https://doi.org/10.54809/jkss.vi3.96

The Effect of Macroeconomic Variables on Stock Exchange Market Performance: Iraq Stock Exchange Market as an Example

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Abstract

The purpose of this study is to examine the impact of monthly time series data of macroeconomic variables from January 2005 to October 2021 on Iraqi's stock market performance. The Iraqi Central Bank (ICB) was used to gather the information. This study used four macroeconomic factors as independent variables (money supply, interest rate, exchange rate and inflation rate), and market capitalization as a proxy for stock market performance as a dependent variable. All of the variables were stationary at a (level) according to the Augmented Dickey-Fuller (ADF) test. Money supply has a significant positive effect by nearly 0.50; interest rates have a significant negative effect 0.53; exchange rate has a significant positive effect by0.62; while the inflation rate has a negative but statistically nonsignificant on stock market performance by 0.002, according to the Autoregressive Distributed Lag (ARDL) regression results. Analysis of long-term macroeconomic variables and stock market performance shows that there is a long-term correlation. The true determinants of the Iraqi stock market's success are money supply, exchange rate and interest rate, as all have a major impact.

Keywords: Money supply, interest rate, exchange rate, inflation rate, market capitalization, Iraq.

Recieved: 19/4/2022
Accepted: 25/5/2022

E-ISSN: 2790525-X
P-ISSN: 27905268

1. Introduction

Over the past few decades, investment in the stock exchange market became an interesting area for investors due to the fact that it brings high rewards even though the risk is high. Normally, the trend of stock market prices is analysed and predicted by potential investors to optimize their return and decline risk. Meanwhile, the relationship between macroeconomic variables and returns of share has been a crucial area for academics and investors to be examined. It is often discussed that one of the most important factors, which determine stock prices are some fundamental macroeconomics variables, for instance; interest rate, inflation, exchange rate and money supply [1] and [2]. This, has been confirmed by anecdotal evidence from many of financial sources that macroeconomic and monetary policy have a significant consequence on stock price volatility and then the change in market capitalization. Meantime, [3], [4] and [5] have explained that one of the biggest players that play a vital role in the economy is financial markets because it works in capital allocation, re-allocation, and pricing of capital resources.

On the other hand, [6] argued that policy makers have to take any necessary national macroeconomic policies without hesitation and thinking about their influences on capital formation and the process of trading stocks. Besides this, theories in economics distinguished that level of economic activities influences the corporate profits which its performance is going to leave an impact on stock prices and the market cap. Therefore, the relationship between stock prices and macroeconomic variables are significant especially in the nation's macroeconomic policies provision [7], [8] and [9].

Given this background, especially in a very competitive and strong market of stocks around the world, the investigation on the Iraqi stock exchange market comes to be examined from January 2005 till October 2021. In addition, figuring out how the macroeconomic variables influence on this market via looking at its market capitalization.

1.1 . Research Importance

The significance of this study starts from the role that stock exchange market plays in economic activities and boosting economic growth. Market capitalization is considered one of the main contemporary elements of economic performance. From this, identifying and analysing macroeconomic variables' impact on stock exchange market performance in Iraq would be investigated, as its quiet importance for shareholders and investors.

1.2 . Research Objective

This study aims to investigate how macroeconomics variables fluctuation influenced on Iraqi stock exchange from January 2005 to October 2021. Hence, further important expectations about the future of the Iraqi stock exchange could be revealed through the changes in some variables such as exchange rate, inflation rate, interest rate and money supply.

1.3 . Research Problem

After 2003, Iraqi went through many difficulties and changes such as the change from the Iraqi "old dinar" to "new Iraqi dinar", facing ISIS in 2013, oil price dropping afterward and finally declining Iraqi dinar value in comparison to the US dollar the sake of fulfilling public budget deficit. So, the problem of this study could be asked as follows:

- Investigation on if there is any relationship between macroeconomic variables and Iraqi stock exchanges?
- To what extent have the macroeconomic variables impacted Iraqi stock exchanges?

1.4 . Research Hypothesis

Generally, to check the co-integration among the variables, it is important to test H0 (null hypothesis) and H1 (alternative hypothesis). For that purpose, the null hypothesis is formulated like, (H0: b0 = b1= b2 = b3 = b4 = 0), that means the explanatory factors do not have any impact on the dependent variable. In contrast, the alternative hypothesis is formulated like, (H1: b0 ≠ b1 ≠ b2 ≠ b3 ≠ b4 ≠ 0), meaning that there is common co-integration among the variables.

In addition, the following hypothesis are formulated regarding the impact of each independent variables on dependent variable.

- H1: Exchange rate has a positive and significant impact on Iraqi stock exchange market.
- H2: Inflation rate has a negative and significant impact on Iraqi stock exchange market.
- H3: Money supply has a positive and significant impact on Iraqi stock exchange market.
- H4: Interest rate has a negative and significant impact on Iraqi stock exchange market.

1.5 . Research Scope

The study provides valuable contribution to the body of existing knowledge regarding to the relationship and influences of some macroeconomic variables on the performance of Iraqi stock exchange market in theoretical way. In practice, the study authorizes the regulators to formulate various policies and decisions for accelerating and ensuring investment atmosphere and trading in the stock market.

1.6 . Research Structure

Concerning to assessing the relationship between macroeconomic economic variables and Iraqi stock exchange market for the period from January 2005 to October 2021, a quantitative and descriptive approach was used. The first section dealt with the theoretical background of the study in literature review. The second section illustrated the methodology of the study, data analysis and result discussion.

2. Literature Review

2.1 . Theoretical Framework

In this section, firstly the main concepts and some empirical studies are discussed in order to testify how the nexus between macroeconomic variables and the stock exchange market is.

2.1.1. Interest Rate

It is clear that there is a strong relationship between interest rate and bond. In this perspective, an increase in interest rate normally direct investors to buy more bonds and prefer them upon the stocks, which imply that stock price will decline and vies versa [10,11]. Moreover, When the interest rate rises, the discount rate rises, resulting in a decline in the present value of future cash flows, which is projected to have a negative impact on stock prices [12].

Despite the fact that there is a negative relationship between interest rate and stock market, [13,14] that indicated a positive association with interest rate. It has been explained the reason behind it by saying that if the central bank raises interest rates more (or less) than anticipated, then it is considered to be bad (or good) news for the stock market. Hence, the impact might come in a positive direction.

2.1.2. Inflation Rate

The erosion of people's ability to make purchases over time is what economists mean when they talk about inflation. According to [15], the market capital, which is defined as the product of the share price multiplied by the number of outstanding shares, may therefore decrease as the demand for shares de-

creases due to the substitution process. As a result, one would anticipate that inflation would have a negative association with the performance of the stock market performance.

2.1.3. Money Supply

[16] illustrates that a rise in the money supply often results in a decline in interest rates, which generates more investment and places more cash in the hands of consumers, so increasing expenditure. Moreover, [17]conducted research and concurred that the majority of economic activities depend on the availability of money in the economy and that an increase in the money supply is likely to increase the capital base of producers and consumers, which in turn leads to a rise in investment, which stimulates economic growth.

2.1.4. Exchange Rate

The exchange rate is a measurement of the value of one currency relative to another. The exchange rate is used as a parameter in the macroeconomic variable to govern international competitiveness and identify the country's position in international trade in the global economy [18].

Understanding the influence of exchange rates on the stock market is crucial for the success of fund portfolios. There are contradictory findings about the impact of exchange rate fluctuations on stock prices. This positive effect can be explained by the fact that local enterprises become more competitive as a result of the depreciation, resulting in a rise in exports and a consequent gain in stock prices.

According to [19], currency depreciation results in comparatively decreased product prices of the country on the international market, hence increasing demand for those commodities and cash inflows into the country. However, currency depreciation makes imported commodities more expensive; if a country relies substantially on imports of production inputs, currency depreciation will have a negative effect on its economy.

2.1.5. Stock Market Performance

The performance of the stock market is measured by the stock market index, which indicates the direction of share price movement. It is a quick way to judge the overall direction of the market and is regarded as an accurate indicator of stock market shift. This means that a stock market index should not understate nor overstate the market situation and should be precise and accurate [20].

The market capitalization of a firm is the total market value of its outstanding shares of stock. The market capitalization of a corporation is derived by multiplying the total number of outstanding shares by the share's current market price. Therefore, it is considered as a useful metric for determining a company's structure and profitability, and thus the value of its stock. Market capitalization can be used to establish several critical performance metrics [21].

2.1.6. Empirical Studies

[22] emphasized that one of the most recent and obvious topics in financial economic circle is the relationship between macroeconomic variables and stock exchange market.

Normally, based on stock market performance and the fluctuations in stock prices investors gain and lose money through out buying and selling stocks. To maximize return and obtain profit, stocks should be bought a low price and sold a high price, which is called a rational decision [23], [24] and [20].

Reading market trends and making a wise decision by investors could be relied on either technical analysis or fundamental analysis or perhaps it's based on both [2]. Looking over the movement of specific stock historical prices and predicting its future trend is called technical analysis. However, fundamental analysis mainly focuses on companies' growth profit, cash flows, and any other suitable information that

might likely rise a specific stock value in the market [25] and [26].

Furthermore, all of these changes are likely to be affected by various macroeconomic factors, which finally lead to changes in earnings. For example, any change the exchange rate, money supply, interest rate and inflation leave their influences stock market trends in the short-term and long-term [27].

2.2 Article Review

Many researches have been conducted to investigate how macroeconomic variables influences the performance of the stock exchange market. In 2018, [28] investigated the relationship between macroeconomic variables and stock prices in Nigeria for the period of 1980 to 2016. The study revealed that both interest rate and money supply had a significant impact on stock prices. Meanwhile, [2] illustrated that money supply and interest rate are the factors due to their significant influences on Nigeria's stock market between 1981 and 2016.

[29] investigated on the impact of soma macroeconomic variables on the Iraqi stock market movement from 2004 to 2019 using the Ridge regression model. The results showed that only based lending rate has a negative impact on the Iraqi stock market, however consumer price index, gross domestic product and money supply have shown their positive effect on the stock market performance in Iraq. A few years before, [30] examined the effect of macroeconomic variables on the stock price index in Iraq from January 2006 to December 2015. There results showed that both consumer price index and money supply had a negative influence on stock price in Iraq. However, interest rate (overdraft) positively affected, and exchange rate did not shows any significant influences on stock price.

Back to 20 years earlier, several research was conducted related to the relationship between macroeconomic variables and stock exchange market performance. [31] examined the causal linkage of 19 emerging market returns and some macroeconomic variables, such as: exchange rate, interest rate and inflation between 1976 and 1997. These findings demonstrated that the relative size of the specific stock market and its integration with the world market is a cause of the relationship between macroeconomic variables and stock market performance. The relationship between up to 18 macroeconomic variables and stock market return for 13 years of the Greek stock market was investigated by [32]. the results revealed that there is a significant influence between the variables and the stock market.

In (2017), the effect of macroeconomic variables on the stock market performance of SAARC countries was conducted by [23] for the period 2005 to 2015. The results of their study revealed that there is a statistically significant impact of macroeconomic variables such as: exchange rate and interest rate on the stock market performance of SAARC countries. In addition, the Pakistan Stock Exchange market performance was examined by [33] via the impact of the exchange rate, interest rate and inflation on it for the period 1991 to 2017. The results showed that inflation rate and the exchange rate had a positive relationship on the market performance, opposite to interest rate impact on it.

[34], the relationship between the Malaysian Stock Market and some macroeconomic variables have been investigated over the period 1980 to 2011. It has been found that money supply and interest rate positively impacted the stock price, however it has been negatively influenced by the inflation rate. Meanwhile, the study indicated that the exchange rate is the only proper factor that significantly influenced the Malaysian stock price.

[35], have examined the effect of macroeconomic variables on stock return on companies listed in Indonesia's stock exchange market for 20 months from November 2016 to June 2018 using multiple linear regression. It is revealed that all inflation rate, interest rate, exchange rate and money supply had a significant impact on listed companies' performance on Indonesia's stock exchange.

In 2021, [18] investigated how the Nigerian stock exchange market is influenced by some macroeco-

nomic variables between 1998 and 2019. The study found that macroeconomic variables significantly impact the market's stock return in the long-run and short-run. Precisely, the money supply had a positive and significant on the market, while inflation rate and exchange rate have negatively affected. Moreover, [36], examined the impact of macroeconomic variables on Pakistan's stock exchange through Karachi stock exchange from May 2000 to August 2016. The study demonstrated that the long run money supply, exchange rate and interest rate significantly influenced the Karachi stock exchange performance. while, in short run except for exchange rate, which had a negative impact on the Karachi stock exchange market, other variables were considered insignificant.

3. Methodology

3.1 Data and Sample

In order to achieve research objectives, secondary data were collected through the Iraqi Central Bank (CBI) official website. This study used monthly data time series from January 2005 to October 2021. The macroeconomic data used on one hand, consisted of the exchange rate between the Iraqi Dinar (IQD) and American Dollar (USD), inflation rate, money supply (M2) in Iraqi Dinar, and interest rate. On the other hand, Iraqi stock exchange market capitalization (MCAP) in Iraqi Dinar was collected in order to illustrate the Iraqi Stock Exchange market performance.

3.2 Variable Measurement

Variables used in this study consist of the independent variables, which normally leave their effect on dependent variable.

The independent variables are;

- Exchange rate (EX), which represents the changes in Iraqi dinar value to the American dollar over time.
- Inflation rate (INF) illustrates how general level prices of goods and services change.
- Money supply (MS), means board money. Normally consist of cash, checking deposits are easily converted to cash. It shows the amount of money circulating in a society monitored and controlled by central bank due to its influences on economic activities.
- Interest rate (INT) is the development of interest rate prevailing in commercial banks on long term loan in IQD. It affects the economic growth in society via its impact on investment and the creating of jobs.

The dependent variable is market capitalization (MCAP) of the Iraq Stock Exchange. It demonstrates the total Iraqi Dinar market value of all the companies outstanding shares, which is measured by total number of companies' shares multiplied by their current market price.

3.3 Model Analysis

The expected model for the proposed research is created like this:

$$MCAP_t = \beta_0 + \beta_1 EX_t + \beta_2 INF_t + \beta_3 MS_t + \beta_4 INT_t + e_t$$

Where: MCAP = market capitalization, EX_t = exchange rate, INF_t = inflation rate, MS_t = money supply, INT_t = interest rate, β_0 = constant, $\beta_1 \ldots . \beta_4$ = coefficient regression, e_t = error.

4. Data Analysis and Discussion of the Results

This section firstly focusses on the summary of descriptive statistics of all collected data from 2004 to 2021. Then, the statistical tools will be used in order to examine reliability tests, co-integration and re-

gression analysis via using the ARDL model.

4.1 Data Description

In order to represent the whole data of this study as one picture, all the collected data, dependent and independent variables, from January 2005 to October 2021 are demonstrated in the below chart. Both inflation rate and interest rate are measured in percentage during the period of the study, the exchange rate is measured in hundred between Iraqi Dinar and USD. Finally, money supply and market capitalization in Iraq have been measured in trillion IQD.

The general shape of the trends in chart 1, illustrates that interest rate and inflation rate in the early years were high, then within different rates and levels both trends decreased. The exchange rate has slightly fluctuated between 1178IQD:1$ and 1488IQD:1$ for the period of the study. In addition, its clearly observed that money supply has recorded a continues rise in nearly 12,474 trillion IQD in January 2005 to almost 137,855.512 trillion IQD in October 2021. Finally, market capitalization of Iraqi stock exchange recorded an increased by nearly 826.61%, when it reached 16,425.432 trillion IQD in October 2021 from 1,772.632 trillion IQD in early 2005.

Source: Created by author based on the gathered data from Central Bank of Iraq (CBI).

4.2 Stationary Test

The unit root test is considered one of the important tests for revealing the data and where they are stationary or not. To do so, The Augmented Dickey-Fuller test is employed to determine the stationary of the data. The results of the unit root test are presented in table 1.

Table 1: Stationary (Unit Root) test result

Variables	Augmented Dickey-Fuller test statistic	level 1% critical value	level 5% critical value	level 10% critical value	Order of integration	.Prob
MCAP	-14.19458	-3.463067	-2.875825	-2.574462	Level	0.00000
EX	-8.551618	-3.463067	-2.875825	-2.574462	Level	0.00000
INF	-3.907229	-3.465585	-2.876927	-2.575051	Level	0.00240
INT	-6.632007	-3.463405	-2.875972	-2.574541	Level	0.00000
MS	-13.94945	-3.463067	-2.875825	-2.574462	Level	0.00000

Source: Author's using E-views9.

Based on the illustrated results in table 1, it can be noticed that all the variables are stationary at the level, when the critical probability value for all of them is less than 0.05 at the level of statistical indicators of 1%, 5%, and 10%.

4.3 Co-integration Test

Co-integration is one of the vital tests to determine the level of integration between the variables of the research. In order to allow the model to be estimated, it is necessary to have at least one relationship between one of the independent variables and the dependent variable. There are several different indicators that can be used to show the level of integration between the variables. In this paper, Johanson Test is applied to find out co-integration between the variables.

Table 2: Co-integration test results

(Unrestricted Cointegration Rank Test (Trace

Hypothesized (No. of CE(s	Eigenvalue	Trace Statistic	0.05 Critical Value	**.Prob
* None	٠,٢٤٤٩٨٩	١٥٧,٩٧٧٠	٦٩,٨١٨٨٩	٠,٠٠٠٠
* At most 1	٠,١٧٣٧٥٠	١٠٤,٥٨٢٨	٤٧,٨٥٦١٣	٠,٠٠٠٠
* At most 2	٠,١٤٩٣٢٤	٦٨,٣١٩٧٦	٢٩,٧٩٧٠٧	٠,٠٠٠٠
* At most 3	٠,١١٦٢٦٦	٣٧,٥٩٢٢٠	١٥,٤٩٤٧١	٠,٠٠٠٠
* At most 4	٠,٠٧١٥٦٥	١٤,١٠٨٣٨	٣,٨٤١٤٦٦	٠,٠٠٠٢

level ٠,٠٥ cointegrating eqn(s) at the ٥ Trace test indicates

(Unrestricted Cointegration Rank Test (Maximum Eigenvalue

Hypothesized (No. of CE(s	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	**.Prob
* None	٠,٢٤٤٩٨٩	٥٣,٣٩٤٢٦	٣٣,٨٧٦٨٧	٠,٠٠٠١
* At most 1	٠,١٧٣٧٥٠	٣٦,٢٦٣٠٠	٢٧,٥٨٤٣٤	٠,٠٠٣٠
* At most 2	٠,١٤٩٣٢٤	٣٠,٧٢٧٥٦	٢١,١٣١٦٢	٠,٠٠١٧
* At most 3	٠,١١٦٢٦٦	٢٣,٤٨٣٨٢	١٤,٢٦٤٦٠	٠,٠٠١٤
* At most 4	٠,٠٧١٥٦٥	١٤,١٠٨٣٨	٣,٨٤١٤٦٦	٠,٠٠٠٢

level ٠,٠٥ cointegrating eqn(s) at the ٥ Max-eigenvalue test indicates

Source: Author's using E-views9.

The first part of table 2 demonstrates the results for the trace statistic. It is noticeable that the trace statistic of 157.9770 is greater than the critical value of 69.81889 and has a probability of 0.000, which is less than 5%. Thus, the null hypothesis of no co-integrating vectors is rejected. The results prove that the variables are co-integrated and there is a long-run relationship between dependent and independent variables.

Likewise, the second part of table 2, the maximum eigenvalue test, confirm the long-run relationship between dependent and independent variables, after observing that the max-eigen statistic of 53.39426 is higher than the critical value of 33.87687 with a probability of 0.0001, which is smaller than 0.05.

4.4 . Regression Analysis (ARDL Method)

The results of unit root and co-integration tests are strong and logic, which allowed estimating the model. Autoregressive distributed lag is a variation on the classic least squares regression method that incorporates lags of the dependent variable as well as regressors for the explanatory factors. It is a technique for investigating the cointegrating relationships that exist between different variables.

In order to measure and analyse the impact of macroeconomic variables on market capitalization in Iraq for the period January 2005 to October 2021 and after several attempts and estimations of different models, the (ARDL) model was chosen to provide better results in terms of economic and statistic, which can be observed in table 3.

Table 3: Results and estimations of parameters (ARDL Method)

Dependent Variable: MCAP
Method: ARDL
Sample (adjusted): 2005M03 2021M10
Dynamic regressors (1 lag, automatic): EX INF INT MS
Fixed regressors: C

Variable	Coefficient	Std. Error	t-Statistic	*.Prob
(EX(-1	0.622770	0.079347	7.848735	0.0000
(INF(-1	-0.002171	0.001197	-1.813771	0.0613
INT	-0.530363	0.063900	-8.299849	0.0000
MS	0.495147	0.056069	8.831107	0.0000
C	0.030516	0.023818	1.281202	0.2017

R-squared	0.966113	Mean dependent var	1.016679
Adjusted R-squared	0.964490	S.D. dependent var	0.120236
S.E. of regression	0.022657	Akaike info criterion	-4.687492
Sum squared resid	0.096510	Schwarz criterion	-4.521418
Log likelihood	474.0617	.Hannan-Quinn criter	-4.620271
F-statistic	595.5345	Durbin-Watson stat	1.825975
(Prob(F-statistic	0.000000		

Source: Author's using E-views9.

$$MCAP = 0.030516 + 0.622770\ EX - 0.002171\ INF - 0.530363\ INT + 0.495147\ MS + e_t$$

After employing the ARDL model to test the level of influence of independent variables on market capitalization in the Iraqi stock exchange from January 2005 to October 2021. R–square and adjusted R-square with their high rates of nearly (0.970) and (0.965) respectively, demonstrates the degree of explaining dependent variable by independent variables that prove the model is fit for the purpose of the study. Meanwhile, the significant of the model and the relationship between independent variables with dependent variables supported with the significant of F-statistic when its probability is equal to (0.000000).

In regard to the impact of independent variables on dependent variable. Table 3 in one side, it is noticed that money supply and exchange rate influences are positively proportional in a significant level because of their probabilities are equal to 0.0000, which are smaller than p-value 0.05.

On the other side, both interest rate and inflation rate have a negative impact on dependent variable, however, interest rate impact considered significant as it is probability result is smaller than p-value 0.05 with 0.0000, and inflation rate not significant as the other independent variables when its probability is equal to 0.0613, which is slightly higher than p-value 0.05.

In addition, table 3 indicates that money supply has a positive impact on stock exchange market by nearly 0.4951, this influences proof that an increase in the quantity of money in Iraq's economy will lead to boom profitability and then increase in return, which is possibly activating stock market performance. Meanwhile, exchange rate of the previous year is leaving a positive influence on the performance of Iraqi stock exchange market by 0.6227. The hypothesis asserts that when the home currency depreciates, export costs decrease, local enterprises become more competitive, and exports rise. This event causes a rise in the stock values of domestic companies, however in Iraq it does not work properly due to the fact that Iraq relies a lot on import and the level of its export not high.

Furthermore, interest rate has a negative consequence on stock exchange market by 0.5303, this negative relationship exists when interest rate rise, investor buy more bonds and buy less stock, then aggregate demand falls, which will lead to fall in stock price. Finally, inflation rate impact of the previous year measured by nearly 0.0021 negatively. This is because high inflation rate led to high uncertainty, which causes decline on demand on stocks.

4.5 . Result Discussion

The study looked at four macroeconomic variables to determine the true determinants of Iraqi stock market performance. Money supply, interest rate, exchange rate, and inflation rate are considered macroeconomic (independent) variables. According to the results of the Johansen cointegration test, there is a long-run relationship between the independent variables and stock market performance (as proxied by market capitalisation). According to the ARDL results, the money supply has a significant positive effect on stock market performance. It means that the supply of money has a greater positive impact on the performance of the Iraqi stock market. As a result, if the money supply rises, and all other factors remain constant, stock market performance rises as well. Same thing is realised when the impact of the exchange rate on the Iraqi market capitalization has investigated for the period of the study. The findings also showed that interest rates have a significant negative impact on stock market performance, implying that an increase in interest rates will result in a decrease in stock market performance this is because encouraging investors to buy and invest more in bond instead of buying shares. In contrast, the inflation rate has not a statistically negative significant impact on stock market performance.

The knowledge of this study will assist policymakers in developing and adjusting policies to promote

macroeconomic stability and stock market performance, which will in turn promote economic development. Furthermore, this study serves as a wake-up call for investors by providing useful guides for capital market investments. They will be able to make good returns on their investments if they have this knowledge. Furthermore, the study will assist policymakers in developing and adjusting policies to achieve macroeconomic stability; it will assist investors in making good returns on investments; and it will assist the economy is growing, resulting in an improved standard of living for the people.

5. Conclusion and Recommendation

To summarize, money supply, exchange rate and interest rates are the true determinants of the Iraqi stock market's performance. This is because just three of the four independent variables examined in this study (money supply, exchange rate and interest rate) had a statistically significant effect on stock market performance.

As a result, this study advises that monetary policies that favour money supply in the Iraqi economy be adopted in order to improve the stock market's performance. This is vital since the money supply has a considerable beneficial impact on the performance of the Iraqi stock market. Additionally, the study suggests that interest rates be kept low to ensure the stock market performs well. This is necessary, given that interest rates have historically had a major negative effect on stock market performance.

پوختە

ئامانجی سەرەکیی ئەم توێژینەوەیە بریتییە لە لێکۆڵینەوە لە کاریگەریی کۆمەڵێک گۆڕاوی ئابووریی گشتیی بەپێی داتای مانگانە لە ٢٠٠٥/١ بۆ ٢٠٢١/١٠ لەسەر پێرفۆرمانس و گۆڕانی بازاری پشکی عێراقیی. بانکیی ناوەندیی عێراقیی وەکو سەرچاوەی سەرەکیی و باوەڕپێکراو بەکارهاتووە بۆ کۆکردنەوەی داتاکان. لەم توێژینەوەیەدا چوار گۆڕاوی سەرەکیی ئابووریی گشتی وەکو گۆڕاوی سەربەخۆ وەرگیراون (خستنەڕووی دراو، رێژەی سوو، رێژەی ئاڵوگۆڕی دراو، وە رێژەی هەڵئاوسان)، بەهای بازاری پشکی کۆمپانیەکان وەرگیراوە لەسەر جوڵەی بازار وەکو گۆڕاوی شوێنکەوتوو. هەموو گۆڕاوەکان لەسەر ئاستی لێژل باوەڕپێکراون بەپێی تێستی دیکی فولەر (ADF)، خستنەڕووی دراو کاریگەریی پۆزەتیڤی هەیە، رێژەی سوو کاریگەریی نێگەتیڤی هەیە، رێژەی ئاڵوگۆڕی دراو کاریگەریی پۆزاتیڤی گەورەی هەیە، لە کاتێکدا رێژەی هەڵئاوسان کاریگەری نێگەتیڤی هەیە بەڵام زۆر کاریگەر نییە لەسەر جوڵەی پشکی کۆمپانیاکان لە بازاردا، بەپێی بەکارهێنانی میتۆدی (ARDL). لەهەمان کاتدا بەپێی شیکارییەکان دەردەکەوێت کە پەیوەندییەکی درێژخایەن هەیە لەنێوان گۆڕاوەکاندا. لێرەوە دەردەکەوێت کە ئەو فاکتەرانەی بە دیاریکراویی دەتوانن کاریگەریی لەسەر بازاری پشکی عێراقی دابنێن؛ بریتین لە خستنەڕووی دراو، رێژەی سوو و، رێژەی ئاڵوگۆڕی دراو.

خلاصة

الغرض من هذه الدراسة هو دراسة تأثير بيانات السلاسل الزمنية الشهرية لمتغيرات الاقتصاد الكلي من كانون الثاني ٢٠٠٥ إلى تشرين الأول ٢٠٢١ على أداء سوق الأسهم العراقية. تم استخدام البنك المركزي العراقي لجمع المعلومات. استخدمت هذه الدراسة أربعة عوامل للاقتصاد الكلي كمتغيرات مستقلة (عرض النقود ، وسعر الفائدة ، وسعر الصرف ، ومعدل التضخم) ، والقيمة السوقية كبديل لأداء سوق الأوراق المالية كمتغير تابع. كانت جميع المتغيرات ثابتة عند المستوى وفقًا لاختبار ديكي فولر المعزز (ADF)، عرض النقود له تأثير إيجابي كبير ؛ معدلات الفائدة لها تأثير سلبي كبير ؛ سعر الصرف له تأثير إيجابي كبير ؛ في حين أن معدل التضخم سلبي ولكنه غير مهم إحصائيًا على أداء سوق الأسهم ، وفقًا لنتائج الانحدار الذاتي الموزع (ARDL). يوضح تحليل متغيرات الاقتصاد الكلي طويلة الأجل وأداء سوق الأوراق المالية أن هناك علاقة طويلة الأجل. إن المحددات الحقيقية لنجاح البورصة العراقية هي عرض النقود وسعر الصرف وسعر الفائدة ، فكلها لها تأثير كبير.

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Appendices

Appendix 1: All the Variables' Values from January 2005 to October 2021.

Months	EX - Hundred IQD/USD	% INF	% INT	MCAP - trillion IQD	MS - trillion IQD
Jan-05	14.57	22.4	14.1	1772.632	12474
Feb-05	14.61	41.6	14	2089.128	12899
Mar-05	14.69	29	14.5	2261.655	13650
Apr-05	14.74	33.8	14.3	2138.549	13732
May-05	14.73	30.9	14.4	2441.562	13888
Jun-05	14.68	34.4	14.5	2406.2	13792
Jul-05	14.75	28.4	14.5	2240.142	14036
Aug-05	14.8	31.6	14.5	2164.319	13278
Sep-05	14.81	31.1	14.8	2040.325	13138
Oct-05	14.76	29.5	13.7	3353.058	14051
Nov-05	14.77	30.2	14.5	3038.379	13272
Dec-05	14.78	28.6	14.7	3160.104	14684
Jan-06	14.82	28.5	15	3254.591	15267
Feb-06	14.8	30.7	14.6	2814.992	15826
Mar-06	14.8	30.3	14.5	2485.338	16701
Apr-06	14.81	29.2	14.6	2733.048	16842
May-06	14.85	31.3	15	2373.479	17128
Jun-06	14.85	31.2	15	2155.212	17486
Jul-06	14.86	38.1	15	2148.921	18820
Aug-06	14.88	35.2	15.3	2025.001	19440
Sep-06	14.88	33.1	15.4	1891.365	19145
Oct-06	14.85	32	15.5	1964.282	19538
Nov-06	14.63	28.8	15.5	1847.087	19658
Dec-06	13.96	31.9	16.2	1948.548	21080

Jan-07	13.18	30.7	17	1861.051	18329.063
Feb-07	12.98	23.7	17.4	1890.512	18521.249
Mar-07	12.9	25	18.7	2060.606	18677.529
Apr-07	12.84	22.1	19.4	1878.129	19144.052
May-07	12.74	21.1	19.4	1715.69	18147.866
Jun-07	12.69	19	20.1	1913.984	18791.275
Jul-07	12.6	16.5	19.3	2694.309	19577.348
Aug-07	12.53	16.3	20.8	2372.687	20301.736
Sep-07	12.49	16.7	21	2156.304	22524.744
Oct-07	12.45	16.2	20.9	2167.983	23444.731
Nov-07	12.4	15.4	19.9	2079.706	23522.876
Dec-07	12.14	12.3	20.5	2128.668	26956.076
Jan-08	12.25	10.8	19.97	2168.763	27037.186
Feb-08	12.25	13.8	19.6	2311.869	25349.193
Mar-08	12.22	12.1	21.3	2264.651	25910.917
Apr-08	12.16	15.9	20.1	2192.659	26081.245
May-08	12.12	14.7	21.2	2272.426	26580.025
Jun-08	12.05	12.4	19.9	2318.59	28481.094
Jul-08	12.02	13.6	19.5	2400.833	29825.484
Aug-08	11.96	12	19.4	2354.783	30879.575
Sep-08	11.88	12.9	19.1	2408.225	32536.077
Oct-08	11.85	13.6	18.7	2263.498	31294.688
Nov-08	11.83	12.7	18.1	2301.148	33579.985
Dec-08	11.8	11.7	18	2282.983	34919.675
Jan-09	11.78	9.2	17.69	2373.996	36057.912
Feb-09	11.78	7.1	17.54	2655.936	37659.037
Mar-09	11.78	8.3	16.92	2969.818	36973.388
Apr-09	11.79	3.8	17.11	2916.669	36720.694
May-09	11.87	4.7	16.69	2880.475	36957.496
Jun-09	11.8	8.8	16.46	2854.722	37811.325
Jul-09	11.84	7.9	16.31	1411.781	38806.875
Aug-09	11.84	10.8	15.85	1734.592	39690.346
Sep-09	11.83	8.2	16.25	2334.744	42982.641
Oct-09	11.83	5.5	15.96	2894.784	42921.266
Nov-09	11.83	4.8	15.68	3132.908	43813.715
Dec-09	11.85	6.1	15.23	3125.921	45437.918
Jan-10	11.85	3.8	14.93	3143.07	46211.046
Feb-10	11.85	3.4	14.93	3021.692	47666.215
Mar-10	11.85	3.6	14.93	2886.399	49264.741
Apr-10	11.85	3	14.15	2994.106	51224.102
May-10	11.85	3	14.15	3052.979	53050.75
Jun-10	11.85	2.7	14.15	3046.73	55851.298
Jul-10	11.85	1.8	14.15	3028.976	55873.827

Aug-10	11.85	1.9	14.15	2931.416	56388.061
Sep-10	11.85	1.9	14.15	2968.948	56213.464
Oct-10	11.85	3.2	14.15	3093.969	57299.232
Nov-10	11.85	3.1	14.15	3206.219	58201.459
Dec-10	11.85	3.3	14.15	3446.713	60386.086
Jan-11	11.85	5.3	13.31	3867.584	60808.829
Feb-11	11.85	5.5	13.53	4060.555	59739.929
Mar-11	11.85	5.7	13.53	4358.712	58452.768
Apr-11	11.87	6.1	13.65	4403.029	59265.111
May-11	11.96	6.3	13.56	4463.153	59602.27
Jun-11	11.97	6.4	13.88	4870.745	62321.706
Jul-11	11.97	7.1	13.88	4925.216	64438.666
Aug-11	11.99	7.6	13.88	4989.04	65125.368
Sep-11	12	7.3	13.88	5119.864	65110.706
Oct-11	12	6.9	13.94	4839.064	67148.3
Nov-11	12	6.4	13.94	4694.469	68973.332
Dec-11	12.17	7	13.94	4930.232	72177.951
Jan-12	12.05	6.1	13.94	4583.636	71626.698
Feb-12	12.36	6.3	14.07	4651.34	72389.84
Mar-12	12.4	6.2	13.94	4740.503	73592.642
Apr-12	12.63	6.7	13.94	4426.649	75216.016
May-12	12.49	6.2	13.94	4350.158	73207.937
Jun-12	12.4	6.1	13.63	4219.439	72682.903
Jul-12	12.54	5.9	13.63	3949.622	72968.245
Aug-12	12.48	5	13.56	4122.392	73768.559
Sep-12	12.28	5.2	13.56	4291.035	73543.262
Oct-12	12	4.6	13.56	4478.751	74254.439
Nov-12	12.07	4.9	13.56	4855.564	74863.727
Dec-12	12.22	4.2	13.56	5597.363	77187.497
Jan-13	12.26	3.7	13.69	5758.608	77336.835
Feb-13	12.32	3.4	13.5	11558.433	78554.69
Mar-13	12.55	3.2	13.64	11521.283	80238.418
Apr-13	12.68	2.5	13.64	11689.787	83367.59
May-13	12.69	2.8	13.64	11718.353	84979.975
Jun-13	12.36	2.8	13.5	12078.425	85218.485
Jul-13	12.17	2.3	13.55	11349.302	84998.414
Aug-13	12.09	2.1	13.55	11500.926	83919.472
Sep-13	12.11	1.6	13.64	11382.301	85886.119
Oct-13	12.2	1.6	13.64	11506.519	86592.362
Nov-13	12.18	1.3	13.63	11444.119	86959.526
Dec-13	12.22	1.6	13.73	11451.367	89512.076
Jan-14	12.22	1.1	13.33	11534.114	90436.7
Feb-14	12.22	1.3	13.33	11536.228	88921.947

Mar-14	12.22	1.4	13.13	11687.252	89146.38
Apr-14	12.18	1.3	13.11	11935.549	90306.439
May-14	12.22	1.2	13.08	12138.074	88797.216
Jun-14	12.13	1.4	13.08	9793.973	88852.188
Jul-14	12.15	2.1	13.05	9470.318	88970.432
Aug-14	12.13	2.1	13.05	10390.915	88497.577
Sep-14	12.04	2.1	13	10427.466	89683.842
Oct-14	12.07	1.8	13.05	9421.598	90633.315
Nov-14	12	2.1	13.05	9205.538	89370.875
Dec-14	12.06	1.8	12.94	9520.626	92988.876
Jan-15	12.21	1.8	12.8	8781.758	88444.238
Feb-15	12.41	1.8	12.88	7678.863	88621.868
Mar-15	12.7	1.6	12.88	8708.366	91248.122
Apr-15	12.97	1.7	12.7	8317.685	91762.01
May-15	13.09	1.8	12.7	8539.866	92930.011
Jun-15	13.06	2.1	12.78	9977.757	91422.026
Jul-15	12.31	1.4	12.4	9319.936	89513.378
Aug-15	12.17	1.8	12.23	9187.522	87471.12
Sep-15	12.22	1.7	12.23	9018.088	87179.092
Oct-15	12.2	1.6	12.31	8757.658	86752.666
Nov-15	12.19	1.5	12.33	8673.13	85292.706
Dec-15	12.16	1.4	11.97	8503.943	84527.272
Jan-16	12.35	-2.1	12.14	8746.03	84418.246
Feb-16	12.4	2.2	12.12	7942.827	86573.324
Mar-16	12.61	2.6	11.75	7212.079	87960.801
Apr-16	12.77	1.9	12.16	7017.852	89080.003
May-16	12.84	3	12.01	6601.051	89342.32
Jun-16	12.66	1.4	11.9	6692.338	88901.115
Jul-16	12.73	1.8	11.9	6859.508	89925.264
Aug-16	12.81	1.8	11.9	6842.243	90540.554
Sep-16	12.89	1.5	11.8	7299.342	91225.709
Oct-16	12.98	1.3	11.81	7550.35	90685.636
Nov-16	12.96	0.4	11.9	7415.719	90106.348
Dec-16	13.03	1	11.85	9354.696	90466.37
Jan-17	12.92	-0.3	11.85	8420.582	90454.105
Feb-17	12.72	0.7	11.85	8478.578	90359.096
Mar-17	12.54	-0.1	12.42	7903.382	90180.057
Apr-17	12.51	0.2	12.25	8016.864	88855.348
May-17	12.5	0.2	12.25	7664.467	89550.63
Jun-17	12.48	0.3	12.21	8203.012	90045.251
Jul-17	12.58	0.5	12.2	8213.374	91205.23
Aug-17	12.54	1.1	12.2	8120.024	90811.987
Sep-17	12.55	1.3	12.26	8092.195	89870.649

Oct-17	12.59	1.1	12.18	7922.027	89904.869
Nov-17	12.52	1.2	12.2	8067.408	91129.944
Dec-17	12.51	0.2	12.18	8190.983	92857.047
Jan-18	12.46	0.7	12.1	11041.717	91625.221
Feb-18	12.29	-0.8	12.38	12224.883	90831.209
Mar-18	12.17	0.3	12.4	12472.615	89517.337
Apr-18	12.02	0.3	12.19	12286.942	89802.803
May-18	12	0.9	12.3	12069.849	88948.026
Jun-18	12	1.2	12.18	12189.304	90973.298
Jul-18	12.01	1.3	12.19	11989.068	90927.911
Aug-18	12.06	-0.4	12.18	11836.17	91487.579
Sep-18	12.06	-0.7	11.98	11575.916	93170.025
Oct-18	12.05	-0.4	12.3	11655.029	92856.914
Nov-18	11.99776	-0.1	12.09	11587.798	93702.138
Dec-18	11.95312	-0.3	11.89	11350.356	95390.725
Jan-19	11.94805	0	11.56	11402.344	94252.953
Feb-19	11.93398	0.3	11.7	11024.244	93722.387
Mar-19	11.96009	0.5	11.7	11080.891	95606.069
Apr-19	11.94831	0.4	11.72	11050.683	97104.08
May-19	11.93503	-0.9	11.72	11542.955	96043.053
Jun-19	11.93991	-0.8	11.79	11456.014	98387.356
Jul-19	11.94824	-0.9	11.66	11399.853	99501.96
Aug-19	11.98972	-0.2	11.66	11294.926	100943.654
Sep-19	11.94873	-0.3	11.66	11334.496	101802.917
Oct-19	11.95625	-0.1	11.66	11274.236	102719.522
Nov-19	12.01085	0.4	11.66	11350.125	102821.807
Dec-19	12.01707	0.8	12	11661.912	103440.475
Jan-20	12.02335	1	11.72	14277.026	102530.572
Feb-20	11.93838	1.2	12	13533.568	105677.133
Mar-20	11.98534	1	11.8	13163.656	108214.972
Apr-20	12.26	0.1	11.33	12723.593	110696.059
May-20	12.27206	1.1	11.97	13606.57	110015.681
Jun-20	12.43326	0.8	11.97	13650.145	110254.072
Jul-20	12.30007	0.5	11.97	13581.617	111106.913
Aug-20	12.23086	0.4	12.04	13617.443	111674.519
Sep-20	12.21609	0.4	11.67	13634.631	112494.374
Oct-20	12.41423	0.9	11.48	13658.01	111817.097
Nov-20	12.48615	0.3	11.69	13637.409	113735.48
Dec-20	13.51349	4.2	11.69	14033.993	119906.385
Jan-21	14.605	4.4	12.13	14019.742	122036.97
Feb-21	14.60722	4.7	12.13	15159.796	125762.378
Mar-21	14.60788	5.3	11.48	15164.572	128693.135
Apr-21	14.75639	6.7	11.51	15465.005	129860.36

May-21	14.86383	6.1	11.51	15564.727	132949.578
Jun-21	14.86932	6.7	11.4	15809.094	133546.538
Jul-21	14.73037	7.5	11.23	15742.357	134910.51
Aug-21	14.75144	7.5	11.23	15944.68	135603.854
Sep-21	14.70565	7.4	11.23	16136.439	135101.124
Oct-21	14.8106	7.5	10.98	16425.432	137855.512

Appendix 2: Regression Results Using ARDL Model

Dependent Variable: MCAP
Method: ARDL
Date: 02/11/22 Time: 19:17
Sample (adjusted): 2005M03 2021M10
Included observations: 198 after adjustments
(Maximum dependent lags: 1 (Automatic selection
(Model selection method: Akaike info criterion (AIC
Dynamic regressors (1 lag, automatic): EX INF INT MS
Fixed regressors: C
Number of models evalulated: 16
(Selected Model: ARDL(1, 1, 1, 1, 1

Variable	Coefficient	Std. Error	t-Statistic	*.Prob
(MCAP(-1	-0.011974	0.014005	-0.854976	0.3937
EX	0.024711	0.079835	0.309526	0.7573
(EX(-1	0.622770	0.079347	7.848735	0.0000
INF	0.003050	0.001186	2.570559	0.0109
(INF(-1	-0.002171	0.001197	-1.813771	0.0713
INT	-0.530363	0.063900	-8.299849	0.0000
(INT(-1	0.262302	0.063844	4.108487	0.0001
MS	0.495147	0.056069	8.831107	0.0000
(MS(-1	0.114296	0.056259	2.031614	0.0436
C	0.030516	0.023818	1.281202	0.2017

R-squared	0.966113	Mean dependent var	1.016679
Adjusted R-squared	0.964490	S.D. dependent var	0.120236
S.E. of regression	0.022657	Akaike info criterion	-4.687492
Sum squared resid	0.096510	Schwarz criterion	-4.521418
Log likelihood	474.0617	.Hannan-Quinn criter	-4.620271
F-statistic	595.5345	Durbin-Watson stat	1.825975
(Prob(F-statistic	0.000000		

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

Appendix 3: Ramsey Reset Test

Ramsey RESET Test
Equation: UNTITLED
)Specification: MCAP MCAP(-1) EX EX(-1) INF INF(-1) INT INT(-1) MS MS
C (١-
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	٠,٩١٧٩٩٩	١٨٧	3598،٠
F-statistic	٠,٨٤٢٧٢٢	(187 ,1)	٠,٣٥٩٨

:F-test summary

	.Sum of Sq	df	Mean Squares
Test SSR	٠,٠٠٠٤٣٣	١	٠,٠٠٠٤٣٣
Restricted SSR	٠,٠٩٦٥١٠	١٨٨	٠,٠٠٠٥١٣
Unrestricted SSR	٠,٠٩٦٠٧٧	١٨٧	٠,٠٠٠٥١٤

Appendix 4: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.625530	(٩,١٨٨)Prob. F	0.7744
Obs*R-squared	5.756836	(٩)Prob. Chi-Square	0.7640
Scaled explained SS	93.48872	(٩)Prob. Chi-Square	0.0000

Appendix 5: Serial Correlation

:Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.619992	(٢,١٨٦)Prob. F	0.2007
Obs*R-squared	3.389965	(٢)Prob. Chi-Square	0.1836

Appendix 6: Ganger Causality Test

Pairwise Granger Causality Tests
Date: 05/11/22 Time: 21:35
Sample: 2005M02 2021M10
Lags: 2

:Null Hypothesis	Obs	F-Statistic	.Prob
EX does not Granger Cause MCAP	١٩٩	١٣٥٧,٨٦	8E-115
MCAP does not Granger Cause EX		٠,٥٦٨٧٥	0.5672
INF does not Granger Cause MCAP	١٩٦	٠,٥٧٩٩٣	0.5609
MCAP does not Granger Cause INF		٠,٤٦٤١٤	0.6294
INT does not Granger Cause MCAP	١٩٩	١٢٠١,٦٢	5E-110
MCAP does not Granger Cause INT		٠,١٩٠٢١	0.8269
MS does not Granger Cause MCAP	١٩٩	٩٦٢,٢٨٩	2E-101
MCAP does not Granger Cause MS		١,٢٧١٤١	0.2828

Appendix 7: Correlogram of Residuals Squared

Correlogram of residuals squared

Date: 05/18/22 Time: 00:25
Sample: 2005M02 2021M10
Included observations: 198

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	*Prob
| *|.	| *|.	1	0.083	0.083	1.3816	0.240
| *|.	| *|.	2	0.089	0.083	2.9932	0.224

*|.	*|.	3	0.124	0.112	6.1242	0.106
.|.	.|.	4	0.060	0.037	6.8586	0.144
.|.	.|.	5	-0.006	-0.032	6.8663	0.231
.|.	.|.	6	0.017	-0.002	6.9275	0.328
.|.	.|.	7	0.008	-0.002	6.9397	0.435
.|.	.|.	8	0.070	0.073	7.9563	0.438
.|.	.|.	9	0.006	-0.003	7.9648	0.538
.|.	.|.	10	0.011	-0.001	7.9926	0.630
*|.	*|.	11	0.094	0.079	9.8440	0.544
.|.	.|.	12	0.020	0.001	9.9282	0.622
.|.	.|.	13	-0.003	-0.016	9.9298	0.700
.|.	.|.	14	0.045	0.025	10.371	0.735
.|.	.|.	15	-0.008	-0.022	10.385	0.795
.|.	.|.	16	-0.008	-0.010	10.398	0.845
.|.	.|.	17	-0.018	-0.022	10.466	0.883
.|.	.|.	18	-0.008	-0.004	10.479	0.915
.|.	.|.	19	-0.011	-0.013	10.505	0.939
.|.	.|.	20	-0.011	-0.005	10.531	0.957
.|.	.|.	21	-0.012	-0.005	10.563	0.971
.|.	.|.	22	-0.003	-0.011	10.564	0.980
.|.	.|.	23	-0.005	0.000	10.570	0.987
.|.	.|.	24	-0.002	0.004	10.571	0.992
.|.	.|.	25	-0.006	-0.007	10.580	0.995
.|.	.|.	26	-0.007	-0.003	10.590	0.997
.|.	.|.	27	-0.007	-0.002	10.602	0.998
.|.	.|.	28	-0.008	-0.002	10.617	0.999
.|.	.|.	29	-0.009	-0.002	10.634	0.999
.|.	.|.	30	-0.008	-0.002	10.647	1.000
.|.	.|.	31	-0.007	-0.002	10.660	1.000
.|.	.|.	32	-0.007	-0.004	10.673	1.000
.|.	.|.	33	-0.003	0.002	10.674	1.000
.|.	.|.	34	-0.000	0.002	10.674	1.000
.|.	.|.	35	-0.006	-0.005	10.684	1.000
.|.	.|.	36	-0.006	-0.005	10.694	1.000

.Probabilities may not be valid for this equation specification*