

The Impact of Some Macro Variables on the Performance of the Iraq Stock Exchange for the Period 2004-2022

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Article History

Received: 11.12.2024

Accepted: 17.01.2025

Published: 20.01.2025

Abstract: The research aimed to investigate the impact of macroeconomic variables (exchange rate, interest rate, inflation, money supply) on the performance of the Iraqi Stock Exchange represented by the general market index, using the (ARDL) model. The study concluded that the performance of the Iraqi Stock Exchange witnessed fluctuations, due to the instability of the macro variables, and according to the (ARDL) model, in the short term, interest rates (I) and money supply (M) were negative in their impact on the market index (ISX), and the exchange rate (E) and inflation (N) had a positive role in the market. In the long term, the exchange rate (E), inflation (N), and money supply (M) had a positive role in the market. Among the recommendations is that interest rates should be given attention because they are a major variable in influencing financial markets, and this is what most economic schools have reached. When increasing the money supply, the size of investment in the financial markets must be taken into account, meaning that the increase must be directed towards investment and not just consumption.

Keywords: Macroeconomic variables/Iraq Stock Exchange Index.

INTRODUCTION

The old economic schools (classical and Keynesian) and modern schools have dealt extensively with the analysis between macroeconomic factors and stock market performance since the nation's central bank, business community, and government are all interested in the movement of the stock market. Macroeconomic factors show the nation's strengths and weaknesses, and the most significant macroeconomic variables, according to economists, are the money supply, interest rates, inflation rate, and exchange rate. As a result, they want to examine how macroeconomic factors affect the stock market. Technically speaking, the market in Iraq is very new, and because of macroeconomic factors, financial transactions do not accurately represent the performance of the stock market. (exchange rate, interest rate, inflation, money supply) which have been subject to significant fluctuations from time to time, due to the events that the country has gone through, so more policymakers have paid attention to reforms related to stock markets, but the economic reality has imposed instability in economic variables, which has affected all financial institutions, including the stock market.

First: Research Problem:

After 2004, increases in the rates of macroeconomic variables (exchange rate, leading price, inflation, and money supply) contributed to the performance swings shown by the Iraqi Stock Exchange's indicators and caused the stock market to become unstable. Despite the improvement of some macro variables, this threatens investors in choosing investment portfolios.

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CITATION: Adel Mansour Fadhel (2025). The Impact of Some Macro Variables on the Performance of the Iraq Stock Exchange for the Period 2004-2022. *South Asian Res J Bus Manag*, 7(1), 45-54. 45

One: The importance of the research:

The significance of the study stems from determining the most crucial macroeconomic variables and their financial size, and using the (ARDL) model, through which it is possible to reach a determination of the size of the impact. And benefit from the results of the research.

Third: Research hypothesis:

Some macroeconomic variables have an impact on the performance of the Iraqi Stock Exchange, and it can be measured from the input of the (ARDL) model.

Two: Research objective:

1. Being aware of the magnitude of the Iraqi economy's macroeconomic factors (exchange rate, leading price, inflation, and money supply).
2. Macroeconomic factors that affect the Iraqi Stock Exchange's performance, including the money supply, inflation, leading price, and exchange rate.
3. Using the ARDL model, the effect of macroeconomic factors on the Iraqi Stock Exchange's performance.

The first axis - the relationships of macroeconomic variables affecting the financial market: -

First - Money supply: - There are two points of view on the transmission of the effects of monetary shocks to the financial markets, as follows: -

1- The perspective of the Keynesian school of how monetary shocks are transmitted to the financial markets

According to the Keynesian school, a shift in the money supply causes monetary shocks to be transmitted to the financial markets through the interest rate. as a result of following the monetary authority and a certain monetary policy will be reflected mainly on the interest rate and then on the financial markets, and in this sense, the Keynesian school emphasizes the direct relationship between monetary changes and financial markets.

The Keynesian school also follows the method of comparing the relative returns of the various assets or assets available in the economy, as an approach to adjusting the investment portfolio as a result of the change in the interest rate as a result of monetary changes. The components of the investment portfolio according to the Keynesian school consist of five elements: (currency, bank deposits, long-term government bonds, private bonds, and physical capital). According to the Keynesian school, investors' desire to acquire any of these assets depends on the rate of return on these assets. Each type of these assets has a return or yield, explicit or implicit. As for financial assets, they generate cash returns represented by interest on deposits and bonds, and the rate of change in prices is a measure of the returns on holding physical assets such as durable production or consumer goods, real estate, and land. As for cash assets, they grant their holder a stream of implicit services represented by convenience, security and liquidity, meaning that they grant their holder purchasing power represented by the possibility of using them to obtain any type of goods and in any quantity and at any time and from any place (Al-Moussawi, 2011: 26).

One of the well-known Keynesian models in this field is the (Tobin) model, which shows the process of transformation in the composition of the investment portfolio and the transition from one asset to another as a result of the impact of the increase and decrease in the volume of liquidity on the relative returns of cash, financial and real assets, as the model contains six types of interest rates or returns, which are: -

1. The interest rate on currency and current deposits, if any, which equals zero.
2. The number does not display the central bank discount rate.
3. Interest rates on Treasury notes that are short-term ($i_s - t$).
4. Long-term interest rates (long-term interest rates on government bonds ($i_l - t$)).
5. Interest rate on private debt (interest rate on bonds issued by companies (i_b)).
6. Rate of return on real capital assets and stocks (r) which Tobin called) at the supply price of capital (Charles, 1975, 228 -231).

2- The viewpoint of the monetary school on the mechanism of transmission of monetary shocks to financial markets

Monetarists, led by (Friedman), emphasize that the money supply's shift directly affects spending on real assets, which means that they do not accept the Keynesian viewpoint that spending will be affected only indirectly and through the variation in the returns of different assets in the economy (Al-Ani, 2002, 285 - 286).

To understand the viewpoint of the monetarists on the mechanism of transmission of monetary shocks to financial and commodity markets by modifying the investment portfolio as a result of the change in the prices of different assets, we assume that The monetary authority decided to follow an expansionary monetary policy by purchasing government bonds from economic units through the market. This leads to an increase in the cash balances held by these units, and an imbalance in the investment portfolio of economic units. Their desire to bring it back into balance stems from the fact that

rising cash balances will reduce the marginal utility of money, which forces economic units to dump it and first replace it with bonds. This raises demand for financial assets, which raises their prices. Then, because financial assets are becoming more expensive, economic units will shift their focus to real assets, which raises the prices of real assets. People will discover that, in comparison to the costs of actual assets, the prices of services are still quite modest. As a result, people will relocate to raise the demand for services, which eventually results in (Friedman, 1969, p. 230).

Friedman, however, affirms that the money supply has an initial impact on financial markets, specifically bonds, followed by stocks, and subsequently real assets. Bond prices have historically appeared to rise early in the process, and stock prices then start to rise later (i.e., after the increase in bond prices), but generally speaking, the increase takes place before the lowest points in the level of economic activity. Stock markets also tend to recover before recessions. (Shandi, 2013: 76). The relationship between money supply and stock and bond prices has been the subject of several studies and applied research projects, the specifics of which are displayed in Table (1). These studies were conducted within the framework of the cash portfolio model. This makes it evident from the monetary school's research (Homa & Jaffe, Keran, Plamer, Sprinkel) that the money supply has an indirect impact on stock and bond prices through its influence on interest rates and business expected returns. Pesando, Hamburger, and Koehin's study, on the other hand, began with the hypothesis that the money supply has a direct and short-term impact on stock prices, and that this influence outweighs the indirect effect shown by earlier research. They came to the conclusion that money (Al-Ani, 2002: 43).

Table 1: Results of the most important studies and applied research to analyze the factors affecting stock and bond prices

The lack of reliability of the results due to the emergence of the problem of autocorrelation between time series.	Criticisms
By comparing the adjusted coefficient of determination, the results demonstrated the short-term negative impact of money supply growth on short-term interest rates on Treasury bills, the inverse effect of money supply growth on dividends, and the strong short-term impact of money supply growth on stock prices and, more strongly, bond prices. (R-2) which ranged between (0.26 - 0.36) with the equity regression equation on the current and lagging variables of money supply, which is higher than the value (R-2) of the long-term and lagging interest rate regression equation on money supply which ranges between (0.07 - 10.19), and less than R-2 for interest rates on treasury bills (0.45 - 0.24).	Conclusions
Quantitative standard for the following relationship $X_t = a_1 + b_1$ $m_t + b_2 m_2 \dots b_n m_t - n$	Type of analysis
The relationship between (Mt) the growth rate of money supply, and (xt) which refers each time to four financial market variables (treasury bills, interest rates on bonds and stock prices, the dividend/price ratio)	Type of relationship
Hypothesis of the direct effect of money supply on stock and bond prices	Hypothesis
Hamburger & koehin	Researcher's name
This model is a combination of the quantity theory of money and the efficient market hypothesis. Its results were that the coefficient of determination (R2) reached (6.9) for the monthly data, which is higher than the value of (R2) for the annual data, in addition to the lack of agreement between the signs of the parameters and their statistical insignificance. This means that stock returns are not affected by changes in the money supply.	Conclusions
Standard quantitative analysis between stock returns (Rt) and current and lagged money supply (St, St-1) $R_t = f(St, St-1, \dots)$	Type of analysis
Monthly and annual data for the period (1947-1970)	Data used in the study
the correlation between shifts in the money supply and stock returns, which are calculated as the return divided by profits plus the price change as a percentage.	Type of relationship
Financial market efficiency	Hypothesis
Cooper	Researcher's name

The preceding table provides specifics of the studies and research that have been conducted on the relationship between money supply and stock prices within the framework of the efficient market model. The impact of present and future money supply rates on stock returns and prices was supported or rejected by its findings (Abdul Sattar, 1996, 41-42).

Second - Analysis of other economic variables on the financial market

1- Examination of the connection between fluctuations in stock prices and inflation

Researchers have focused on the connection between inflation and stock returns rather than stock prices within the framework of (Fisher's hypothesis) and (Fama's hypothesis) as shown below:-

A. Fisher's theory regarding the connection between stock returns and inflation:

Many economists have tried to generalize (Fisher's hypothesis)* on interest rates, to all assets traded in financial markets, emphasizing that the expected rates of nominal returns for common stocks equal the real returns plus the expected rate of inflation, and that the real returns for stocks are independent of the expected inflation rate (Al-Shamaa, 30).

Therefore, many economists believe, according to Fisher's hypothesis, that stocks can be used as a complete hedge against inflation, not only because their prices rise in inflationary times, but also because their dividend yield rises at the same rate or perhaps more. However, there are those who believe that this traditional concept of a hedge against inflation is incomplete when applied to investments in common stocks, because it ignores the required natural rate of return on investing in common stocks, as investors usually demand a rate of return that is consistent with In addition to a return equal to business or earnings uncertainty risks, the economy's risk-free interest rate serves as a price for waiting. As a result, for stocks to be a complete hedge against inflation, the real rate of return must exceed the required natural rate of return (k). However, since each investor has a required natural return, the latter indicator (k) is also influenced by subjective factors, making it difficult to assess how effective using stocks as a full or partial hedge against inflation is (Hindi, 1999, 211).

B. Fama's hypothesis on the inverse relationship between inflation and stock returns

According to this theory, stock returns and stock returns are inversely correlated. Fama demonstrated this by connecting the quantity theory of money, the theory of demand for money, and the amount of actual activity. Stock returns will rise if real activity is predicted to increase in response to a positive real shock. At the same time, future real activity increases will raise demand for money, which will lower inflation rates given the central bank's policy of aiming for some stability in the money supply's growth. Consequently, there is an inverse relationship between inflation and stock returns, and vice versa (Hindi, 1999: 215).

Table 2: Results of studies and research on the relationship between stock returns and inflation within the framework of Fisher's hypothesis

Researcher	Hypothesis	Type of relationship	Data used in the analysis	Analysis type	Conclusions
Michael Firth		The connection between inflation rates and nominal and real stock returns	Monthly and annual data for the period (1955-1979)	$R_{mt}=0.143+0.11I_{t-1}$ $T=0.236 R^2=0.02$ $R_{mt}=0.082-0.04I_{t-1}$ $T=0.913 R^2=0.021$	The two equations' results indicated that inflation rates had a minimal impact. on the returns of capital and real stocks for annual data, while the results for monthly data fluctuated between supporting the Fisher and Fama hypothesis.
Reilly Jonson	Fisher's hypothesis	The Connection Between Changes in the Inflation Rate and Stock Returns Long-Term Gains on Stocks	Monthly and annual data for the period (1955-1979) Monthly data for the period (1937-1968)		According to the findings, ordinary stocks were not an ideal hedge against inflation.

Third - The connection between stock prices and the degree of economic activity

The National Bureau of Economic Research (MBER) was able to categorise the factors into three groups after examining and testing the behaviour of time series of economic variables related to the economic cycles of the American economy for the years 1950–1987. These factors include (Hindi, 1999: 296-300):-

1. The first group: indicators prior to or controlling events

These include economic variables whose movement precedes fluctuations in economic activity and at a specific time interval, and thus The leading variables can be used to forecast the level of economic activity.

2. The second group: indicators accompanying events

These relate to economic variables that move simultaneously Considering the degree of economic activity.

3. The third category: post-event indicators

Which include variables whose changes follow changes in the amount of economic activity.

In reviewing this, we are concerned because the reference states that the level of stock prices is one of the variables in the first group. This means that the movement of stock prices can be used to predict the level of economic activity because it occurs before the movement of the level of economic activity by a period of time that ranges from nine months in the case of recovery to four months in the case of recession. in the stock exchange, in addition to the possibility of predicting stock prices through some economic variables in the first group, including the money supply (M1) at constant prices, which are the variables whose movement precedes the movement of economic activity by a time interval greater than the time interval that links stock prices to the level of economic activity. This was confirmed by (Sprinkel) when he pointed out that changes in monetary growth constantly precede turning points in economic activity, and before them in stock prices, and he determined the time interval between changes in stock prices and the level of economic activity at about (9) months in the case of prosperity, and in fact there are two possible explanations for this phenomenon, which are (Sutton, 1989:65): -

- A. Stock prices reflect expectations of returns and dividends and interact with investors' perceptions of future returns and dividends. Investors try to estimate future returns, so stock prices depend on the scale of upcoming activity rather than ongoing activity. Investors can forecast future profits and, consequently, stock prices if they are knowledgeable about future economic patterns.. In this case, stock prices will move before fluctuations in economic activity. This explanation comes with the hypothesis of the efficient financial market.
- B. The stock market responds to many economic variables that are among the leading indicators in the economy. Perhaps the most important of these factors are (corporate returns, profit margins and finally the money supply). Because the economic analyst and investment portfolio manager analyze Stock prices become one of the primary indicators of economic activity based on changes in the relevant time series, which are time series of economic factors that drive the economy and swiftly modify stock prices.. In general, stock prices can be predicted within the framework of the (MBER) index in several ways, including estimating economic activity or predicting it in advance of a sufficient period of time, or analyzing the economic variables that lead or control the degree of economic activity, or attempting to forecast how the economic factors that influence the level of economic activity will behave. It is important to include William Short's research here. of the period (1802 - 1990) of the American economy, which revealed that there was a decrease in the rate of return on the market index of (8%) or more that was an event prior to (or at least accompanying) the occurrence of a depression, in (38) times out of (41) times that the United States was exposed to a depression, which means that the index succeeded in predicting the occurrence of a depression by (93%) (Hindi, 1999: 273).

Fourth: Examination of the connection between stock prices and interest rates In order to profit from the difference between the interest on credit, which is low because of the expansionary monetary policy, and the return on stocks, many economists highlight the inverse relationship between interest rates and stock prices. This is because adopting an expansionary monetary policy leads to the provision of credit and the trend towards stock markets as a way to invest in the form of buying and speculating on stocks. This will increase demand for stocks., which will raise their values; hence, if other important conditions stay the same, a decline in interest rates will be reflected in an increase in stock prices on the financial market. (George, 1951 pp. 477 – 478). As for the temporal relationship between interest rate movements and stock prices, (Leonard M. Ayress) concluded that the lowest level of interest rates is about a full year before the peak of stock prices, while the peak of interest rates precedes the lowest level of stock prices by about (4) months, indicating that changes in interest rates precede changes in stock prices in time (L.A. Ayres, 1951, p. 478). Some economists also opposed the hypothesis of the inverse relationship between interest rate changes and stock prices, as (G.M.Moore) indicated that interest rates do not affect stock prices, but on the contrary, industrial stock prices control interest rates, and (Mindell) indicated that there is no causal relationship or direct correlation between interest rates and stock prices, which was confirmed by the study (J. Kraft & A. Kraft) represents the proportional correlation between bond interest rates and either the level or the relative movement of stock prices. Instead, scholars contend that monetary factors, such as interest rates, are causally impacted by stock prices. on AAA corporate bonds (Abdul Sattar, 1996: 136-139).

On the other hand, Dice & Eiteman returned again and pointed out a compromise view comparing the two conflicting views on the hypothesis of the connection between stock values and interest rates. According to him, if interest rates, among five factors that effectively affect stock prices, and are not the decisive factor, then cheap money can add some strength to the market in case of its rise. On the other hand, scarce money weakens the market in case of its decline. But high interest rates cannot stop the rise in stock prices unless other factors contribute, and cheap money cannot cause a recovery in the stock market unless the basic conditions are favorable. In both cases, the effect is secondary and complementary in nature (Rozeff, 1975: 87)).

Fifth - The relationship between exchange rates, stock prices and years

The effects of changes in exchange rates are transmitted to stock prices through two main channels:-

A-Direct channel (financial market)

If all other things remain the same, a decline in a nation's currency value is likely to make local financial assets (stocks and bonds) more affordable for foreign investors. This will increase demand for local financial assets (stocks and bonds) from foreign investors, which will raise their prices. However, as the value of that nation's currency declines, some local investors who have cash balances there decide to sell them and shift their investments to other financial assets in the economy, such as stocks and bonds, which raises demand for them and drives up their prices. The inverse relationship between exchange rates and stock and bond prices is also demonstrated by the way that an increase in the value of this nation's currency influences the direction of decreasing demand for financial assets and, consequently, lowering their prices (assuming other factors are constant). But this relationship might take place in the context of developed nations that have In a global financial climate where capital markets are integrated, and with sophisticated financial markets that can guide investments swiftly, conveniently, and affordably (Al-Ani, 2002: 254-258).

B- Indirect Channel (Commodity Market):-

According to this channel, the decline in the value of a country's currency leads to a decline in its export prices and an increase in its import prices, which will increase the competitiveness of the companies of this country in the global market, which will lead to an increase in demand for the products of local companies and thus raise their prices, which will be reflected in the profits of these companies, which will positively affect stock prices, and this is what the study (Giddy) concluded that local stock prices respond well to the decline in the value of the local currency, and that this positive effect appears stronger for companies with export orientations.

As for companies that use imported goods in their production processes, the impact of the decline in the value of their country's currency will be negative on them because it means an increase in their production costs, which affects their sales and profits and consequently their stock prices. This indicates that changes in the exchange rate may be beneficial to some companies, while they have negative effects for other companies, and that these two opposite effects may cancel each other out. Therefore, when studying the relationship between stock prices and exchange rates, it may not show statistical significance, while this effect may be strong if we study the situation at the sectoral level or at the level of specific companies. These may be the reasons that prompted the economist (Altman) to say that the stock market's reaction to changes in exchange rates is an ambiguous and difficult to interpret issue (Abdul Sattar, 1996: 190).

The second axis / The impact of the overall variables on the performance of the Iraqi Stock Exchange for the period 2004-2022.

First - Data analysis

The performance of the Iraqi market is measured by the general market index, as it reflects the volume and number of transactions taking place in the market, and accordingly it is the best measure of performance, and Table (1) shows that the general index of the Iraqi Stock Exchange rose from 64.66 points in 2004 to 85.36 points in 2008, then decreased in 2014, to record (92.99), due to the deterioration of the security situation in Iraq. As a result, stock prices fluctuated between rising and falling, reaching their highest level at 510.12 points in 2018. Then it declined again in 2019 to (493.76) points, then rose to 585 in 2022. The inflation rate began to fluctuate and inflation rates rose to (2.7%) at the end of 2008, due to the continuous adjustments to the salary scale and the increase in the Central Bank's cash reserve, which is met by the issuance of a local currency (Central Bank of Iraq, 2020: 43). Then it began to improve until 2022 and reached (%)7. As a result, the interest rates approved by the Central Bank were amended to reduce banking risks and prevent the impact on bank profits, as they were at 9.5% in 2004 and began to decrease after 2012 to less than 6%. The aim of this amendment was to withdraw a larger amount of cash from the public to reduce the phenomenon of inflation, and the interest rate continued to decline to 3.4% in 2022.

As we note from Table (1) which shows the developments in the foreign exchange rate against the Iraqi dinar for the period (2004-2022), the exchange rate of the Iraqi dinar reached (1453) (dinar/dollar) in 2004, then continued to rise slightly, and maintained its stability until 2022, due to the availability of foreign currency in large quantities, this is despite the increase in the money supply from one year to another, as the money supply in 2004 reached (10148) billion dinars, until it reached (146399) billion dinars.

Table 1: The impact of the overall variables in Iraq affecting the performance of the Iraq Stock Exchange (2004-2022)

Interest rate (%)	Inflation rate (%)	Official exchange rate (dinar: dollar)	Money supply (billion dinars)	General Stock Price Index (point)	Years
9.5	27	1453	10148	64.66	2004
13.7	37	1469	11399	45.64	2005
15.5	53.2	1467	15460	25.28	2006
20	30.8	1255	21721	34.59	2007
15	2.7	1193	28189	85.36	2008
7.1	2.8-	1170	37300	100.86	2009
6.25	2.4	1170	51743	100.98	2010
6.15	5.6	1170	62473	136.03	2011
6	6.1	1166	63735	125.02	2012
6	1.9	1166	73830	113.15	2013
6	2.2	1166	72692	92.99	2014
6	1.4	1187	65435	730.56	2015
8.5	0.4	1190	67901	649.480	2016
8.4	0.2	1190	69432	580.45	2017
5	2.6	1210	77826	510.12	2018
8.5	5.5	1207	86771	493.76	2019
5.2	0.6	1450	103353	493.76	2020
4.9	1.6	1481	119944	569.20	2021
3.4	7	1460	146399	585	2022

Source: Prepared by the researcher based on the annual reports of the Iraq Stock Exchange and the reports of the Central Bank of Iraq for the period (2004 - 2022)

Second - Analysis of the results

1- The augmented Dickey-Fuller (ADF) test.

Table (2) shows the findings of the unit root stationarity test in accordance with the Augmented Dickey – Fuller (ADF) test, which tests the alternative hypothesis ($H_1: \beta \neq 0$), which indicates that the time series is stable, against the null hypothesis ($H_0: \beta = 0$), which asserts that the time series of a variable is not stationary (i.e., there is a unit root). The Iraq Stock Exchange Index (ISX), which had a probability P value of, demonstrated that the variables are not stationary at the initial level with and without the stationary term, the stationary term, and the temporal trend at all levels. (0.6596) which is greater than 5% at the original level, while the exchange rate variable (E) is not stable, as well as the money supply (M) and inflation (N) at the original level of the data because the P value is greater than 5%, which means the presence of a unit root and the non-stationarity of the time series, but these variables became stationary at the first difference, so the Iraq Stock Exchange Index variable (ISX) For example, the probability P value (0.0027) appeared to be less than 5%, as well as the stability of the overall variables, the exchange rate (E), the money supply (M) and inflation (N).

Table 2: Results of the unit root test according to the (ADF) test at the original level and the first difference

With Constant	Variables	ISX	E	M	N
	t-Statistic	1.178549-	0.771427-	43239.1-	0.65443-
	Prob.	0.6596	0.7988	0.76543	0.7654
With Constant & Trend	t-Statistic	2.644708-	2.125442-	0.65443-	2.86433-
	Prob.	0.4946	0.4946	0.6544	0.3212
Without Constant & Trend	t-Statistic	0.192838-	0.076482	0.65443-	0.87655
	Prob.	0.6028	0.6928	0.6065	0.33443
At First difference					
With Constant	Variables	ISX	E	M	N
	t-Statistic	4.555152-	2.332690-	5.555152-	3.332690-
	Prob.	0.0027	0.0144	0.0054	0.0008
With Constant & Trend	t-Statistic	4.400187-	4.4334-	4.655587-	2.793836-
	Prob.	0.0148	0.0321	0.0148	0.0217
Without Constant & Trend	t-Statistic	4.494141-	3.54343-	5.543333-	2.065678-
	Prob.	0.0002	0.0407	0.0012	0.0007

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews12)

2- Test results for the used model

1. Estimation: For the purpose of estimating the research model, two formulas were estimated in order to compare them and choose the best one. These formulas are the linear and double logarithmic formulas, and the double logarithmic formula for estimating the relationship between the dependent and independent variables is the best, because it gives better statistical indicators than other formulas, as it has the lowest lag period criteria (AIC, H.Q, SC).

Table (3) shows the determination of the lag length based on three criteria: (AIC) Akaike info criterion, Schwarz criterion (SC) and H-Q) Hannan-Quinn) for the model and the logarithmic. The best value is the lowest result, and is represented by the value of (AIC), the length of the lag period)1) which will be adopted in the tests.

Table 3: Estimation results for choosing the optimal slowdown period

Lag	H-Q	SC	AIC
0	99.75445	100.3212	99.81755
1	93.76544*	95.87654*	93.77813*

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews12)

The results of the Bounds Test for Joint Integration (Bounds Test) to test the long-term equilibrium relationship (the existence of joint integration) between the dependent variable, the Iraq Stock Exchange Index (ISX), and the independent variables, the exchange rate (E), money supply (M), interest rate (I), and inflation (N), the (F) statistic was calculated through the Bounds Test and Table (4) shows the results of the joint integration test according to the Bounds Test. This means that there is a long-term equilibrium relationship that tends from the set of explanatory variables towards the dependent variable.

Table 4: Results of the integration test for the model according to the bounds test

Test Statistic	Value	K
F-statistic	18.660	4
Critical Value Bounds		
Significance	Lower Bound	Upper Bound
10%	2.525	3.56
5%	3.058	4.223
1%	4.28	5.84

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews12)

Table (4) shows the results of the initial estimation of the (ARDL) model, which explains the relationship between the dependent variable, the Iraq Stock Exchange Index (ISX), and the independent variables, the exchange rate (E), money supply (M), interest rate (I), and inflation (N). In the short term, interest rates (I) and money supply (M) had a negative impact on the market index (ISX), which means that the interest rate set by the Central Bank for the purpose of financial reform did not play a positive role in the market, and the exchange rate (E) and inflation (N) had a positive role in the market. Due to the increase in large quantities of dollars, it was not reflected in the market performance. This model explains the relationship according to economic logic and economic theory through the results shown. In the long term, the exchange rate (E), inflation (N), and money supply (M) had a positive role in the market. This is reflected in the reality of the Iraqi economy, as the market performance is represented by the market index, whether it rises or falls, and depends on the overall variables that contribute to improving its performance. The market has witnessed instability throughout the past period.

Table 5: Results of estimating the short-term and long-term parameters and the error correction parameter (ECM) for the ARDL model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.138977	4.400911	1.622159	0.1392
I(-1)	-1.07094	0.130581	-8.20133	0.000
ISX(-1)	0.00473	0.001496	3.162421	0.0115
E(-1)	0.002056	0.004759	0.432095	0.4758
M	-6.19E-05	2.01E-05	-3.07954	0.0131
N(-1)	0.200259	0.048449	4.13342	0.0025
D(ISX)	0.000456	0.001805	0.252803	0.5061
D(E)	-0.00427	0.004307	-0.99131	0.3474
D(N)	-0.04185	0.053914	-0.7762	0.4575

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ISX	0.004417	0.001496	2.951562	0.0162
E	0.00192	0.004345	0.441983	0.6689
M	-5.78E-05	1.54E-05	-3.75377	0.0045
N	0.186994	0.053985	3.463842	0.0071
C	6.666109	4.309741	1.546754	0.1563

Source: Prepared by the researcher based on the outputs of the statistical program (Eviews12)

2- Results of the structural stability test for the coefficients of the ARDL model.

To ensure that the data used in estimating the model are free of any structural changes and the extent of stability and consistency of the estimates of the long-term parameters with the estimates of the short-term parameters. The cumulative sum of squares test of the recursive residuals was used.

Cumulative sum of Squares Recursiv Residual test (Cusum- SQ) If the test graph (CUSUM) is within the critical limits at the level (5%), the structural stability of the estimated coefficients of the (ARDL) model is achieved, and the null hypothesis is accepted, which states that all estimated parameters are structurally stable. As shown in Figures (1), the structural stability of the coefficients of the (ARDL) model for the Iraqi market index was tested as a dependent variable with the independent variables, and it was found that the test graph (CUSUM) is within the critical limits at the level (5%), the structural stability of the estimated coefficients of the (ARDL) model is achieved, and the null hypothesis is accepted, which states that all estimated parameters are structurally stable.

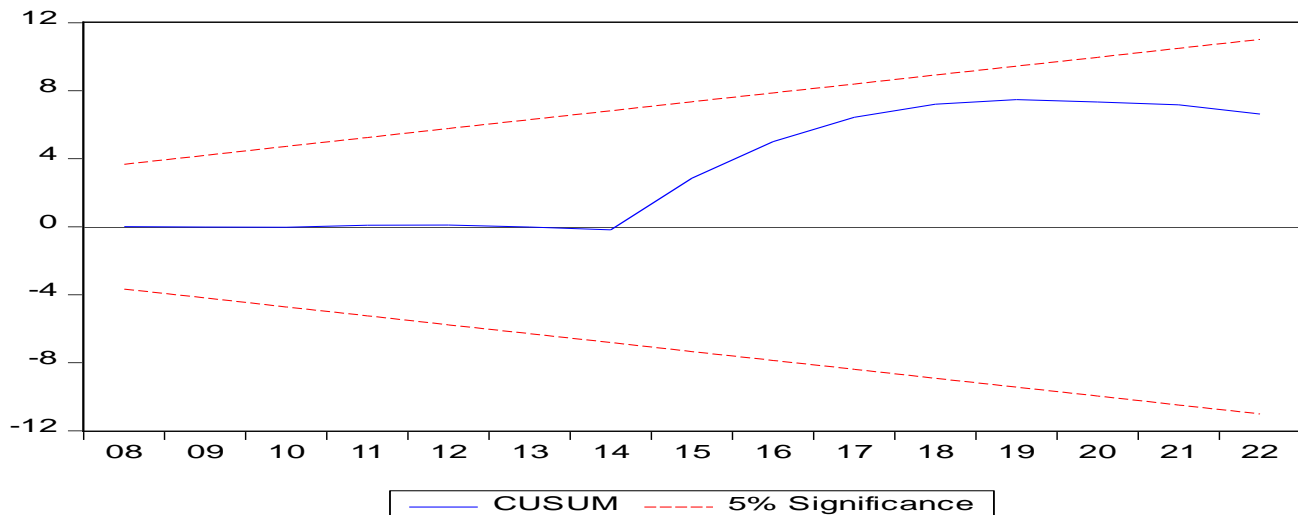


Figure 1: Structural stability test of the coefficients of the ARDL model for the Iraqi Stock Exchange index
Source: Prepared by the researcher based on the outputs of the statistical program (Eviews12)

CONCLUSIONS

1. All theories of economic schools analyzed the macroeconomic variables in order to maintain the financial markets index because it measures the overall performance of the market.
2. The performance of the Iraqi Stock Exchange witnessed fluctuations in points, due to the instability of the macro variables, and according to the (ARDL) model, in the short term, interest rates (I) and money supply (M) were negative in their impact on the market index (ISX), and the exchange rate (E) and inflation (N) had a positive role in the market.
3. According to the (ARDL) model, in the long term, the exchange rate (E), inflation (N), and money supply (M) had a positive role in the market. This is reflected in the reality of the Iraqi economy, as the market performance is represented by the market index, whether it rises or falls, and depends on the macro variables that contribute to improving its performance, and the market witnessed instability throughout the past period.

RECOMMENDATIONS

1. Interest Rates Should Be Given Attention Because They Are A Major Variable In Influencing The Financial Markets, And This Is What Most Economic Schools Have Reached.
2. When Increasing the Money Supply, The Size of Investment In The Financial Markets Must Be Taken Into Account, Meaning That The Increase Must Be Directed Towards Investment And Not Just Consumption.

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