ≠ 0) is rejected. This means the significance of the estimated parameter. T-value of the calculated (B1) (-2.436) is greater than the tabulated value at a significance level (5%) and a degree of freedom (14) reaching (2.1315).

Accordingly, null hypothesis (H0: B0 = 0) is accepted and alternative hypothesis (H1: B1 ≠ 0) is rejected. This means the significance of the estimated parameter (B1), which represents slope of the variable (X1). This indicates the impact of this independent variable on the dependent variable, i.e., interest rates have an impact on gross direct investment in Iraq. T-value of the calculated (B2) (4.347) was also higher than the tabulated value at a significance level (5%) and a degree of freedom (14) reaching (2.1315). Accordingly, null hypothesis (H0: B0 = 0) is accepted and alternative hypothesis (H1: B1 ≠ 0) is rejected. This means the significance of the estimated parameter (B2), which represents slope of the variable (X2). This indicates the impact of this independent variable on the dependent variable, i.e., investment expenditure has an impact on gross direct investment in Iraq.

Based on results in table (4) revealed by the D-W test, whose calculated value (1.252), it is moving away from number (2) and is located between (dL=1.02) and (dU=1.54), i.e., in the rejection zone of the tabulated value of the research sample, which amounted to (17) views, i.e., (df=14), and two independent variables, i.e., (K=2). So, the decision is failure, i.e., not determined, because it falls in the area of indecisiveness, i.e., it is not clear whether there is a problem of autocorrelation between the research variables or not.

The results in table (4) show that the calculated F-value was (21,639), which was greater than the tabulated F-value at a significance level (5%) and a degree of freedom (2.14) for numerator and denominator amounted (3.74); therefore, null hypothesis (H0) is accepted and alternative hypothesis (H1) which provides for the significance of the estimated relationship is rejected. In other words, there is at least an impact of one of the variables (X1, X2) on the variable (Y), i.e., interest rates and investment expenditure are linked to gross direct investment in Iraq significantly with a clear impact among them (sig = 0.000). This shows that the significance level is higher than (0.01), making the model efficient and reliable for planning and predicting the future in terms of increasing investment projects permitted by the National Investment Authority, whether it is for local investors or by reducing interest rates and increasing investment allocations in the state budget.

Table 5: Contrast Analysis (ANOVA TABLE)

F test	Mean of sum squares (MSS)	Degree of freedom (df)	Sum squares (SS)	Source of variance (SOV)
21.639	1080001.5	2	2160003	Clear deviations on regression line (X_1, X_2) (SSE)
	49909.9542	14	3564.99673	Unclear deviations (residuals) (SSR)
		16	2163568	Total deviations (SST)

Source: prepared by the researcher based on the results of the statistical program EView12.

Table (5) clarifies the value of deviations described by the multiple linear regression of variables (x1.x2) reaching (2160003) with an average (1080001.5). While the value of residuals was (3564.99673) and their total was (2163568) with an average (49909.9542). Through those results, the value of F test was obtained and it was identical to its value in table (4). This clarifies the significance of the estimated relationship. In other words, there is at least an effect of one of the variables (X1, X2) on the Y variable.

d.   Pearson Test

The absence of a multiple correlation problem in the estimated model can be demonstrated by the partial correlation matrix, which shows how the dependent variable relates to the independent variables as well as how independent variables relate to each other, as the closer their value to the integer, the stronger the relationship between variables.

Table 6: results of Pearson test of measurement model

	Y	X1	X2
Y	1	-0.658	0.814
X1		1	
X2		-0.452	1

Source: prepared by the researcher based on the results of the EView12 program.

Table (6) shows that the dependent variable (y) has a strong negative relationship with the first independent variable (x1), as it approaches the integer reaching (0.658), but it has a strong positive relationship with the second independent variable (x2), as it approaches the integer reaching (0.814). However, there was a negative relationship between the independent variables (X1, X2) and smaller than their relationship individually with the dependent variable, where the ratio of the relationship between them reached (-0.452). This indicates the lack of multiple correlation problem, which assumes that the value of the relationship between independent variables individually with the dependent variable should be greater than their relationship with each other. Therefore, both interest rates and investment expenditure in Iraq have a significant positive relationship with gross direct investment in Iraq, which is a greater relationship than that with each other.

Conclusions

1. The research hypothesis, saying that there is a long-term equilibrium relationship among interest rates, investment expenditure and gross direct investment in Iraq, was proven.
2. The results of regression equation and its parameters proved that the relationship of the dependent variable with independent variables is consistent with economic theory, as it is negative with interest rates and positive with investment expenditure.
3. Interest rates and investment expenditure have a clear impact on direct investment in Iraq, as demonstrated by the results of the T test and their significance, which is less than (1 %).
4. The estimated model does not suffer from the problem of multiple correlation where the relationship between independent variables is weaker than that with the dependent variable individually, which is consistent with standard and economic theories.
5. Based on the results of the model, all of which are consistent with economic theory, the estimated model is efficient and reliable for planning and predicting the future in terms of coordination between interest rates and investment expenditure with the aim of raising the level of direct investment in Iraq.

Recommendations

1. Reducing interest rates to the lowest possible level and facilitating bank loan procedures, especially for the local investor, which helps to raise the level of direct domestic investment.
2. Facilitating foreign direct investment laws, which helps to bring administrative and technological expertise into the country and increases the contribution of investment to economic growth.

3. Increasing investment expenditure at the same percentages of the time chain in order to achieve increases in the productive structure of economic sectors aimed at producing investment and consumer goods.

4. Combining a certain percentage of these macroeconomic variables, which contributes to increase gross investment that can be relied upon in the future.

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