# The Impact of Inflation on Stock Returns for a Selected Sample of Companies in the Iraq Stock Exchange for the Period (2007-2022) 

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#### Abstract

The study aimed to analyze the impact of inflation on the returns of sectors comprising the Iraq Stock. Exchange and employed the Autoregressive Distributed Lag Model methodology to analyze the impact of inflation on the sectors of the Iraq Stock. Exchange using monthly data for the period 2007-2020, Among the most important conclusions reached by the study: there is an inverse relationship between inflation and returns for sectors such as (banking sector, insurance sector, investment sector, tourism sector, and the general market index). There is also a long-term balance between inflation and sector returns for the period (2007-2020). Additionally, the results showed a short-term inverse relationship between inflation and returns for sectors such as banking, insurance, investment, and the general market index. These results confirm that stocks are not a bedge against inflation in the long term in the Iraq Stock Exchange.


Keywords: Net Profit, Number of Shares, Return on Shares, Price Index, Return on Investment

## INTRODUCTION

The Iraqi economy has long suffered from the problem of inflation, which was a result of several factors including the wars that Iraq fought in the 1980s and 1990s, leading to abnormal increases in expenditures that eventually forced resorting to deficit financing (new cash issuance) after changing the currency. Additionally, the economic blockade imposed on Iraq at that time, along with the wrong policies pursued then, exacerbated this problem, becoming a prevalent phenomenon in the economy. Inflation is considered a dangerous phenomenon with significant impacts on overall economic indicators and sectors, especially the Iraqi stock market, as the rapid rise in the inflation rate prompted wealth holders to hedge against risks by purchasing stocks. However, this strategy led to investors losing value in their portfolios. This situation shed light on the relationship between the inflation rate and stocks to investigate the impact of inflation rate on stock returns.

## The Importance of the Research Lies In

Understanding the extent of inflation's impact on stock returns.
Understanding the contribution of stock returns in revitalizing the activity of the Iraqi stock market.

## The Research Problem Arises From

The research attempts to answer the following questions:
Do inflation rates affect stock returns?
What is the type of relationship between inflation rates and stock returns?

## The Research Hypothesis is Based On

The study is based on the hypothesis of an inverse relationship between the inflation level and the returns of stocks of companies listed on the stock market in Iraq, with this hypothesis varying from one company to another.

[^0]
## The Research Objectives Are

Analyze the relationship between inflation and stock returns according to economic theories.
Analyze the reality of inflation in the Iraqi economy and the returns of companies' stocks, the research sample for the period from (2007-2022).

## The Research Methodology is Based On

The researcher relied on the deductive method, as the deductive approach is based on a combination of descriptive and inferential methods, including analytical and deductive methods based on reasoning on theoretical principles and analyzing tangible facts and using standard tools for predictive purposes, as well as using quantitative methods to determine the relationship between inflation and stock returns.

## First: The Concept of Inflation and its Types

## Definition of Inflation

Inflation is defined as the continuous rise in the general level of prices accompanied by a decrease in the real value of money. Inflation speeds up when it is accompanied by an increase in the money supply and an increase in government spending supported by local loans instead of taxes. ${ }^{1}$

## Types of Inflation

Genuine inflation: This type of inflation refers to a situation where there is no corresponding increase in aggregate demand, but rather a very high inflation rate, accompanied by a speed in production that reflects its impact on price increases.
Hyperinflation: This is a situation of very high inflation rates accompanied by a speed in money circulation in the markets, and the effects of this inflation may lead to the collapse of the national currency. ${ }^{2}$

## Second: The Concept of Stock Returns and its Characteristics

## Returns

It is the interest or profit on the share that is paid to you for your investment, and its importance may vary depending on your needs or the expected increase in the invested amount. ${ }^{3}$

[^1]
## Concept of Stocks:

Also known as equity instruments, they are the most common investment instruments traded in the securities market among different categories of investors. Companies issue these types of securities to obtain long-term financing. These papers serve as a certificate of ownership and include profits paid annually in addition to the capital gains resulting from changes in the market value of the stocks. These papers are characterized by not having a specific maturity date, with their profits being tied to the company's realized revenues, and the stockholder only receiving the value of that stock upon the company's liquidation.

## Stock Characteristics

[^2]The stock is a document proving ownership of a portion of the capital within the nominal value limits, making the stockholder a partner in the company.
The stock allows its owner to benefit from the return, which is the profit of the stock, and also bears a portion of the loss in case the company incurs losses.

## Thirdly: Analysis of the Relationship Between the General Price Level and the Baghdad Public Transport Company.

## First: The Relationship Between the Inflation Rate and the Stock Returns in the Baghdad Public Transport Company and Real Estate Investments

From Table 1 we note that the consumer price index rose from 100 points in 2007 to 112.7 points in 2008, with an annual inflation rate of $12.7 \%$. In contrast, the return on a single share decreased from 0.11 dinars to 0.09 dinars, the earnings per share ratio decreased from 0.054 to 0.048 dinars, and the return on investment decreased from 1.912 to 1.618 dinars. Conversely, the return on the stock witnessed a decrease to $0.02,0.015$ dinars for the mentioned two years due to the company's monetary policy intervention to control inflation rates in order to achieve a cash increase in the Iraqi economy. In 2009, the consumer price index reached a record high of 122.1 points, with an annual inflation rate of $8.3 \%$. In contrast, stock returns increased to 2.16 dinars per share yield, 0.555 dinars for earnings per share, and 8.166 dinars for return on investment. This was due to the company's improved performance, generating profits from asset investments, and lower inflation rates.

In 2010, the consumer price index rose to 125.1 points with a $2.5 \%$ inflation rate. However, the return per share decreased to 1.19 dinars, with earnings per share dropping to 0.047 dinars, and earnings to share ratio decreasing to 0.316 dinars. On the other hand, the return on investment increased to 10.382 dinars for the year. This was due to the company's declining profits and the stock price increase resulting from the success of expansion plans in the oil products sector by utilizing surplus financial resources to enhance the company's truck fleet.

From 2011 to 2013, the consumer price index continued to rise, reaching 132.1, 140.1, and 142.7 points respectively, with annual inflation rates of $5.6 \%, 6.1 \%$, and $1.9 \%$ respectively. As a result of the increase in consumer spending in the company, which is reflected in the increase in employee salaries in the company, stock returns saw a new increase to reach $(0.36,0.86,3.42)$ dinars respectively for return per share, and $(0.011$, $0.031,0.076)$ dinars respectively for return percentage per share, and ( $0.011,0.021,0.041$ ) dinars respectively for profit percentage to shares, and $(2.924,10.097,29.741)$ dinars respectively in the mentioned years, and this increase is attributed to the success of the company's policy in achieving returns for this year.
In 2014, the consumer price index witnessed a new increase to reach (145.9) points, with an annual inflation rate of $(2.2 \%)$, due to the company's efforts to address inflation, price increases, and achieve the monetary stability goal for the Iraqi dinar. In contrast, stock returns decreased to reach ( 0.48 ) dinars for return per share, and $(0.017)$ dinars for return percentage per share, and $(0.148)$ dinars for profit percentage per share, and $(9.976)$ dinars for return on investment.

During the years (2015-2018), the consumer price index witnessed a new increase reaching (148, 148.5, 148.7, 149.3) points, with an annual inflation rate of $(1.4 \%, 0.3 \%, 0.1 \%, 0.4 \%)$. The dividend per share also increased to ( $0.86,1.42,1.58,1.63$ ) dinars respectively, and the dividend yield rose to ( $0.057,0.110,0.125$ ) dinars respectively. The return on investment reached ( $26.771,31.621,32.692$ ) dinars respectively. The profit-toearnings ratio fluctuated between increase and decrease to reach $(0.418,405,0.530)$ dinars respectively for the mentioned years, due to an increase in net profit indicating the company's efficiency in utilizing its assets and the profits generated from investments.

In 2019, the consumer price index slightly decreased to (149.2) points, with an annual inflation rate of ( $0.1 \%$ ). Meanwhile, the dividend per share continued to rise to (1.78) dinars, while the dividend yield decreased to ( 0.098 ) dinars, and the earnings per share decreased to ( 0.458 ) dinars. The return on investment also decreased to (28.362) dinars in that year, due to the Central Bank containing monetary policy to achieve stability in the general price level and maintain the exchange rate stability for the Iraqi dinar.

The Impact of Inflation on Stock Returns for a Selected Sample of Companies in the Iraq Stock. Exchange for the Period (2007-2022).
In the year (2020), the consumer price index saw an increase to reach (153.6) with an annual inflation rate of $(3.2 \%)$. In contrast, stock yields decreased to reach (1.56) dinars for earnings per share, ( 0.020 ) dinars for dividend yield, ( 0.084 ) dinars for earnings yield, and (21.278) dinars for return on investment. This was due to various factors including the rise in oil prices, which had a ripple effect on goods and services.
In the year (2021), the consumer price index decreased to (113.6) points, with an inflation rate of ( $2.26 \%$ ). Stock yields also increased to reach (1.82) dinars, (0.066) dinars for dividend yield, (0.401) for earnings yield, and (25.286) dinars for return on investment, due to the economic, security, and health conditions that affected the country, impacting the company's performance in achieving returns and profits, in addition to the stability of capital at a value of $(250,000,000)$ billion dinars for the period (2014-2021).
In the year (2022), the consumer price index was (118.5) points, with an inflation rate of $(4.3 \%)$. In contrast, the earnings per share increased to reach (2.14) dinars, the dividend yield increased to ( 0.373 ) dinars, and the return on investment increased to (25.798) dinars. However, the earnings yield decreased to $(0.373)$ due to the increase in net profits and the company's entry into investment projects, as shown in the following table:

Table 1. The relationship between inflation and stock returns for Baghdad Iraq Public Transport and Real Estate Investments for the period (2007-2022)

| years | The record consumer prices (100-2007) | $\begin{array}{ll} \hline \text { Annual } & \text { inflation } \\ \text { rate }-2 \% \end{array}$ | Dividend per share (dinar) | Dividend yield per share (dinar) | Earnings per share (dinar) | $\begin{aligned} & \hline \text { Return on } \\ & \text { investment } \% \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2007 | 100 |  | 0.11 | 0.02 | 0.054 | 1.902 |
| 2008 | 112.7 | 12.7 | 0.09 | 0.015 | 0.048 | 1.618 |
| 2009 | 122.1 | 8.3 | 2.16 | 0.135 | 0.555 | 8.166 |
| 2010 | 125.1 | 2.5 | 1.19 | 0.047 | 0.316 | 10.382 |
| 2011 | 132.1 | 5.6 | 0.36 | 0.011 | 0.087 | 2.924 |
| 2012 | 140.1 | 6.1 | 0.86 | 0.021 | 0.261 | 10.097 |
| 2013 | 142.7 | 1.9 | 3.42 | 0.041 | 0.503 | 29.741 |
| 2014 | 145.9 | 2.2 | 0.48 | 0.017 | 0.148 | 9.976 |
| 2015 | 148 | 1.4 | 0.86 | 0.057 | 0.418 | 23.182 |
| 2016 | 148.5 | 0.3 | 1.42 | 0.110 | 0.405 | 26.771 |
| 2017 | 148.7 | 0.1 | 1.58 | 0.125 | 0.53 | 31.621 |
| 2018 | 149.3 | 0.4 | 1.63 | 0.103 | 0.524 | 32.692 |
| 2019 | 149.2 | -0.1 | 1.78 | 0.098 | 0.458 | 28.362 |
| 2020 | 153.9 | 3.2 | 1.56 | 0.084 | 0.379 | 21.278 |
| 2021 | 113.6 | -26.2 | 1.82 | 0.066 | 0.401 | 25.286 |
| 2022 | 118.5 | 4.3 | 2.14 | 0.072 | 0.373 | 25.796 |

Source: Prepared by the researcher based on:

- Annual reports of the Central Bank of Iraq for the period (2007-2022).
- Annual reports of the Iraq Stock Exchange for the period (2007-2022).


## Fourthly_The Impact of Inflation on Stock Returns for A Selected Sample of Companies in The Iraq Stock Exchange

As we aim to measure the impact of inflation on stock returns for a selected sample of companies in the Iraq Stock Exchange, the stock return variables (net profit, number of shares, return per share) will be independent variables, while the price index will be a dependent variable.

## Estimation and Analysis

We will analyze the results of estimating the model according to impulse response functions, as well as review the results of the stationary time series and diagnostic tests.

## Baghdad Iraq Public Transport Company

## First. Stationarity of Time Series:

Considering the results of this test in Table (2), the following became clear to us:

The time series of the variable $(\mathrm{CPI})$, which represents the price index, did not stabilize at level $\mathrm{I}(0)$, and the non-stationarity was addressed by taking the first difference $I(1)$, as that series stabilized at the first difference level with significance levels ( $5 \%, 1 \%$ ) with the presence of a constant limit and general trend, and without the presence of a constant limit and general trend.
The time series of the variable (NOS), which represents the number of shares, did not stabilize at the level $\mathrm{I}(0)$, and the instability was addressed by taking the first difference $\mathrm{I}(1)$ (First-difference), as that series stabilized at the first difference level with a significance level (1\%) with the presence of a constant limit and general trend and without the presence of a constant limit and general trend.
The time series of the variable (NTP), which represents net profit, also did not stabilize at the level I(0), and the instability was addressed by taking the first difference $I(1)$ (First-difference), as that series stabilized at the first difference level with a significance level $(1 \%, 5 \%)$ with the presence of a constant limit and general trend.
As for the time series of the variable (RES), which represents the return on equity, it did not stabilize at the level $I(0)$, and the instability was addressed by taking the first difference $I(1)$ (First-difference), as that series stabilized at the first difference level with a significance level $(1 \%, 5 \%)$ with the presence of a constant limit and general trend.

Table 2. Stability results of time series of model variables for Baghdad Public Transport Company.

| Unit root test results table (ADF) <br> Null Hypothesis: The variable has a unit root | At Level |  |  | NTP | RES |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  |  | CPI | NOS |  |  |
| With Constant | t-Statistic | -2.2759 | -1.7365 | -0.8544 | -1.7675 |
|  | Prob. | 0.1910 | 0.3945 | 0.7733 | 0.3766 |
|  |  | n0 | n0 | n0 | n0 |
| With Constant \& Trend | t-Statistic | 1.0602 | -4.0130 | -3.0989 | -3.1295 |
|  | Prob. | 0.9995 | 0.0330 | 0.1438 | 0.1375 |
|  |  | n0 | ** | n0 | n0 |
| Without Constant \& Trend | t-Statistic | 0.1543 | 1.6786 | 1.3435 | 0.1558 |
|  | Prob. | 0.7164 | 0.9708 | 0.9470 | 0.7169 |
|  |  | n0 | n0 | n0 | n0 |
|  | At First Difference |  |  |  |  |
|  |  | $\mathrm{d}(\mathrm{CPI})$ | d(NOS) | d(NTP) | d(RES) |
| With Constant | t-Statistic | -3.8180 | -5.7735 | -4.4143 | -5.4229 |
|  | Prob. | 0.0140 | 0.0005 | 0.0055 | 0.0010 |
|  |  | ** | *** | *** | *** |
| With Constant \& Trend | t-Statistic | -5.7857 | -5.4675 | -4.2938 | -4.4409 |
|  | Prob. | 0.0022 | 0.0036 | 0.0246 | 0.0220 |
|  |  | *** | *** | ** | ** |
| Without Constant\& Trend | t-Statistic | -3.9715 | -4.6189 | -0.9108 | -0.8073 |
|  | Prob. | 0.0007 | 0.0002 | 0.3016 | 0.3435 |
|  |  | *** | *** | n0 |  |

Notes: a: ${ }^{(*)}$ Significant at the $10 \%$; ${ }^{(* *)}$ Significant at the $5 \%$; ${ }^{(* * *)}$ Significant at the $1 \%$ and (no) Not Significant
b: Lag Length based on SIC
c: Probability based on MacKinnon (1996) one-sided p-values.
Source: Eviews 12 Programming Outputs

## Second. Optimal Lag Period

Before analyzing the model (VAR) for model variables, the number of optimal lag periods for these variables must be known, and after conducting the test, the results appeared as in table (3) and the optimal lag periods are determined based on the Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ) primarily by selecting the lag period with the lowest values for these criteria.

The Impact of Inflation on Stock Returns for a Selected Sample of Companies in the Iraq Stock. Exchange for the Period (2007-2022).
Table 3. Results of the optimal lag period test for Baghdad Public Transport Company.

| VAR Lag Order Selection Criteria |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Endogenous variables: CPI NOS NTP RES |  |  |  |  |  |  |
| Exogenous variables: C |  |  |  |  |  |  |
| Date: 02/26/24 Time: 22:37 |  |  |  |  |  |  |
| Sample: 20072022 |  |  |  |  |  |  |
| Included observations: 14 |  |  |  |  |  |  |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
| 0 | -318.7910 | NA | $1.25 \mathrm{e}+15$ | 46.11300 | 46.29559 | 46.09610 |
| 1 | -266.8477 | 66.78424* | $8.39 \mathrm{e}+12^{*}$ | 40.97824* | 41.89118* | 40.89373* |
| 2 | -247.9563 | 13.49383 | $1.27 \mathrm{e}+13$ | 40.56519 | 42.20848 | 40.41307 |
| * indicates lag order selected by the criterion |  |  |  |  |  |  |
| LR: sequential modified LR test statistic (each test at 5\% level) |  |  |  |  |  |  |
| FPE: Final prediction error |  |  |  |  |  |  |
| AIC: Akaike information criterion |  |  |  |  |  |  |
| SC: Schwarz information criterion |  |  |  |  |  |  |
| HQ: Hannan-Quinn information criterion |  |  |  |  |  |  |

Source: Eviews 12 Programming Outputs
From Table (3), we conclude that the optimal lag order is one based on the AIC and HQ criteria, which have the lowest value at the first lag order.

## Secondly, Vector Autoregression (VAR) Vectors

From Table (4), the estimated equation for the results of Vector Autoregression Vectors was as follows:
NTP $=-28950.89+220.7412$ CPI $(-1)+0.076741$ NOS $(-1)+1.106043$ NTP $(-1)-69128.14 \operatorname{RES}(-1)$
From the above equation, the following can be noted:
The price index is positively related to the stock return, as an increase of one unit in the price index will raise the stock return by (69128.14). This contradicts economic theory logic, as it is due to the company's increased investment expansion leading to higher profits and consequently higher stock returns from realized earnings, causing an increase in the price index and inflation.
The price index is inversely related to net profits, as a decrease of one unit in the price index will increase net profits by (1.106043). This aligns with economic theory, as imposing additional taxes on companies leads to lower company returns and profits, resulting in an increase in the price index and inflation.
The price index has a negative relationship with the number of shares, as an increase of one unit in the price index will raise the number of shares by ( 0.076741 ). This contradicts economic theory. An increase in a company's investment expansion leads to an increase in its profits, attracting new shareholders and increasing the number of shares, resulting in an increase in the price index, causing inflation.

Table 4. Results of the Vector Autoregression (VAR) model for Baghdad Public Transport Company, Iraq.

| Vector Auto regression Estimates |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Date: 02/26/24 Time: 22:40 |  |  |  |  |
| Sample (adjusted): 20082022 |  |  |  |  |
| Included observations: 15 after adjustments |  |  |  |  |
| Standard errors in () \& t-statistics in [] |  |  |  |  |
|  | CPI | NOS | NTP | RES |
| CPI(-1) | 0.694923 | -154.6121 | 220.7412 | 0.002027 |
|  | (0.32398) | (374.221) | (198.391) | (0.00149) |
|  | [2.14498] | [-0.41316] | [1.11266] | [1.35922] |
| NOS(-1) | 0.000234 | 0.170624 | 0.076741 | $6.69 \mathrm{E}-07$ |
|  | (0.00017) | (0.19397) | (0.10283) | (7.7E-07) |
|  | [1.39582] | [0.87964] | [0.74628] | [ 0.86593] |
| NTP(-1) | -0.000929 | 1.466400 | 1.106043 | $3.42 \mathrm{E}-06$ |
|  | (0.00066) | (0.76600) | (0.40609) | (3.1E-06) |
|  | [-1.40052] | [1.91435] | [ 2.72363 ] | [1.12003] |
| RES(-1) | 62.21853 | -30867.13 | -69128.14 | -0.158117 |


| C | (127.953) | (147797.) | (78353.7) | (0.58897) |
| :---: | :---: | :---: | :---: | :---: |
|  | [0.48626] | [-0.20885] | [-0.88226] | [-0.26846] |
|  | 23.30208 | 115262.4 | -28950.89 | -0.255243 |
|  | (43.5855) | (50345.1) | (26690.1) | (0.20063) |
|  | [0.53463] | [2.28945] | [-1.08471] | [-1.27224] |
| R-squared | 0.677982 | 0.918556 | 0.940994 | 0.874303 |
| Adj. R-squared | 0.549174 | 0.885979 | 0.917392 | 0.824024 |
| Sum sq. resides | 954.3686 | $1.27 \mathrm{E}+09$ | $3.58 \mathrm{E}+08$ | 0.020221 |
| S.E. equation | 9.769179 | 11284.27 | 5982.275 | 0.044968 |
| F-statistic | 5.263534 | 28.19606 | 39.86888 | 17.38913 |
| Log likelihood | -52.43158 | -158.2106 | -148.6914 | 28.28401 |
| Akanke AIC | 7.657544 | 21.76141 | 20.49219 | -3.104534 |
| Schwarz SC | 7.893560 | 21.99742 | 20.72821 | -2.868518 |
| Mean dependent | 136.6933 | 149533.5 | 28544.03 | 0.173307 |
| S.D. dependent | 14.54969 | 33418.01 | 20814.02 | 0.107195 |
| Determinant resid covariance (dof adj.) |  | $1.84 \mathrm{E}+13$ |  |  |
| Determinant resid covariance |  | $3.64 \mathrm{E}+12$ |  |  |
| Log likelihood |  | -302.0562 |  |  |
| Akaike information criterion |  | 42.94083 |  |  |
| Schwarz criterion |  | 43.88490 |  |  |
| Number of coefficients |  | 20 |  |  |

Source: Eviews 12 programming outputs

## Third. Diagnostic Tests

## Autocorrelation Test:

Through Table (5) showing the results of the test for detecting the presence of autocorrelation problem in the model, we notice the absence of autocorrelation problem as the P-Value appeared to be (0.2562), which is greater than 0.05 , indicating the absence of autocorrelation problem in the model.

Table 5. Results of the autocorrelation test for Baghdad Public Transport Company, Iraq.

| VAR Residual Serial Correlation LM Tests |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Date: 02/26/24 Time: 22:45 |  |  |  |  |  |
| Sample: 20072022 |  |  |  |  |  |
| Included observations: 15 |  |  |  |  |  |
| Null hypothesis: No serial correlation at lag |  |  |  |  |  |
| Lag LRE* stat | Df | Prob. | Rao F-stat | Df | Prob. |
| 1 20.95645 | 16 | 0.1802 | 1.519792 | (16, 9.8) | 0.2562 |
| Null hypothesis: No serial correlation at lags |  |  |  |  |  |
| 1 to h |  |  |  |  |  |
| Lag LRE* stat | Df | Prob. | Rao F-stat | Df | Prob. |
| 120.95645 | 16 | 0.1802 | 1.519792 | (16, 9.8) | 0.2562 |
| *Edgeworth expansion corrected likelihood ratio statistic. |  |  |  |  |  |

Source: Eviews 12 programming outputs

## Heteroskedasticity Test

Through Table (6) showing the results of the VAR Residual (Heteroskedasticity) test to measure the heteroskedasticity problem, we notice the absence of heteroskedasticity problem as the P-Value appeared to be ( 0.1611 ), which is greater than 0.05 , indicating the absence of heteroskedasticity problem in the model.

The Impact of Inflation on Stock Returns for a Selected Sample of Companies in the Iraq Stock. Exchange for the Period (2007-2022).
Table 6. Results of the heteroskedasticity test for Baghdad Public Transport Company, Iraq

| VAR Residual Heteroskedasticity Tests (Levels and Squares) |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Date: 02/26/24 Time: 22:49 |  |  |  |  |  |
| Sample: 20072022 |  |  |  |  |  |
| Included observations: 15 |  |  |  |  |  |
| Chi-sq | Df | Prob. |  |  |  |
| 92.45804 | 80 | 0.1611 |  |  |  |
| Individual components: Dependent | R-squared | F(8,6) | Prob. | Chi-sq(8) | Prob. |
| res1*res1 | 0.989218 | 68.81063 | 0.0000 | 14.83827 | 0.0624 |
| res2*res2 | 0.899813 | 6.736005 | 0.0159 | 13.49720 | 0.0958 |
| res3*res3 | 0.884250 | 5.729499 | 0.0237 | 13.26375 | 0.1031 |
| res4*res4 | 0.607902 | 1.162787 | 0.4393 | 9.118528 | 0.3324 |
| res2*res1 | 0.559387 | 0.952176 | 0.5394 | 8.390811 | 0.3963 |
| res3*res1 | 0.950961 | 14.54385 | 0.0021 | 14.26441 | 0.0751 |
| res $3 *$ res 2 | 0.380592 | 0.460833 | 0.8465 | 5.708875 | 0.6798 |
| res $4 *$ res 1 | 0.944178 | 12.68554 | 0.0031 | 14.16267 | 0.0776 |
| res $4 *$ res 2 | 0.328662 | 0.367172 | 0.9044 | 4.929933 | 0.7650 |
| res $4 *$ res 3 | 0.786479 | 2.762527 | 0.1162 | 11.79718 | 0.1605 |

Source: Eviews 12 Programming Outputs.

## Model Stability Test as a Whole

To determine whether the estimated model satisfies the stability condition, we will refer to Figure (1). From Figure (1), we notice that all points lie within the unit circle, and all roots have coefficients less than (1), indicating that the model as a whole is stable.


Figure 1. Model Stability as a Whole for Baghdad Public Transport Company, Iraq
Source: Eviews 12 Programming Outputs

## CONCLUSIONS

Trading indicators in the Iraq Stock Exchange increased after the implementation of the electronic trading system in 2009 through an increase in the number of trading sessions, the number of traded stocks, trading volume, and the market capitalization of listed companies in the Iraq Stock Exchange during the study period.

The small size of the Iraq Stock Exchange market and the decrease in the market's share in GDP, with the highest share at $48 \%$ in 2015 and the lowest at $9.14 \%$ in 2008, indicating a low level of market participation in GDP and low liquidity in the Iraq Stock Exchange market.
Inflation rates fluctuated during the period 2007-2020, with the inflation rate dropping to $0.6 \%$ in 2009. Fuel prices had a clear impact on the fluctuation of inflation rates, reaching $6.1 \%$ in 2012 , then dropping to $1 \%$ in 2015. This fluctuation has had negative implications on the performance of the Iraq Stock Exchange market.

The results of response function analysis and variance analysis showed that inflation explains a large proportion of the changes in the Iraqi stock market index, indicating that inflation is an economic problem that affects all economic sectors, whether real or monetary, including the financial market.

The results showed a long-term relationship between the inflation rate and stock returns in a sample of studied sectors. The negative results indicated a two-way causal relationship between inflation and stock returns.

## RECOMMENDATIONS

The study recommends conducting several studies to identify the most effective factors in explaining changes in stock returns, as few studies have been conducted on factors influencing returns in general, and the impact of inflation in particular.

Investors should diversify their investment portfolios to avoid high inflation in order to mitigate the impact of inflation on stock returns. Some studies have shown that stock returns can provide partial hedging against longterm inflation when the inflation rate is lower than the required return rate by investors.

Establish a mechanism to coordinate fiscal and monetary policies by developing a general strategy characterized by transparency and including various economic, social, and political aspects to ensure economic stability on one hand and the prosperity of Iraqi markets on the other.

Investors should have sufficient experience and skills to use and understand the information entering the market, and the ability to analyze and interpret it, through financial market authorities taking necessary actions to avoid investor ignorance by holding seminars and training courses, and issuing specialized scientific journals that include analysis of the latest market developments, aiming to inform investors of the importance of these markets and their role in promoting economic development and driving growth.

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