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STUDY THE CAUSAL RELATIONSHIP OF THE IMPACT OF FOREIGN DIRECT INVESTMENT ON THE IRAQI ECONOMIC GROWTH FOR THE PERIOD (1980-2019)

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Abstract:

The study aims to find In the long run stable relation between Gross domestic product represented by economic the growth and direct foreign investment in the long and short terms, so the study included data series in the time period (1980-2019), test Granger causality and co-integration and error correction vector was used to know the direction of the relation between the study variables and the relation nature of balance in the term long or short, and It obtained that there is a relation is a one-way causation, As transmission long-term from foreign direct investment to economic growth.

The possible explanation is due to the drop in oil prices, as Iraq depends directly and mainly on oil exports in its economy, as well as because of the rampant administrative corruption in the country, that is extended its effects to all sectors .

Key words: direct foreign investment, economic growth, co-integrating ,vector error correction, granger's causality.

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Introduction:

Rarely, economic variables are stable, as the condition of stability or silence is considered a basic condition in the analysis of the time series, and with the necessity of the stability hypothesis, he failure to achieve the condition of stability of time series is not possible to obtain results in sound and accurate, but rather are false and shadowed results, so many are used. Therefore, many causal tests are used to determine the nature of the relationship between the economic variables because the variables may not move in one direction to reach an equilibrium as they are affected by several factors, which indicates the existence of periods of time regression expressing the temporal difference in the response of the dependent variable on the effect of the change in the explanatory variables and vice vers. This study aims to analyze the trend for the dynamic relation the causal between the growth rate and foreign direct investment, by using the boundary test for joint complementarity and estimating the long-term relationship and testing the causal relationship of the variables of the Iraqi economy. Therefore, this study starts from the hypothesis according to the following:

1. Existence a relation between economic growth and investment of foreign direct
2. Lead economic growth to the growth of foreign direct investment
3. Lead foreign direct investment leads to economic growth
4. Existence relation bilateral causal the trend between economic growth and foreign direct investment .

Investment is one of the influencing factors in achieving economic growth, it promises a main driver for economic activity due to its association with capital formation, increasing the capabilities of the economy in production, development, and renewal, and other clear implications for achieving economic growth, and here lies the importance of the study in the long-term assessment of the relationship between the study variables And a statement of the causal relationship between them, using modern

econometric methods, which helps in setting economic policies, The relationship between the growth rate and foreign direct investment has received clear attention in the economic literature, which has been translated in several applied studies, which included many developed and developing of countries, we mention them.

The study (Raad and Blockarev, 2016) Indicated of the relation between foreign direct investment, economic growth, and trade openness in Algeria, using form ARDL model. The study concluded existence a long-term relationship between foreign direct investment, economic growth, and trade openness. The study also indicated that the the effect of trade openness is positive. And greater than the positive foreign direct investment impact, there is also a positive effect of capital accumulation on economic growth.

Study (Hind, 2017) indicated knowledge the impact of foreign direct investment on economic growth in Arab countries as a single economic space. The study used panel data models and statistical indicators of analysis multiple regression as well as joint integration and error correction. The study found a positive impact of foreign investment on economic growth in Arab oil-producing countries, however, in non-oil Arab countries is the effect less.

Time-series stability test:

A stationary time series is when its averages, variances, and variations are constant over time, that is: (Fadel, 1999)

$$E(Y_t) = E(Y_{t+k}) = \mu$$

$$\text{var}(Y_t) = E[Y_t - E(Y_t)]^2 = \text{var}(Y_{t+k}) = E[Y_{t+k} - E(Y_{t+k})]^2$$

$$\text{cov}(Y_t, Y_{t+k}) = E[(Y_t - \mu)(Y_{t-k} - \mu)] = \text{cov}(Y_{t+k}, Y_{t+k+s}) =$$

In applied studies, time series are characterized by stability (static), and in the case of instability, we obtain a regression, which is often spurious among the variables of the time series (Attila, 2005).

There are several tests at the application level that are used to test the stability of time series, and one of these is the Unit-Root Test, it is considered one of the most used tests in practical applications. It is used to find out the stability of the residues. The hypothesis on which the unit roots tests are based is that the residues are not substantially interconnected and the violation of this assumption leads To the occurrence of the problem of self-association.

One of the most common tests used to process data that suffers from the root of the unit are as follows:

1- Unit root test of Dickey and Fuller (DF).
2- Unit root test Augmented of Dickey and Fuller (ADF).
3- Decy Fuller Generalized GLS Unit Root Test
4- The Phillips-Perron test. P.P
5- Lagrange multiplication test KPSS.

In our current study be unit root test will to time series data, It uses a test Augmented of Dickey and the Fuller (ADF) & the Phihhips-Perron (PP).

1. Unit root test Augmented of Dickey and Fuller (ADF). (Kanaan and Ansam, 2012).

This test carries the same characteristics as the Dick Fuller (DF) unit root test, except that it is more developed, and slowing variables are added to it to eliminate the problem of self-correlation and its formula is as follows:

$$\Delta Y_t = (\rho - 1)Y_{t-1} + \sum_{i=1}^{r} \rho_i \Delta Y_{t-i} + \varepsilon_t \quad \cdots \quad (1)$$

Where r represents the duration of the greatest slowdown, which is determined according to the following formula:

$$r_{\max} = \text{int}\left\{ 12(N/100)^{1/\alpha} \right\}$$

int = integr, N :Sample size, α : level of significance.

Equation (1) has no fixed term and time direction.

Either equation (2) with is constant and without time direction.

$$\Delta Y_t = \alpha + (\rho - 1)Y_{t-1} + \sum_{i=1}^{r} \rho_i \Delta Y_{t-i} + \varepsilon_t \quad \cdots \quad (2)$$

Equation (3) is formed by the constant term and the time trend.

$$\Delta Y_t = \alpha + \beta T + (\rho - 1)Y_{t-1} + \sum_{i=1}^{r} \rho_i \Delta Y_{t-i} + \varepsilon_t \quad \cdots \quad (3)$$

2. Phihhips and Peron test P.P (1988)

Phihhips and Peron were based on the same finite distributions for the DF and ADF tests (Before Me, 1999).

The test will be in four stages, and it is as follows: (Qibli, 1999)

a. The OLS method is used to estimate the three Dickey and Fuller test models, and to extract the associated statistics.

b. The short-term variance is estimated and formulated as follows: $\hat{\sigma}^2 = \frac{1}{N}\sum_{t=1}^{N}\hat{\varepsilon}_t^2$

c. Long term variance is estimated S_1^2, Which is called the correction factor, and it is extracted according to the following:

$$S_1^2 = \frac{1}{N}\sum_{t=1}^{N}\hat{\varepsilon}_t^2 + 2\sum_{t=1}^{l}\left(1-\frac{i}{l+1}\right)\frac{1}{N}\sum_{t=i+1}^{N}\hat{\varepsilon}_t\hat{\varepsilon}_{t-1} \quad \cdots \quad (4)$$

Where l represents the number of estimated slowdowns in terms of the number of observations N and is as follows:

$$l \approx 4\left(\frac{N}{100}\right)^{2/9}$$

d. Then the Phihhips and Perron (PP) is calculated and its formula is as follows:

$$t_\rho^* = \sqrt{r} * \frac{(\hat{\rho}-1)}{\hat{\sigma}_{\hat{\rho}}} + \frac{N(r-1)\hat{\sigma}_{\hat{\rho}}}{\sqrt{r}} \quad \cdots \quad (5)$$

whereas : $r = \frac{\hat{\sigma}^2}{S_1^2}$, this statistic is compared with the tabular values of the Mackinnon tables.

Co-integrating:

The cointegration test is performed for time series for variables of equal order is performed, the goal of conducting the unit root test is to determine the cointegration rank for each of the study variables in order to apply the cointegration test between these variables, It also requires determining the degree of subscriber integration of the dependent variable so that it does not exceed the independent variables i.e. Availability of the condition of equal time series for variables in the degree of integration may not apply (Qusay, 2015).

The cointegration method demonstrates obtaining a long-term relationship between unstable variables or finding a modification method that limits the increase in the long-run relationship error.

It is possible to summarize the idea of the joint complementarity between two series X and Y, since the two chains are complementary of the same degree (d)

$X_t \sim I(d)$

$Y_t \sim I(d)$

These two variables are related by a relationship according to the following:

$$Y_t = \beta_0 + \beta_1 X_t + U_t \quad \cdots \quad (6)$$

The above relationship is integral from degree (p) so that (p<d) therefore there is an integral between Y_t and X_t of degree (d, p), and it is written as follows:

X_t , $Y_t \sim CI(d, p)$

The following relationship is called: $Y_t = \beta_0 + \beta_1 X_t + U_t$ Co-integration regression function. (Kanaan and Ansam, 2012).

Common Integration Tests:

1. Engel Granger test: This test includes two stages:

The first stage - the necessary condition for joint integration: the time series are integral of the same degree.

The second stage - estimating the relationship in the long run:

When the necessary condition is met, the relation between a dependent variable and the independent variable in long run is estimated by the usual least squares, as the errors of the estimated model are stable of degree zero (Bahloul, 2011).

2. Durbin Waston test :

To find out the extent to which the cointegration is achieved between a dependent variable and independent variable, (DW Test) test is applied. test is applied. Test is applied. Be comparison between the calculated and the tabular value, and is rejected and accepted according to a certain level of significance predefined. (Bahloul, 2011).

3. **Johansen Juselius test:**

This test addresses the bias resulting from measurement errors in small samples, meaning that it is suitable for small samples, as well as when the number of variables is more than two independent variables. Therefore, it is superior to the previous two tests (Abed, 2007).

This test will be adopted in our current study.

The self-regression vector model (VAR) is as follows:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{l-1}\Gamma_i \Delta Y_{t-1} + \phi D_t + \varepsilon_t \quad \cdots \quad (7)$$

So that:

Π : Matrix of information for the long-term relationship of rank (h) equal to $\Pi = \alpha\beta'$ It

represents α the adaptive velocity of transactions and β′ the matrix long-term relationship coefficients.

Two statistical tests are used to determine the number for integration vectors, according to the following: (Kanaan and Ansam, 2012)

a. The trace test

The formula is according to the following:

$$\lambda_{trace}(h) = -N\sum_{i=h+1}^{n}\ln(1-\hat{\lambda}_i) \quad \cdots \quad (8)$$

$(\lambda_i, \cdots, \lambda_n)$: The eigenvalues of the matrix represent the estimated eigenvalues and n represents the number of observations, and a null hypothesis states the number for cointegration vectors is less or equal h versus an alternative hypothesis that the number of cognitive vectors is equal to h.

Where h is a number of the vectors of cointegration.

The fond of vectors of co-integration leads to the fond of a long-term relationship between the variables of the study, and when this long-term relationship is achieved using the Johansen test, we must estimate the equation of cointegration by means of a vector-error correction model.

b. The lambda-max test

The formula is according to the following:

$$\lambda_{\max}(h,i) = -N\ln(1-\hat{\lambda}_i) \quad \cdots \quad (9)$$

The null hypothesis states the number of cointegration vectors equal (h) against the alternative hypothesis that the number of covariant vectors equal (i = h + 1), In the case that the calculated value LR is greater than the critical value with a predetermined level of morale. This indicates the rejection of the null hypothesis that It indicates the absence of any cointegration vector, but if it is less, this indicates acceptance of the null hypothesis, which states the existence of at least one vector of cointegration.

The Bound Test (ARDL) approach is used in the case of time series for the study model that includes stable variables of zero degree and first degree, i.e. integrated with unequal degrees or the order of integration is unknown, and this method is suitable for small samples. (Narayan, 2005)

Tests of the optimal slowdown period of a vector error correction model VECM. (Cromwell, 1994)

Three tests will be selected to determine the optimal slowdown period, as follows:

1. Akaike information test (AIC) : Its format are as follows:

$$AIC = Ln\left(\det\left|\sigma^2\right|\right) + \frac{2k^2 l}{n} \quad \cdots \quad (10)$$

2. Schwarz Criterion test (SC) : Its formula according to the following

$$SC(l) = Ln\left(\det\left|\sigma^2\right|\right) + \frac{2k^2 lLn(N)}{N} \quad \cdots \quad (11)$$

3. Information Standard test (Hannan & Quinn Information Criterion) (HQ): Its formula according to the following:

$$HQ(l) = Ln\left(\det\left|\sigma^2\right|\right) + \frac{2k^2 lLn \cdot Ln(N)}{N} \quad \cdots \quad (12)$$

whereas:

σ^2**:** estimated covariance and covariance matrix for residuals.

N: number of views, k: number of parameters, l: number of slowdowns**.**

Vector Error Correction Model (VECM):

Error correction vector model is a self-regression using to describe the dynamic, reciprocal relation between stable variables, and when the results of co-integration indicate the existence of equilibrium relation, in the long run, the direction of this relationship is determined by the error correction vector model. (VECM) in the sense knowing convergence of the time series of equilibrium in the long term and the dynamic series changes in the short term, meaning that this test has the ability to estimate and test the relation in the long and short terms between the model variables, as well as it avoids standard problems caused by Spurious correlation. (William, 2003)

The existence of the co-integration between the variables mean the probability of designing a Vector Autoregressive Model (VAR) in form of initial differences for the variables with the addition of the slowing time gap (error correction limit (ect-j) which measures the speed of adaptation of imbalances short term equilibrium and in the long term, Johansen explained that the effect of the causal relationship in the short term is represented by the time-lagging values of the

change in the independent variables while the error correction limit represents the effect of the causal relationship in the long term (Nabil and Adel 2015)

The vector error correction model (VECM) It is being used to ascertain the direction of equilibrium relationship (short and long term) between variables, and as it can be applied in the small samples. The most important condition of this application is the existence of a common integration of the study variables according to the Johansen method.

To test the direction of relationships in the long and short term for the variables of our current study (foreign direct investment IF, gross domestic product GDP, it will be estimated the vector error correction model (VECM) according to the following: : Qusay, (2015)

The first case: The existence of relation from the growth of foreign direct investment to economic growth is tested, according to the following:

$$D(GPD) = \beta_0 + \sum_{i=1}^{m} \beta_i D(GDP)_{t-i} + \sum_{j=1}^{n} \beta_j D(IF)_{t-j} + \theta_1 ce_{t-1} + V_t \quad \cdots (13)$$

$$ect_{t-1} = (GDP)_{t-1} + (IF)_{t-1} - \beta_0 \quad \cdots (14)$$

The second case: The existence of a relation from economic growth to foreign direct investment is tested, according to the following:

$$D(IF) = \beta_0 + \sum_{i=1}^{m} \beta_i D(IF)_{t-i} + \sum_{j=1}^{n} \beta_j D(GPD)_{t-j} + \theta_2 ce_{t-1} + U_t \quad \cdots (15)$$

$$ect_{t-1} = (IF)_{t-1} + (GDP)_{t-1} - \beta_0 \quad \cdots (16)$$

whereas:

D: The first difference, n, m: represents the number of time slots.

$$\left(\sum_{i=1}^{m} \beta_i D(GDP)_{t-i}, \sum_{j=1}^{n} \beta_j D(IF)_{t-j} \right)$$

θec_{t-1} : They represent the long-term change.

U_t or V_t : represents the random variable.

θ_2 or θ_1 : represents the correction factor.

The negative sign of the error correction factor means that there is a positive imbalance, so a mechanism is required for the occurrence of short adjustments, meaning a decrease in the error to return to equilibrium in the long term, meaning that the value of the variable in the previous period is higher than the equilibrium level, so the value of this variable begins at The decrease in the following period, to correct the error (speed of adjustment) and return to long-term equilibrium because the speed of adjustments is measured by the value of the error correction factor.

The value of this parameter and its statistical significance verify the long-term relation between the study variables in the following cases:

- $\theta 1$: When, it is negative and significant, the long-term causal relationship is one-way from IF to GDP, meaning that the IF variable has an impact on the GDP variable.θ_2: When it is negative and significant, the long-term causal relationship is one-way from GDP to IF, meaning that the GDP variable affects the IF variable.
- θ_2: When it is negative and significant, the long-term causal relationship is one-way from GDP to IF, meaning that the GDP variable affects the IF variable.
- If the values of θ_1 and θ_2 in both equations are negative and significant, then the long-term causal relationship, in particular, is bidirectional (reciprocal).
- When the value of this coefficient for either of the two equations separately or for both equations is positive, then that makes this coefficient unexplainable in the sense that it is without any statistical meaning.

Granger's Causality test:

After making sure that there is a common complementary relationship between the variables, we test the existence of a mutual causal relationship in the short term and determine its direction using the Causal Granger test, so the following steps are taken:

1. We consider that the self-regression vector model consisting of the variables of the study GDP, IF, and degree of delay p is written according to the following:

$$\begin{pmatrix} GDP \\ IF \end{pmatrix} = \begin{pmatrix} \alpha_0 \\ \beta_0 \end{pmatrix} + \begin{pmatrix} (\alpha_1)_1 & (\beta_1)_1 \\ (\alpha_1)_2 & (\beta_1)_2 \end{pmatrix} \begin{pmatrix} (GDP)_{t-1} \\ (IF)_{t-1} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{pmatrix} \quad \cdots (17)$$

whereas:

$(\beta_1)_2$, $(\beta_1)_1$, $(\alpha_1)_2$, $(\alpha_1)_1$, β_0 , α_0

: model parameters, (i=1,2, . . . , p)

Nihilistic hypotheses are tested according to the following:

H_{01}: IF not cause GDP

H_{02}: GDP not cause IF

The null hypothesis is accepted or rejected depending on the (F) statistical values, where null hypothesis rejected in the case likelihood value less than 0.05 (Bushanah, 2016).

Standard and statistical tests and analysis of results:

Before discussing the results of statistical and standard tests and methods, it is necessary to clarify the relationship between the value of economic growth and expected investment flows (foreign direct investment):

Economic growth: Rate economic growth (gross product), which is a standard that measures or monitors the total value of various goods and services provided, private and public, during a specific time period, and is symbolized by the symbol (GDP).

Foreign direct investment: means Arab and foreign capital inflows into the country or means expected capital flows that go back to Arab and foreign citizens or intangible Arab and foreign institutions outside the host country, and it is symbolized by the symbol (IF).

whereas:

IF: expected investment flows (foreign direct investment).

GDP: gross domestic product.

Before doing the analysis, we must pay attention to the fact that the value of foreign direct investment in the year 2003 is missing, so it will be estimated using a geometric increase model, as this model assumes that the change in the value of foreign direct investment is in a complex manner according to an annual rate of increase of r, as the pattern of increase It takes the form of a geometric sequence from year to year as follows:

$$IF_0, IF_0(1+r), IF_0(1+r)^2, ..., IF_n = IF_0(1+r)^n$$

In general, it can take the following formula:

$$IF_n = IF_0(1+r)^n$$

whereas:

IF_n: It represents the value of expected investment flows (foreign direct investment) for year n.

IF_0: It represents the value of investment flows in the base year

n : The number of years

r : The rate of increase in the value of investment flows.

Accordingly, the value of investment flows in the year 1980 was (1530000) dollars, and in the year 2019 it reached (3009600000) dollars. Therefore, we will calculate the annual rate of increase and then estimate the value of investment flows for the year 2003 using the geometric progression method according to the following:

$$IF_n = IF_0(1+r)^n$$

$$IF_{2002} = IF_{1980}(1+r)^{12} \Rightarrow -326000 = 1530000(1+r)^{22}$$

$$\left(\frac{-326000}{1530000}\right)^{1/22} - 1 = r$$

$$r = -1.932$$

In order to find investment flows for the year 2003, it shall be according to the following:

$$IF_{2003} = IF_{2002}(1+r)^1 \Rightarrow IF_{2003} = -326000(1-1.932)^1$$

$$IF_{2003} = 303832$$

1. Stability tests for time series of the two study variables.

table (1): Results of ADF and PP tests for time-series stability of the study data

tests	variables	status											
		level						the first difference					
		intercept		trend and intercept		none		intercept		trend and intercept		none	
		t-value	p-value	t-value	p-value	t-value	p-value	t-value	p-value	t-value	p-value	t-value	p-value
ADF test	IF	0.715	0.991	-9.614	0.000	1.076	0.922	-7.137	0.000	-6.899	0.000	-7.263	0.000
	GDP	-0.894	0.779	-2.023	0.571	-0.136	0.631	-7.991	0.000	-8.094	0.000	-7.924	0.000
PP test	IF	-2.135	0.233	-2.441	0.354	-2.084	0.037	-4.926	0.000	-4.836	0.002	-4.925	0.000
	GDP	0.498	0.983	-1.473	0.814	1.321	0.949	-3.110	0.038	-4.834	0.003	-3.151	0.003

Source: Prepared by the researcher based on the results of the program (Eviews v.7).

We note results of unit-root tests for stability of the time series that were reached in Table (1) as the two variables economic growth (GDP) and foreign direct investment are not static at their origina

levels and stabilized after taking the first difference. This is what the results of the ADF test showed. And Phillips Peron PP, through the calculated t value, it is less than its tabular value at the original level of data in both tests and for the two variables under study at a significant level (5%) and this indicates the instability of the time series of the two variables at their original levels, and we notice after taking the first difference of the data The arithmetic t value became greater than the tabular value at a predetermined level of significance (5%), which confirms that the two time series of the two variables are stable at the first difference, and this result is consistent with the standard theory. Which assumes that most of the economic variables are not stable at the original level and take their stability at the first or second difference.
This indicates the possibility of applying the Johansen test of co-integration and the error correction vector model to reveal the nature of their interrelationship.

2. Co-integration test

To assess and test the existence of a long-term relation between growth rate and foreign direct investment and to know the number of vectors and the nature of the equilibrium relation between them in long term, joint complementarity test was performed by the Johansen method, as shown in table (2)**.**

table (2)**:** Johansen cointegration test results

trace test				
hypothesized No. of CE (s)	eigenvalue (λ)	trace statistic	critical value 0.05	p-value
None*	0.343	15.989	15.495	0.042
At most 1 *	0.001	0.048	3.841	0.826
the lambda-max Test				
hypothesized No. of CE (s)	eigenvalue (λ)	max eigen statistic	critical value 0.05	p-value
None*	0.343	15.940	14.265	0.027
At most 1 *	0.001	0.048	3.841	0.826

Source: Prepared by the researcher based on the results of the program (Eviews v.7).

Table (2) shows the impact tests and the greatest potential of the proposed model. It is possible to know the existence of the joint complementarity between the growth rate and foreign direct investment in both tests, so we find the value calculated in each of the two tests for the first null hypothesis is greater than the critical values at a significant level less than the pre-determined level of significance (0.05) Which leads to rejecting the null hypothesis, which states the absence of a long-term equilibrium relationship, and we accept the alternative hypothesis that states the existence of at least an equilibrium relationship.
As for the calculated value for the two tests at the second hypothesis, it is less than the critical values at the same level of significance specified in advance. In this hypothesis, we accept the null hypothesis,

meaning the existence of a single long-term equilibrium relationship.

We conclude from Table (2) that there is at least one (long-term) joint complementarity relationship between the growth rate and foreign direct investment, but the nature of this relationship has not been determined and to determine this must be estimated the model VECM vector

3. Slow down period

Before approaching the estimation of the vector error correction model, it is necessary to determine the optimal slowdown of the model by determining the degree of lag for the vector autoregressive model (VAR), as in table (3):

table (3): VAR Lag Order Selection Criteria

(Lag)	AIC	SC	HQ
0	99.26935	99.35643	99.30005
1	97.05107	97.38484	97.14316
2	96.94946*	97.31230*	97.10295*
3	97.04226	97.65180	97.25715

Source: Prepared by the researcher based on the results of the program (Eviews v.7).

The results of Table (3) indicate that the optimum slowdown period (Lag = 2) according to all tests (AIC, SBC & HQ) tests, as it gave the lowest value for these criteria.

4. Corrected the estimation of the error vector model VECM:

After testing the existence of common complementarity between the two study variables, which includes the existence of a causal relationship in at least one direction, the direction of this causal relationship must be determined in the long and short term.

table (4): Vector error correction results VECM

	(GDP)	(IF)
CointEq1	-0.011	-0.839
	0.004	0.096
	-3.122	-0.869
D(GDP(-1))	0.012	-0.451
	(0.008)	0.210
	[1.537]	-2.147
D(GDP(-2))	0.003883	-0.155222
	(0.00745)	(0.19691)
	[0.52136]	[-0.78828]
D(IF(-1)	0.381403	3.022625
	(0.15002)	(3.96648)
	[2.54230]	[0.76204]
D(IF(-2)	-0.218705	4.341858
	(0.15797)	(4.17665)
	[-1.38446]	[1.03955]
C	-1.37E+08	9.03E+09
	(2.5E+08)	(6.6E+09)
	[-0.55234]	[1.37665]
R^2	0.402841	0.199478
$\overline{R}^2$	0.306525	0.070361
Log likelihood	-830.0935	-951.2628
F-statistic	4.182488	1.544944

Source: Prepared by the researcher based on the results of the program (Eviews v.7).

The results of error correction test showed that the estimation of error correction equation for economic growth is as follows:

$$ect_{t-1} = 1.000(GDP)_{t-1} + 36.308(IF)_{t-1} - 5390000000$$

VECM estimate according to the following:

$$D(GDP) = -0.011((GDP)_{-1} + 36.308(IF)_{-1} - 5390000000) + 0.012(GDP)_{-1} + 0.004(GDP)_{-2} + 0.381(IF)_{-1} + -0.219(IF)_{-2} - 13700000$$

We note in table (4) the results of the VECM vector model, the value of the parameter estimated for the error correction vector was (-0.011), which is a negative value and less than the correct one, and this indicates that the (GDP) variable has the ability to correct the vinegar caused by the instability of the time series of the study variables In the sense that it corrects from the imbalance of its remaining equilibrium value from each period by about (1%), that is, when the inter-investment in the

short term in the period (t-1) deviates from its equilibrium value in the long run, then the equivalent of (1%) is corrected. From this imbalance in the period (t-1), and the morale of the coefficient becomes clear to the existing long-term relationship between economic growth and foreign direct investment according to the t-test at a level of significance less than the level of significance specified in advance. The increase of one unit for the variable $D(IF)_{(-1)}$ leads to an increase in economic growth by (36.308). The significance of the coefficient indicated that there is a long-term relation between the growth rate, foreign direct investment and economic growth according to the t-test at a level of significance less than the pre-determined level of significance.

The formula for the correction factor for estimating the growth of foreign direct investment is as follows:

$$ect_{t-1} = 1.000(IF)_{t-1} + 0.028(GDP)_{t-1} - 1480000($$

VECM estimate according to the following:

$$D(IF) = 0.839*((IF)_{-1} + 245.619*(GDP)_{-1}$$
$$-1999737320.45) - 3.023*((IF)_{-1}$$
$$+ 4.342(IF)_{-2} - 0.451*(GDP)_{-1})$$
$$- 0.155222(GDP)_{-2} + 903000000$$

In Table (4) we find the value of the estimated parameter of the error correction vector amounted to (-0.839), which is a negative value and less than the correct and significant one, and this indicates that the (IF) variable corrects from the imbalance of its remaining equilibrium value from each period by about ((84%), that is, when Foreign direct investment in the short term in the period (t-1) deviates from its equilibrium value in the long run, so the equivalent of (84% of this imbalance in the period t-1) is corrected, as we note the (F) statistic that reached (1.545) It has no statistical significance at the predetermined significance level.

5. Granger's Causality test:

After determining the existence of a single long-term causal relationship from IF to GDP, a Cranger causal test is performed to test the existence and direction of the causal relationship in short term, and the results are shown in table (5).

table (5)**:** Granger test

lags: 2	null hypothesis	N. Obs	F-statistic	prob(F-statistic)	the result
	H_0:GDP→ IF	37	1.894	0.1669	Acceptance
	H_0:IF → GDP	37	0.616	0.5462	Acceptance

Source: Prepared by the researcher based on the results of the program (Eviews v.7).

We note the results of the Granger test in Table (5) for the causal relationship in the short term. Not rejecting the first null hypothesis, as it reached a statistical value (F = 1.894) at a level of significance greater than the previously determined level of significance. This means that economic growth does not cause the growth of foreign direct investment.

It is also clear to accept the second null hypothesis because the value of the F-statistic reached (0.616), is not significantly moral greater than the previously determined level of significance, which leads to not rejecting the hypothesis that foreign direct investment does not cause economic growth.

Therefore, we conclude that there is no causal relation between economic growth and inter-investment in the short term.

From the foregoing, we conclude by accepting the hypothesis of the first and third study that there is a one-way relationship that moves from the investment foreign direct for economic growth in the long term, and the absence of any relation between the two variables the short term. Because of the of rampant corruption in the country to all sectors, political and social instability and the decline in oil prices stalled plans investment at the macroeconomic level at the implementation stage is due to the lack or weakness of coordination between the state's public financial policies and the investment policy, which led to a significant growth in government consumer spending without being accompanied by a significant improvement in government services, noting that the financing of this spending depends entirely on oil revenues, in financing government spending, which constitutes a competition for investment spending, which will inevitably lead to a decrease in the overall growth rate of the economy.

In spite of that, the gross domestic product in Iraq increasing from the beginning of the study period to the end of the period study

and indicates that there are other variables were affecting the gross domestic product.

Conclusions and recommendations:

The current study sheds light on some conclusions that can be included according to the following:

1. Investments are among the most important sources of financing that countries take in order to fill the domestic resource gap that they suffer from, which leads to increased investment and mitigated the problem of foreign loans from two important aspects, namely the financial and developmental aspect . Countries resort to foreign savings when domestic savings are insufficient to achieve the required rates of investment. In all cases, the investor aims to achieve an acceptable rate of return, use his money and ensure the recovery of his money without risks or with the least amount of them, should that the investment climate is appropriate or encouraging to the investor, being stable in the internal conditions, the more attractive to foreign investment.
2. The standard results showed that the stability tests using the unit roots of the two variables are not stable at the general level, but they are stable when the first-degree differences are made. This means that they. are complementary from the first degree I ~ (1) and this result is consistent with the standard theory. Which assumes that most of the macroeconomic variables are unstable in the level but become stable in the first or second difference
3 The stability of all the strings in and their integration of the same degree (1) enabled us to apply the joint integration of Johansson results gave the existence of a cointegration relation between the variables in the long term.
4. Existence of long-term causal relationships in one direction only, from foreign direct investment to economic growth, is consistent with the hypothesis of the third study.
5. The error correction limit coefficient shall have a statistically negative and significant sign, whereby the deviation of economic growth from the long-term equilibrium is corrected in every period of time by 0.11%.
6. The existence of a long unilateral causal relation from foreign direct investment to economic growth, what leads to rejecting the hypothesis of the second study.
7. Rejecting the hypothesis of the fourth study, that is, the absence of a bilateral (reciprocal) causal relation between two variables in the study in the short the term. is confirmed by the Granger causality test.

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