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Research Article

The Role of the Stock Market on Agricultural Sector (Iraqi Dataset of period 2013-2018 case study)

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Abstract

The research aims to identify the role of the stock market in financing the agricultural sector through a case study of the Iraqi stock market during the period 2013-2018. The research found that there is no effect on total market value, Trading value, Number of shares, Average return on equity, Average share turnover, average trading ratio of agricultural sector companies registered in the Iraqi Stock Exchange on the value of the total agricultural product in Iraq during the period (2013-2018), While it was found that there is an effect of the total working capital of the agricultural sector companies registered in the Iraqi Stock Exchange on the value of the total agricultural output in Iraq during the period (2013-2018), there is no effect of the Iraqi stock market on the total agricultural output in Iraq, which shows the weakness The role of the Iraq Stock Exchange in providing the necessary financing for the agricultural sector in Iraq. The study recommended a set of recommendations, including the need for the Central Bank of Iraq to use more effective monetary and financial policies that help increase the impact on the agricultural sector and work to provide all its financing needs, the need to work to provide all facilities and privileges in order to attract and encourage foreign direct investment in Iraqi agricultural sector, Working to encourage individuals to set up agricultural projects, especially small ones that can be set up at home in order to provide the agricultural needs of the Iraqi society, to establish an exchange specialized in the agricultural sector through which crops and agricultural products can be priced according to appropriate economic mechanisms that depend on production costs in light of international prices, as well as Assist farmers in obtaining production requirements of high quality and reasonable prices.

Keywords

The stock market — the agricultural sector — Iraq.

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Introduction

The developed and developing countries of the world aim to achieve high growth rates, as this achieves a continuous increase in the incomes of individuals and improves the economic and living standard for them, which helps to increase the level of well-being of members of society. Governments work to provide the best ways and means that help achieve economic growth by providing the appropriate environment that through it, it is possible to solve all the problems, obstacles and difficulties facing investors, as well as raise the level of services provided to them.
The stock market constitutes an essential pillar of the structure of the financing system in contemporary economic systems, as these markets play an important role in mobilizing national savings and directing them into investment channels that support the national economy and increase the rates of economic welfare for its members, as well as being A mirror of the country's general economic situation (Al Tohme, 2007) and through which it is possible to collect savings from the public and private sectors and direct them to investment in the economic sectors that the country needs, which contributes to achieving the economic development that all countries of the world seek. The agricultural sector is one of the most important sectors in any economy, as it provides all the requirements needed by the rest of the economic sectors and provides the necessary food for members of society.

Research problem

Stock markets contribute to provide the necessary financial liquidity for many projects in many economic sectors, as they help individuals and companies to carry out projects and expand existing projects, which contributes to increasing the revenues of these projects and achieving the profits that investors seek to achieve and access.
The problem of the study is that it seeks to identify the role of the stock market in financing the agricultural sector in Iraq.

Research objectives

1- Studying the role of the stock market in financing the agricultural sector in Iraq during the period (2013-2018)
2- Identifying the development of stock market indicators in Iraq during the period (2013-2018)
3- Identifying the standard relationships between stock market indicators and the value of the total agricultural product in Iraq during the period (2013-2018).
4- Studying the impact of stock market indicators on the Iraqi total agricultural output during the period (2013-2018)
5- Access to recommendations and proposals that contribute to achieving the maximum effectiveness of the stock markets in achieving economic development.

Research hypotheses

In order to achieve the objectives of the study, the research will assume a set of hypotheses, as follows:
1- The first hypothesis: There is a statistically significant relationship to the effect of the total market value of the agricultural sector companies' shares on the value of the total agricultural output in Iraq during the study period.
2- The second hypothesis: There is a statistically significant relationship to the effect of the total trading value of agricultural sector companies' shares on the value of the total agricultural output in Iraq during the study period.
3- The third hypothesis: There is a statistically significant relationship to the effect of the total number of shares of agricultural sector companies on the value of the total agricultural output in Iraq during the study period.

4- The Fourth hypothesis: There is a statistically significant relationship to the impact of the total working capital of agricultural sector companies on the value of the total agricultural product in Iraq during the study period

5- The fifth hypothesis: There is a statistically significant relationship to the effect of the total working capital of agricultural sector companies on the value of the total agricultural product in Iraq during the study period.

6- The sixth hypothesis: There is a statistically significant relationship to the effect of the average return on the shares of agricultural sector companies on the value of the total agricultural product in Iraq during the study period.

7- The seventh hypothesis: There is a statistically significant relationship to the effect of the average share turnover rate for agricultural sector companies on the value of the total agricultural product in Iraq during the study period.

Methodology

The research will use a set of approaches that are compatible with the objectives of the research and achieve its purpose through the use of the descriptive approach as well as the use of the standard analytical approach, through which standard methods and methods are used to analyze the research data through the use of the E-views program to provide results and recommendations that can be used.

Data sources

The study will use the data obtained from reports and bulletins issued by the Central Bureau of Statistics in Iraq and the Iraqi Stock Exchange during the study period (2013-2018).

The limits of the study

Objective limits: T

He study aims to identify the role of the stock market in financing the Iraqi agricultural sector.

Spatial limits:

Agricultural companies in the Iraq Stock Exchange specified below:

No.	Company name
1	The Iraqi Company for Seed Production (Mixed Shareholding)
2	The Iraqi Company for the Production and Marketing of Meat and Field Crops (Mixed Shareholding)
3	Modern Company for Animal and Agricultural Production (Private Shareholding)
4	The Middle East Company for Fish Production and Marketing (Private Shareholding)
5	National Company for Agricultural Production (Private Shareholding)

Time limits: Duration (2013-2018).

Previous studies

Previous studies and research related to the role of the stock market in financing the agricultural sector have not been conducted. Therefore, the research identified the most important studies related to the role of the stock market in achieving economic development, and these studies include:

- **Shendi (2013)** study entitled **(financial markets and their role in achieving economic**

development), which aimed to identify the role through which the financial markets can achieve economic development through a case study of the Iraqi Stock Exchange. The study provides a set of results, the most important of which are the absence of a relationship between the Iraqi stock market and the achievement of economic development through all indicators of the capital market, with the exception of the number of shares index, which had a simple positive effect in achieving economic development.

- Daddah and Amrawi (2019) study entitled **(The Role of the Stock Market in Financing Investments)**, which aimed to identify the role of the Amman Financial Market in financing investments. The study provides a set of results, including that investing in securities helps successful companies in financing the investments they need. In the development of existing projects, as well as the stock market in Amman contributes significantly to the development of the Jordanian economy through the efficient and effective use by investors of savers' money.

Application framework

First. Study the evolution of the value of the total agricultural product in Iraq and the total market value, total trading value, total number of shares, average return on shares, average stock turnover rate, average trading ratio, total working capital for agricultural sector companies registered in the Iraq Stock Exchange during Period (2013-2018).The agricultural sector has a number of front and back interconnections that make it a link within a series of sectors that make up the national economy, as it is considered one of the important sectors, although it did not take the lead in the formation of the gross domestic product due to the huge contribution of the oil sector, especially in the recent years that witnessed Iraq's return to the market. The international oil market and the table below shows the development of the value of the total agricultural product in Iraq and the development of the financial indicators of agricultural companies listed on the Iraqi Stock Exchange during the period (2013-2018).

Second. The standard model of the relationship between the value of the total agricultural product in Iraq and both (total market value, total trading value, total working capital, total number of shares, average return on shares, average share turnover, average trading ratio) for agricultural sector companies. In order to study and analyses the relationship between the value of the total agricultural product in Iraq and both (total market value, total trading value, total number of shares, average return on shares, average share turnover, average trading ratio, total working capital) for the registered agricultural sector companies In the Iraqi Stock Exchange during the period (2013-2018), a number of standard tests were used, where the developed Dickey and Fuller (1979) test and the co-integration test were used to test the relationship between Variants (Pesaran & Shin, 1995) and testing the number of time lags (Narayan, 2005) as well as using the error correction vector model to find out the type of relationship between variables in the long and short term (Pesaran, Shin, & Smith, 2001) using E-views program.

The number of lag times test

Table (11) shows that the optimal number of time lags is one for the dependent variable (Y) and there are no lags for the independent variable (X_1).

Table 1. The evolution of the value of the total agricultural product and the financial indicators of agricultural companies in Iraq (2013-2018).

Year	The value of the total agricultural output(Million dinars)	Total market value(Million dinars)	Total number of shares(million shares)	Total turnover(Million dinars)	Total working capital (Million dinars)	Average rate of return on shares (Dinar)	Average stock turnover (%)	Average turnover (Once)
2013	16332653.2	84498	1383.33	10136.561	14250.474	0.695	7.935	2.163
2014	17843388.0	92766	623.034	3087.983	17510.859	0.529	3.525	3.038
2015	10792608.4	71276	1332.45	5941.462	23565.67	0.577	5.037	3.058
2016	10994354.1	72093	912.16	3453.736	23442.392	0.437	4.482	2.140
2017	9813602.8	89921	1225.52	4969.212	21979.987	0.259	5.290	2.507
2018	9163489.9	79541	1618.04	8110.338	22165.647	0.132	13.827	1.920

Source:

1- Ministry of Planning, Central Bureau of Statistics, Iraq, data for the period (2013-2018) Ministry of Planning (2019).

2- Iraq stock exchange, agricultural sector companies, data for the period (2013-2018) ISX (2020).

The relationship between the value of the total agricultural output and the total market value of the shares of agricultural companies

Unit Root Test:

To measure the stability of the model variables, the developed Dickey-Fuller test (ADF) was used. Table (9) shows the instability of both the series of sum of stock market values (X_1) and the value chain of total agricultural output (Y) at their level and stability occurred after taking the first difference and thus The two series become complementary of first degree, and because the two series are complementary at the same degree, Ardle's co-integration is used in order to perform the co-integration test between them.

Table 9.
Dickey-Fuller Developer (ADF) Test.

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X1	-0.314	0.520	NO stationary	-2.671	0.022	Stationary			
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

When conducting the test, we find that there is no co-integration between the two series at the 0.05 significance level

Table10.
Co-integration Test

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.51	3.02	10%	1.276288	F-statistic
4.16	3.62	5%	1	k
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

Table11.
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.3123	1.339625	0.415616	0.556770	Y(-1)
0.3392	1.245037	153.1465	190.6731	X1
0.5037	-0.808380	13694403	-11070286	C
11721489	Mean dependent var		0.623299	R-squared
3501877.	S.D. dependent var		0.246598	Adjusted R-squared
32.97605	Akaike info criterion		3039586.	S.E. of regression
32.74171	Schwarz criterion		1.85E+13	Sum squared resid
32.34711	Hannan-Quinn criter.		-79.44012	Log likelihood
3.037942	Durbin-Watson stat		1.654625	F-statistic
			0.376701	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the quantity of money in circulation and foreign direct investment in the long and short term:

Table (12) shows that the error limit correction coefficient is not significant at the level of significance 0.05, meaning that there is no correction from the short term to the long term, while the long-term equation indicates that there is no effect of the correction in the long term because X1 is not significant at the level of significance 0.05.

Table12.
Error Correction Vectors Test Results

ECM Regression				
Case 2: Restricted Constant and No Trend				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.1095	-2.767260	0.160169	-0.443230	CointEq(-1)*
-1433833.	Mean dependent var		0.575936	R-squared
3300529.	S.D. dependent var		0.575936	Adjusted R-squared
32.17605	Akaike info criterion		2149312.	S.E. of regression
32.09794	Schwarz criterion		1.85E+13	Sum squared resid
31.96640	Hannan-Quinn criter.		-79.44012	Log likelihood
			3.037942	Durbin-Watson stat

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.5050	0.805672	533.9513	430.1898	X1
0.6400	-0.545674	45771645	-24976376	C

EC = Y - (430.1898*X1 -24976376.1724)

Source: E-views program results

The relationship between the value of the total agricultural output and the total number of shares of agricultural companies

Unit Root Test:

The results of the unit root test in Table (13) indicate that the variables of the total number of shares series (X_2) and the total agricultural product value series (Y) suffer from the problem of instability at the level (level), but they become stable when the first difference is taken, and thus the two series become complementary from The first degree, which indicates that they move together through time and that there is a long-term period of time known as the decline of co-integration.

Table13.
Results of the Dickey-Fuller Developer (ADF) test

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X2	-0.261	0.541	NO Stationary	-5.156	0.016	Stationary			
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

Test results according to Table (14) indicate that there is no co-integration between the two series at the level of significance of 0.05.

Table14.
Co-integration Test

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.51	3.02	10%	1.904469	F-statistic
4.16	3.62	5%	1	k
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

The optimal number of time lags as in Table (15) is one time period for the dependent variable (Y) and one time period for the independent variable (X_2).

Table15.
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.3295	1.756451	0.384926	0.676104	Y(-1)
0.6046	-0.715635	3865.172	-2766.053	X2
0.4051	1.353571	4735.582	6409.947	X2(-1)
0.9505	-0.077946	13267930	-1034189.	C
11721489	Mean dependent var		0.931104	R-squared
3501877.	S.D. dependent var		0.724416	Adjusted R-squared
31.67720	Akaike info criterion		1838348.	S.E. of regression
31.36475	Schwarz criterion		3.38E+12	Sum squared resid
30.83861	Hannan-Quinn criter.		-75.19299	Log likelihood

2.282013	Durbin-Watson stat	4.504881	F-statistic
		0.330322	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the quantity of money in circulation and foreign direct investment in the long and short term:

Table (16) shows that the error limit correction coefficient is not significant at the level of significance 0.05, meaning that there is no correction from the short term to the long term, while the long-term equation indicates that there is no effect of the correction in the long term because X_2 is not significant at the level of significance 0.05.

Table16.
Error Correction Vectors Test Results

ECM Regression

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.2136	-2.868152	964.4024	-2766.053	D(X2)
0.1509	-4.140075	0.078234	-0.323896	CointEq(-1)*
-1433833.	Mean dependent var		0.922442	R-squared
3300529.	S.D. dependent var		0.896589	Adjusted R-squared
30.87720	Akaike info criterion		1061371.	S.E. of regression
30.72097	Schwarz criterion		3.38E+12	Sum squared resid
30.45790	Hannan-Quinn criter.		-75.19299	Log likelihood
			2.282013	Durbin-Watson stat

* p-value incompatible with t-Bounds distribution.

Levels Equation
Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.8075	0.311976	36061.16	11250.21	X2
0.9543	-0.071928	44391012	-3192968.	C
	EC = Y - (11250.2064*X2 -3192967.9105)			

Source: E-views program results

The relationship between the value of the total agricultural output and the total trading value of the shares of agricultural companies during the period (2013-2018).

Unit Root Test:

Table (17) shows the instability of the total turnover value series (X_3) and the total agricultural

product value chain (Y) at the level (level) and the stability occurred after taking the first difference. Thus, the two series become complementary of the first degree, which indicates that they move together through time and that there is a long-term period of time known as declining co-integration.

Table17.
Dickey-Fuller Developer (ADF) Test Results

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X3	-1.087	0.252	NO stationary	-4.901	0.002	Stationary			
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

Table (18) data confirm that there is a co-integration between the two series at a level of significance of 0.01.

Table18.
Co-integration Test

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
3.51	3.02	10%	11.22841	F-statistic
4.16	3.62	5%	1	K
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

Table (19) confirms that the optimal number of time lags is one time period for the dependent variable (Y) and one time period for the independent variable (X_3).

Table19
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.2452	2.466961	0.148688	0.366808	Y(-1)
0.5838	-0.766267	321.9951	-246.7341	X3
0.1558	4.005321	227.2735	910.3034	X3(-1)
0.5271	0.918404	3413084.	3134592.	C
11721489	Mean dependent var		0.977854	R-squared
3501877.	S.D. dependent var		0.911416	Adjusted R-squared
30.54226	Akaike info criterion		1042267.	S.E. of regression

30.22981	Schwarz criterion	1.09E+12	Sum squared resid
29.70367	Hannan-Quinn criter.	-72.35564	Log likelihood
2.764965	Durbin-Watson stat	14.71827	F-statistic
		0.188776	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the amount of money in circulation and foreign direct investment in the long and short term:

Table (20) shows that the error limit correction coefficient is not significant at the level of significance 0.05, meaning that there is no correction from the short term to the long term, while the long-term equation indicates that there is no effect of the correction in the long term because X_3 is not significant at the level of significance 0.05.

Table 20.
Error Correction Vectors Test Results

ECM Regression

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.1811	-3.419322	72.15877	-246.7341	D(X3)
0.0631	-10.05264	0.062988	-0.633192	CointEq(-1)*
-1433833.	Mean dependent var		0.975070	R-squared
3300529.	S.D. dependent var		0.966759	Adjusted R-squared
29.74226	Akaike info criterion		601753.1	S.E. of regression
29.58603	Schwarz criterion		1.09E+12	Sum squared resid
29.32296	Hannan-Quinn criter.		-72.35564	Log likelihood
			2.764965	Durbin-Watson stat

* p-value incompatible with t-Bounds distribution.

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.4272	1.259471	832.0749	1047.974	X3
0.4848	1.048964	4719378.	4950458.	C

EC = Y - (1047.9743*X3 + 4950457.6676)

Source: E-views program results

The relationship between the value of the total agricultural product and the total working capital of the agricultural sector companies registered in the Iraqi Stock Exchange during the period (2013-2018)

Unit Root Test:

Table (21) confirms the instability of both the total working capital series (X_4) and the total agricultural output value chain (Y) at their level and stability occurred after taking the second

difference of the series (X_4) and the series becomes integrated from the second degree and the first difference of the series (Y) and thus The series becomes integral of the first degree, and because the two series are not complementary at the same degree, the co-integration test is performed between them.

Table21.
Results of the Dickey-Fuller Developer (ADF) test

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X4	0.797	0.848	NO stationary	-1.337	0.0148	NO Stationary	-1.906	0.045	Stationary
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

Table (22) results indicate that there is a co-integration between the two series at the level of significance of 0.05.

Table 22.
The co-integration test Bounds Test

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
3.51	3.02	10%	5.374729	F-statistic
4.16	3.62	5%	1	K
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

Table (23) shows that the optimal number of time lags is one for the dependent variable (Y), and there are no lags for the independent variable (X_4).

Table 23.
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.3155	1.327723	0.247094	0.328072	Y(-1)
0.0951	-3.006441	366.1947	-1100.943	X4
0.0808	3.301996	9488890.	31332278	C
11721489	Mean dependent var		0.878850	R-squared
3501877.	S.D. dependent var		0.757701	Adjusted R-squared

31.84162	Akaike info criterion	1723761.	S.E. of regression
31.60729	Schwarz criterion	5.94E+12	Sum squared resid
31.21269	Hannan-Quinn criter.	-76.60406	Log likelihood
2.457014	Durbin-Watson stat	7.254254	F-statistic
		0.121150	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the amount of money in circulation and foreign direct investment in the long and short term:

The error limit correction coefficient were 0.0296, which is significant at the level of significance of 0.05, meaning that there is a correction from the short term to the long term at a speed of 0.0296, while the long term equation indicates that there is no effect of the correction in the long term because X_4 is not significant at the level of significance of 0.05, and this is confirmed by the data table (24).

Table 24.
Error Correction Vectors Test Results

ECM Regression

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0296	-5.678765	0.118323	-0.671928	CointEq(-1)*
-1433833.	Mean dependent var		0.863618	R-squared
3300529.	S.D. dependent var		0.863618	Adjusted R-squared
31.04162	Akaike info criterion		1218883.	S.E. of regression
30.96351	Schwarz criterion		5.94E+12	Sum squared resid
30.83198	Hannan-Quinn criter.		-76.60406	Log likelihood
			2.457014	Durbin-Watson stat

Levels Equation
Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.1377	-2.408507	680.2903	-1638.484	X4
0.0829	3.252443	14337049	46630441	C
	EC = Y - (-1638.4841*X4 + 46630440.6254)			

Source: E-views program results

The relationship between the value of the total agricultural product and the average rate of return on the shares of agricultural companies during the period (2013-2018)

The number of lag times test

Results in Table (25), confirm the stability of the average rate of return series (X_5) at its level, and the series becomes integrated from the zero degree, while it shows the instability of the value

chain of the total agricultural product (Y) at its level and stability occurred after taking the first difference and thus the series becomes integrated from First degree, and because the two series are not complementary at the same degree, Ardle's co-integration is used in order to perform the co-integration test between them.

Table 25.
Dickey-Fuller Developer (ADF) Test Results

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X5	-2.457	0.026	stationary						
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test
It is clear from the data in Table (26) that there is no co-integration between the two series at the level of significance of 0.05.

Table 26.
The co-integration test Bounds Test Result

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.51	3.02	10%	3.378678	F-statistic
4.16	3.62	5%	1	K
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

The optimal number of time lag periods according to the data in Table (27) is one time period for the dependent variable (Y) and one time period for the independent variable (X_5).

Table 27.
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.3855	1.444533	0.652938	0.943191	Y(-1)
0.3568	-1.593299	20069523	-31976750	X5
0.2557	2.354660	15208722	35811363	X5(-1)
0.5320	-0.904265	6858696.	-6202079.	C
11721489	Mean dependent var		0.903397	R-squared
3501877.	S.D. dependent var		0.613589	Adjusted R-squared

32.01520	Akaike info criterion	2176835.	S.E. of regression
31.70275	Schwarz criterion	4.74E+12	Sum squared resid
31.17662	Hannan-Quinn criter.	-76.03801	Log likelihood
2.813907	Durbin-Watson stat	3.117228	F-statistic
		0.389268	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the amount of money in circulation and foreign direct investment in the long and short term:

Results in Table (28) shows that the error limit correction coefficient is not significant at the level of significance 0.05, meaning that there is no correction from the short term to the long term, while the long-term equation indicates that there is no effect of the correction in the long term because X_5 is not significant at the level of significance 0.05.

Table 28.
Error-correction vector test results

ECM Regression

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	0.000000	6573430.	-31976750	D(X5)
0.1142	-5.514354	0.010302	-0.056809	CointEq(-1)*
-1433833.	Mean dependent var		0.891251	R-squared
3300529.	S.D. dependent var		0.855002	Adjusted R-squared
31.21520	Akaike info criterion		1256796.	S.E. of regression
31.05898	Schwarz criterion		4.74E+12	Sum squared resid
30.79591	Hannan-Quinn criter.		-76.03801	Log likelihood
			2.813907	Durbin-Watson stat

Levels Equation
Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.9313	0.108308	6.23E+08	67500044	X5
0.9489	-0.080396	1.36E+09	-1.09E+08	C

EC = Y - (67500044.2434*X5 -109174157.8117)

Source: E-views program results

The relationship between the value of the total agricultural product and the average turnover rate of shares of agricultural companies during the period (2013-2018)

Unit Root Test:

Table (29) shows the instability of the series of average stock turnover rate (X_6) and stability occurred after taking the second difference, and thus the series becomes integrated of the second degree, as well as the instability of the total agricultural product value chain (Y) at its level and stability occurred after taking the first difference and thus becomes The series is integral of the first degree, and because the two series are not complementary at the same degree, Ardle's co-integration is used in order to perform the co-integration test between them.

Table 29.
Results of the Dickey-Fuller Developer (ADF) test

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X6	0.276	0.726	Stationary NO	0.990	0.239	No stationary	-0.135	0.046	stationary
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

When conducting a co-integration test according to the data of Table (30), we find that there is a co-integration between the two series at a significant level of 0.01.

Table 30.
The co-integration test Bounds Test Result

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.51	3.02	10%	1033.816	F-statistic
4.16	3.62	5%	1	K
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

Table (31) shows that the optimal number of time lags is one time period for the dependent variable (Y) and one time period for the independent variable (X_6).

Table 31.
Time lag test

Prob.*	**t-Statistic**	**Std. Error**	**Coefficient**	**Variable**
0.0366	17.38471	0.020269	0.352379	Y(-1)

0.0577	-11.00563	17772.09	-195593.1	X6
0.0146	43.46498	38142.11	1657846.	X6(-1)
0.5294	-0.911560	401580.3	-366064.5	C
11721489	Mean dependent var		0.999686	R-squared
3501877.	S.D. dependent var		0.998742	Adjusted R-squared
26.28774	Akaike info criterion		124200.0	S.E. of regression
25.97529	Schwarz criterion		1.54E+10	Sum squared resid
25.44915	Hannan-Quinn criter.		-61.71934	Log likelihood
2.919715	Durbin-Watson stat		1059.647	F-statistic
			0.022578	Prob(F-statistic)

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the quantity of money in circulation and foreign direct investment in the long and short term:

Results in Table (32) shows that the error limit correction coefficient amounted to 0.6476, which is significant at the 0.01 level of significance, meaning that there is a correction from the short term to the long term at a speed of 0.6476, while the long term equation indicates that there is an effect of the correction in the long term because X_6 is significant at the level of significance 0.05.

Table 32.
Error-correction vector test results

ECM Regression

Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0239	-26.58663	7356.821	-195593.1	D(X6)
0.0066	-96.45902	0.006714	-0.647621	CointEq(-1)*
-1433833.	Mean dependent var		0.999646	R-squared
3300529.	S.D. dependent var		0.999528	Adjusted R-squared
25.48774	Akaike info criterion		71706.88	S.E. of regression
25.33151	Schwarz criterion		1.54E+10	Sum squared resid
25.06844	Hannan-Quinn criter.		-61.71934	Log likelihood
			2.919715	Durbin-Watson stat

Levels Equation
Case 2: Restricted Constant and No Trend

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0300	21.19301	106539.0	2257883.	X6
0.5366	-0.891069	634344.1	-565244.6	C

EC = Y - (2257882.8563*X6 -565244.6319)

Source: E-views program results

The relationship between the value of the total agricultural product and the average trading ratio of shares of agricultural sector companies registered in the Iraqi Stock Exchange during the period (2013-2018)

Unit Root Test:

Results in Table (33) confirm the instability of both the average stock trading ratio series (X_7) and the total agricultural product value series (Y) at their level and stability occurred after taking the first difference and thus the two series become complementary of the first degree, and because the two series are complementary at the same degree. A co-integration test is performed between them.

Table 33.
Dickey-Fuller Developer (ADF) Test Results

Stability test									
Variables	Level			1st Difference			2nd Difference		
	ADF	Sig.	Result	ADF	Sig.	Result	ADF	Sig.	Result
X7	-0.371	0.497	Stationary NO	-0.813	0.018	stationary			
Y	-0.156	0.187	No stationary	-2.198	0.042	Stationary			

Source: E-views program results

The co-integration test Bounds Test

When conducting the test, we find that there is no co-integration between the two series at the 0.05 level of significance, as it shown in Table (34).

Table 34.
The co-integration test Bounds Test Results

Null Hypothesis: No levels relationship			**F-Bounds Test**	
I(1)	I(0)	Signif.	Value	Test Statistic
	Asymptotic: n=1000			
3.51	3.02	10%	0.5363771	F-statistic
4.16	3.62	5%		K
4.79	4.18	2.5%		
5.58	4.94	1%		

Source: E-views program results

The number of lag times test

Table (35) shows that the optimal number of time lags is one for the dependent variable (Y), and there are no lags for the independent variable (X7).

Table 35.
Time lag Test Results

Prob.*	t-Statistic	Std. Error	Coefficient	Variable
0.9511	-0.069298	1.574541	-0.109112	Y(-1)
0.6997	0.445165	11177181	4975686.	X7
0.9654	0.048985	11339733	555471.7	C
11721489	Mean dependent var		0.391616	R-squared
3501877.	S.D. dependent var		-0.216769	Adjusted R-squared
33.45540	Akaike info criterion		3862824.	S.E. of regression
33.22107	Schwarz criterion		2.98E+13	Sum squared resid
32.82647	Hannan-Quinn criter.		-80.63851	Log likelihood
2.623536	Durbin-Watson stat		0.643698	F-statistic
			0.608384	Prob(F-statistic)

*Note: p-values and any subsequent tests do not account for model

Source: E-views program results

Error correction vector model for the relationship between the growth rate of the amount of money in circulation and foreign direct investment in the long and short term:

The estimation of error correction vectors is important in determining the value of the relationship parameters in the long and short term. Table (36) shows that the error correction coefficient is not significant at the level of significance of 0.05, meaning that there is no correction from the short term to the long term, while the long term equation indicates that there is no effect of the correction in the long term because X_7 is significant at the level of 0.05.

Table 36.
Error-correction vector test results

ECM Regression				
Case 2: Restricted Constant and No Trend				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.2147	-1.793952	0.618251	-1.109112	CointEq(-1)*
-1433833.	Mean dependent var		0.315123	R-squared
3300529.	S.D. dependent var		0.315123	Adjusted R-squared
32.65540	Akaike info criterion		2731429.	S.E. of regression
32.57729	Schwarz criterion		2.98E+13	Sum squared resid
32.44576	Hannan-Quinn criter.		-80.63851	Log likelihood
			2.623536	Durbin-Watson stat
Levels Equation				
Case 2: Restricted Constant and No Trend				
Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.4326	0.974519	4603491.	4486188.	X7
0.9667	0.047182	10614710	500825.5	C

EC = Y - (4486188.3850*X7 + 500825.5053)

Source: E-views program results

Third. The impact of stock market indicators on the total agricultural output in Iraq during the period (2013-2018):

To identify the impact of the stock market on the financing of the agricultural sector in Iraq, a simple regression equation was calculated between the value of the total agricultural product in Iraq (the dependent variable) and each of the independent variables represented in (total market value, total trading value, total number of shares, average return on Shares, average share turnover, average trading ratio, total working capital) for agricultural sector companies registered in the Iraqi Stock Exchange during the period (2013-2018) as shown in the table below:

Table 37.
The impact of stock market indicators on the total agricultural output in Iraq during the period (2013-2018)

No.	variable	B	T	F	R^2	P-VALUE
1	Total market value	216.2	1.255	1.575	0.103	0.278
2	Total turnover	- 5679.9	- 0.133	1.792	0.137	0.252
3	Total number of shares	- 1.261	-0.002	0.00004	0.001	0.999
4	Total working capital	- 832.6	- 3.35	11.22	0.672	0.029 *
5	Average return on shares	1.248	2.047	4.19	0.390	0.11
6	Average stock turnover	- 361.4	-0.810	0.656	0.141	0.463
7	Average turnover of shares	2.626	0.744	0.553	0.121	0.498

Source: study data analysis.

The effect of the total market value of the shares of agricultural companies:

Results in Table (37) indicate the insignificance of the model as a whole, as the value of F was not significant at the level of 0.05, and it was shown that the total market value of the agricultural sector companies' shares registered in the Iraqi Stock Exchange was not significant, on the value of the total agricultural product in Iraq during the period (2013-2018), Which shows the incorrectness of the hypothesis of the first study.

The effect of the total trading value of agricultural company shares:

The results confirm that the hypothesis of the second study is incorrect, as the value of F was not significant at the level of 0.05, which explains the insignificance of the effect of the total trading value of the agricultural sector companies' shares on the value of the total agricultural output.

The effect of the total number of shares of agricultural companies:

The results indicate the insignificance of the model as a whole, as the value of F was not significant at the level of 0.05, and it was found that the effect of the total number of shares for agricultural sector companies on the value of the total agricultural product in Iraq during the study period was not significant, which confirms the incorrectness of the third hypothesis of the study.

Impact of the total working capital of agricultural companies:

The significance of the model as a whole is clear, as the value of F was significant at the level of 0.05, and it shows the significant effect of the total working capital of the agricultural sector companies registered in the Iraqi Stock Exchange on the value of the total agricultural product in

Iraq during the period (2013-2018) at the level of significance of 0.05, and the relationship between the two variables was An inverse relationship and it became clear that whenever the total working capital of the agricultural sector companies registered in the Iraqi Stock Exchange increased by one unit, the value of the total agricultural output decreased by 832.6 units, which shows the validity of the fourth hypothesis of the study.

The effect of the average return on the shares of the agricultural sector companies:

According to the data of Table (37), the value of F was not significant at the level of 0.05, which demonstrates the incorrectness of the hypothesis of the fifth study, meaning the insignificance of the effect of the average return on the shares of agricultural sector companies on the value of the total agricultural product in Iraq during the period (2013-2018).

The effect of average share turnover ratio for agricultural companies:

The results of Table (37) indicate that the hypothesis of the sixth study is incorrect, as the value of F was not significant at the level of 0.05, meaning the effect of the average stock turnover rate for agricultural sector companies on the value of the total agricultural product in Iraq during the study period was not significant, which confirms the insignificance of the model as a whole.

The effect of the average trading ratio of agricultural companies shares:

The results of the test confirm the insignificance of the model as a whole, as the value of F was not significant at the level of 0.05, which means that the effect of the average trading ratio of shares of agricultural sector companies on the value of the total agricultural output in Iraq during the study period is not significant, which explains the invalidity of the seventh hypothesis of the study.

Conclusions

1- There is no effect of the total (market value of shares, trading value of shares, and number of shares) of the agricultural sector companies registered in the Iraqi Stock Exchange on the value of the total agricultural output in Iraq during the study period.
2- There is an effect of the total working capital of agricultural companies registered in the Iraqi Stock Exchange on the value of the total agricultural product in Iraq during the study period.
3- There is an inverse relationship between the total working capital of the agricultural sector companies and the value of the total agricultural product in Iraq.
4- There is no effect of the average (return on shares, turnover ratio, and trading ratio of shares) agricultural sector companies registered in the Iraqi Stock Exchange on the value of the total agricultural output in Iraq during the study period.
5- The limited number of companies specialized in agricultural production and listed on the Iraq Stock Exchange, as their number was limited to (5) companies during the study period in particular, and since the market was established under Law No. (74) of 2004 in general.
6- The lack of influence of the Iraqi stock market on the total agricultural output in Iraq, which shows the weak role and policy of the market in attracting local and foreign capital in providing the necessary financing for the agricultural sector in Iraq.

Recommendations

1- The need for the Central Bank of Iraq to use more effective monetary and financial policies that help increase the impact on the agricultural sector and work to provide all its financing needs.
2- The necessity of working to provide all facilities and privileges in order to attract and encourage foreign direct investment in the agricultural sector in Iraq.
3- The management of the Iraqi Stock Exchange should seek to study the distinguished experiences in other countries regarding agricultural investment and to find out the results of those experiences and benefit from them to develop its policy in the field of financing the agricultural sector.

4- Establishing a stock exchange specialized in the agricultural sector, through which crops and agricultural products can be priced according to appropriate economic mechanisms that depend on production costs in light of international prices, as well as assisting farmers in obtaining production requirements of high quality and appropriate prices.

5- It is necessary to study the reason for the weak performance of Iraqi agricultural companies and their limitations, and to take the necessary measures to correct the performance of these companies, because the increase in the weakness of the performance of the companies and their number it will affect the financing of the agricultural sector in particular and the national economy in general.

6- The need for permanent communication by the management of the Iraqi Stock Exchange with the Ministry of Agriculture, researchers and specialists in the field of agricultural investment to benefit from academic research to improve and develop market activities in a way that contributes to attracting more local and foreign investors to finance the agricultural sector.

References

Al Tohme, H. H. A. M. (2007). Analysis of the factors affecting the performance of the stock market (case study source) for the period (1990-2005). (Master's thesis), College of Administration, University of Baghdad, Baghdad.

Daddah, J., & Amrawi, S. (2019). The role of the stock market in financing investments (a case study of the Amman Stock Exchange during the period 2012-2017). (Master Thesis), Ahmed Deraya University, Adrar, Algeria.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American statistical association, 74(366a), 427-431. doi: https://doi.org/10.1080/01621459.1979.10482531

ISX. (2020). Iraq Stock Exchange. Retrieved from: https://arab-exchanges.org/member/iraq-stock-exchange-isx/

Ministry of Planning. (2019). Iraq, data for the period (2013-2018). Central Bureau of Statistics. Retrieved from: https://mop.gov.iq/en/

Narayan, P. K. (2005). The saving and investment nexus for China: evidence from cointegration tests. Applied economics, 37(17), 1979-1990. doi: https://doi.org/10.1080/00036840500278103

Pesaran, M., & Shin, Y. (1995). An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis Cambridge Working Papers in Economics: Faculty of Economics, University of Cambridge.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16(3), 289-326. doi: https://doi.org/10.1002/jae.616

Shendi, A. Q. (2013). Financial markets and their role in economic development (a case study of the Iraqi Stock Exchange). Paper presented at the Journal of Baghdad College of Economic Sciences, the college conference. Retrieved from: https://www.iasj.net/iasj/issue/4485