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### **Abstract:**

This paper aimed to test random walking through the ISX60 market index for the ability to judge market efficiency at a weak level. The study used Serial Correlation Test, the Runs Test, the Variance Ratio Test, as well as the Rescaled Range Test. The population of the study represents of Iraq Stock Exchange. The study concluded accepting the hypothesis of the study that the returns of the ISX60 market index in the Iraqi market for securities does not follow the random walking in general and as a result the Iraq market for securities is inefficient within the weak level of efficiency and the study recommended need a supervisors work in the Iraqi market for securities to activate all means a which will work to communication with information to all investors and thus raise the efficiency of the Iraqi market for securities in order to the avoid of achieving unusual returns by some investors.

**Keywords:** Random Walking, Iraq Stock Exchange, Serial Correlation Test, Runs Test, Variance Ratio Test, Rescaled Range Test, possibility, stock market.

### **Introduction:**

The economic prosperity requires establishment of successful institutions, effective work on the basis of scientific and fair legal rules to be support the development of the economy, the most important these institutions stock markets, which occupies a vital center in most countries of the world itself, by use modern economic systems, which depend on public and private sector activity The financial markets play an important role in mobilizing savings and re-employing them to serve economic development. To create and finance some projects. Financial markets are working to provide these funds.

The indicators are used in the financial markets as a means of reversing the market and its walking. The index reflects a numerical value that measures the changes in the financial markets as a vital center in contemporary economic systems because they are the main source of finance on which developed countries depend on their financial and economic policies and ways of developing them. Stock market indices are an important means of guiding investors in the domestic and international markets for the timing and implementation of their investments, as well as monitoring developments in the market and their effectiveness, and thus identifying trends in performance and comparing them with the performance of other financial markets which. Making investment decisions.

In order to financial markets which play an active role by collecting savings from individuals and directing them towards deficit units, the market must be efficient, when it communication all available information, about the relationship between securities prices and financial information as a great importance to all constituents of the stock market, In order to rationalize the investment decision and the provisions of control or the performance of the market, and this study comes in analyzing the efficiency of the securities Iraqi market at a weak level to valid if the information reflected on the prices of stocks in different sectors of the market, random.

Therefore, the study search in four main points: the first was the methodology of the study and the previous studies, the second dealt with the theoretical framework, the third point focused on the practical aspect, the study ends with some conclusions and recommendations as a fourth point.

### **The First topic: Methodology of the study:**

#### **1. The importance of study:**

The importance of the study can be illustrated by the following points:

I- the importance the securities Iraqi market which can play a distinct role through the development and collection of domestic and foreign savings as well as directed towards investment projects that contribute to

economic development, enhance the efficiency of the Iraqi market as an one of the indicators of the efficiency of the national economy.

**II-** It is a financial theory that aims to study and develop financial and mathematical models to understand the movements of stock prices and affected by the financial economic factors of their countries as well as the extent to which affected by the movements of markets and the walking of investors.

**III-** The importance of this study stems from the importance of the underlying financial indicators and their basic uses, and the possibility of extraordinary profits by some investors when speculating on the market index.

## **2. The problem statement:**

The problem of the study include the following main question:

"Can the Iraq Stock Exchange index follow the hypothesis of random walking ?" Main question divided to the following:

I-Can the Iraq Stock Exchange index follow the random walking hypothesis according to the Serial Correlation Test?

II-Can the Iraq Stock Exchange index follow the random walking hypothesis according to the Runs Test?

III-Can the Iraq Stock Exchange index follow the random walking hypothesis according to the Variance Ratio test?

IIII-Can the Iraq Stock Exchange index follow the random walking hypothesis according to the Rescaled Range test?

## **3. Objectives: Of the study, the objectives of the study are as follows:**

Through test the random walking of the ISX60 market index to judge the efficiency of the market at the weak level, can measure the possibility of achieving extraordinary profits by some investors and whether the market is efficient at the weak level by following the random walk, and results and recommendations benefiting investors and increase the efficiency of this market.

## **4. The hypothesis of the study:**

Based on the study problem and its objectives, the following hypotheses were formulated:

I-H0: The ISX60 market index in the Iraq Stock Exchange follows the random walking hypothesis according to the Serial Correlation Test.

H1: The ISX60 market index in the Iraq Stock Exchange does not follow the random walking hypothesis according to the Serial Correlation Test.

II-H0: The ISX60 market index in the Iraq Stock Exchange follows the random walking hypothesis according to the Runs Test.

H1: The ISX60 market index in the Iraq Stock Exchange does not follow the random walking hypothesis according to the Runs Test.

III-H0: The ISX60 market index in the Iraq Stock Exchange follows the random walking hypothesis according to the Variance ratio test.

H1: The ISX60 ISX60 market index does not follow the random walking hypothesis according to the Variance ratio test.

IIII-H0: The ISX60 market index in the Iraq Stock Exchange follows the random walking hypothesis according to the Rescaled Range test.

H1: The ISX60 market index in the Iraq Stock Exchange does not follow the random walking hypothesis according to the Rescaled Range test.

## **5. Some Previous Studies:**

### **I-study (Zubaidi, 2012)**

The study entitled "Analysis of the walking of stock prices using random traffic model applied study in the Iraqi market for securities" to test the model of random traffic for the purpose of analyzing the walking of stock prices of companies listed in the Iraqi market for securities as well as an analysis of the walking of prices of the general index of the market and its constituent sectors. In order to determine the level of efficiency of the Iraqi market by securities, a series of monthly prices of companies (the monthly closing prices) of 24 companies were tested as well as the general index of the market and its constituent sectors at 2009. The autocorrelation analysis of The use of correlation analysis to analyze the relationship between the returns of the general index of the market with the returns of the constituent sectors market. The study reached several conclusions, the most important of which were the following: The prices of shares in the securities Iraqi market for and prices of the general index the market does not follow the hypothesis of random traffic, which

means that the Iraqi market for securities is not efficient as an weak form, while the study recommended the preparation of similar studies to determine the level of efficiency the market Iraq.

### **II-Study (2013, Omar et al)**

The study, entitled "Testing the hypothesis of random traffic on the Karachi Stock Exchange", aims at verifying the walking of random traffic on the Karachi Stock Exchange. sample The study included daily and weekly prices and monthly closing prices of Karachi Stock Exchange Index for the period start 1 January 1998 to 29 February 2012, VAR test, RUN test, KS test, unit root test (ADF and PP test). All tests showed that the Karachi Stock Exchange index does not follow random traffic walking and therefore is VIN efficient at the weak level. Regular investors.

### **III-Study Suri (2015)**

The study, entitled "The Indian Stock Market Is a Random Run", aims to test the efficiency at a low level under the hypothesis of the random flow of the national stock exchange in India by testing the efficiency of the index and returns. The sample study chose from the Reserve Bank of India For the series S&P 500 for the period start 2003 to 2015, the following tests were used in the hypothesis test, unit root test and contrast ratio test. The test results show that the stock market is efficient at the weak level and it is the daily yield chain of the S&P 500 Some random walk.

### **The second topic: The theoretical framework:**

#### **I- The history and concept of financial market indicators:**

History indicators first appeared at the end of the 19th century by Charles Dow (Hattab, 2007: 40). This innovation was a remedy for a problem faced by investors and analysts in Wall Street in the mid-19th century, Analysis of the daily prices of stocks Whether these prices go the history down or increase and solve this problem Charles Dow created the first market index in 1896 search by the Dow Jones Industrial Average, which was then composed of 12 Stocks As a result of the success of this index, stock exchanges in the United States and other countries have designed stock indices During the 1930s to measure the performance of its markets (Hatem, 2006: 3). After a period of time these indicators developed and became more important and used as a means of knowing the direction of financial markets as they reflect the direction of the market and its walking. A financial instrument traded in the financial market, such as other securities (Qablan, 2011: 92).

B- Define the indicators are one of the important tools that guide the investor in the financial markets and his investment decision. He is also used to know and evaluate the performance and trends of financial markets and compare them with the rest of the financial markets. The indicators provide the information that is used to determine the extent which the financial market achieves its objectives and objectives (Abd al-Muttalib,2004: 14).

The index consists of a set of ordinary shares that are believed to fully reflect the market state. Assuming the rises index, the market rises as a whole and decreases when it falls. Therefore, the index gives a general picture about changes in the shares prices of that make up the index (Cronje, 2004: 45).

#### **II- Uses of financial market indicators:**

Financial indicators are used to denote the economic situation of companies whose securities are traded heavily in the capital market. If the capital market is efficient, the index will be a measure the state of the market as a whole, which will be the mirror of the future economic situation the country where the market operates (Al-Shukriji and TajEddine, 2008: 75)

The following indicators are used:

#### **A- Evaluate and start of the performance of the investment portfolio:**

Indices such as the general index and the Standard & Poor's 500 from a large sample of 500 companies are a large sample and reflect good diversification. This with will provide safety and reduce the risk ratio, while at the same time yielding an appropriate return (Al-Momani, 2009: 289-290). According to the naive diversification idea, an investor with a portfolio of randomly selected securities achieves almost the market return (the average rate of return on traded securities) reflected in the index.

#### **B- Forecasting the state financial markets:**

The financial analyst, through the basic analysis (knowledge of the relationship between some economic variables and some variables that may occur on the indicators in the market), can predict the state of the financial market by following the pattern of changes that occur, and thus be able to predict developments in price movements (Daoudi, 2012: 61).

#### **C- Assistance to provide information of investment portfolios:**

The financial analyst can identify the return risk of the financial market by following the financial indicators that enable him to diversify the financial portfolios well. Therefore, many specialized companies provide advice to investors about form financial portfolios that are compatible with the sample of the shares, which make up the index (Hamida, 2013: 106).

**III- Random Walk Hypothesis (RWH):**

Roberts (1959) was the first to study the random flow of prices by studying the actual price levels of the market for (52) weeks according to the Dow Jones industry average, and found that the actual movement of stock prices is random movement, The random walk to describe the walking of the price of securities in the financial markets, as they were formulated to give the hypothesis of the financial market efficient testable contents, and confirms the hypothesis of random traffic that successive price changes are independent, ie, the average prices in any period of time on will reflect the real value of the stock, Which fly A on future stock prices must be completely independent price changes in the past. The interrelationships between random efficient market approaches and the low level of efficiency of unpredictable stock prices can be clearly inferred from the available information about prices and volumes the random traffic hypothesis assumes that the new information is random and that its entry into the market is random. This leads to random changes in prices. Which the of successive securities as independent and distributed to potentially symmetrical distribution (Hasnawi, 1997: 10). The hypothesis of the efficiency weak level is a systematic extension of the hypothesis of the random movement of prices. According to the weak level, historical information about events in the past, whether days, months or years, cannot affect the current share price and cannot be used to predict changes in prices. And the successive changes in the prices of shares are independent of each other and there is no relationship between them. Hence, the weak level of market efficiency is called the random movement of prices, since the change in the share price does not follow one pattern from one day to another (Zubaidi, 2012: 176). The hypothesis of random traffic is closely related to the efficiency of financial markets. When information is received on the efficient financial market, it reflects provide about the prices of stocks quickly and rationally. Prices tend to fluctuate randomly around their real value and reflect the latest available information in the market. There is the advantage of predicting the return of the investor's stock and the inability to obtain information that is not available to all, so it is difficult to obtain unusual returns(Mutothya,2013:34), and the hypothesis of random traffic of the important models that have been studied, being a sufficient condition to achieve efficiency in the financial markets. Is the path of the variable over time, which shows the absence of different formulas to predict the prices of shares, if the price of P moves the path of random traffic, the price of P in any period is equal to the price of P in the period before plus or minus some random variable and this indicates that the current market prices Is the best indicator of future market prices with a deviation that is random in nature. In efficient markets, profits cannot be achieved based on past information. Therefore, forecasting future prices is conditional on past average prices, which should be equal to zero (Nayak, 2012 : 114).

The hypothesis of random walking can be illustrated mathematically by:

The hypothesis of random traffic: Let  $X_t$  be the share price on a given day, such as t. ( $X_t$ ), the price of the stock is unpredictable because in each unit of time the position of the share price moves either up in one unit or down in one unit or remains in position as it is (Maduegbuna, 2010: 342).

It can be assumed that the price of the stock remains in its state or moves up or down and random and the random trends of all share price transfers are independent of all past transfers.

More clearly,  $S_n$  in the equation below shows that the position of stock prices at time t, the general walking of the  $S_n$  sequence represents the form: (Maduegbuna, 2010: 342).  $S_n = S_0 + X_1 + X_2 + \dots + X_n$

$S_0$ : is the initial value of the share price.

$X_n$  is an independent random variable, and the random variable takes a real value that expresses the results of the sample. This field includes all the possible values. Each value of the variable has a certain probability. The independent random variable value is based on the probability function ( $x = x_i$ ) =  $f(x)$ . The probability distribution table for the random variable x, which consists of two columns, can be formed. The first represents the possible values of the variable X ( $x = x_1, x_2, \dots, x_n$ ) For the probability function  $p(x = x_i) = f(x_i)$ .

$$S_n = S_0 + \sum_{j=1}^n X_j$$

Illustrate the simple:

$S_0$ : represents the initial value of the share price.

$X_j$ : represent independent random variables distributed evenly and each variable takes either a value of -1 with a probability of  $q$ , takes +1 with a probability of  $p$ , or stays as 0 with a probability of (Maduegbuna,2010: 343). The random movement confirms that the movements of stock prices will not follow the patterns and trends of expectation, and that fluctuations in the past prices of shares cannot be used to predict future price changes, therefore cannot predict the changes in prices of securities through previous movements of stock prices (Oskooe, 2011: 152).

(Mujtaba,2012: 73) states that the hypothesis of a random walk is a financial theory that states that prices in stock markets are unpredictable because they follow unique random formulas. They cannot be fully analyzed because all information is available to everyone in the financial markets, and the indiscriminate price limits the ability of investors to outperform the market and earn extraordinary profits.

#### IV- Tests used for random walking:

##### A-Serial Correlation Test:

This test is the first approach to the random flow test of stock returns and is used to determine the relationship between current and previous observations (Darwish, 2011: 97).

This test aims to determine the independence of the returns of shares from each other, and by testing that the coefficient of self-correlation statistically equal to zero, if the returns of shares are self-linked, the chain of returns does not follow the random walk and thus we can say that the lack of low level of efficiency, and take The hypothesis of self-correlation is as follows: (Mohammed, 2014: 419)

$$H_0 = \rho_k = 0$$

$$H_1 = \rho_k \neq 0$$

The  $(Q_{LB})$  statistic (Lung-Box: Chung, 2006: 69)

$$Q_{LB} = n(n + 2) \sum_{k=1}^m \frac{\rho_k^2}{(n - k)}, \sim \chi_m^2$$

Illustrate the simple

$n$ : Sample size.

$\rho_k$ : Self-correlation coefficients.

$k$ : Late period (lag) given.

$M$ : The number (lag) that is tested at the  $H_0$  hypothesis

If the calculated value of  $Q_{LB}$  exceeds the value of  $\chi^2$  with a given freedom, then at least one value of  $\rho_k$  is not equal to zero at a significant level of 5%.

##### B- Runs Test:

A non-parametric test is used to detect the degree of independence between returns that cannot be detected through parametric tests. Non-parametric tests neglect normal distribution properties, Not distributed naturally.

The frequency test is defined as the successive change of returns in the same direction, ie, the number of iterations is calculated as a sequence of the return changes of the same signal (++, - 00). The actual number of replicates is compared with the expected number of frequencies without looking at the signal (Khalid,2015: 117).

This test is based on the null hypothesis that the number of expected frequencies is equal to the actual number, so the returns are randomized and the efficiency hypothesis is achieved at a low level (Mohammad, 2014: 419).

The expected number of repetitions ( $m$ ) is calculated according to the following equation: (Darwish, 2011: 98).

$$m = \frac{(N(N + 1) - \sum_{i=1}^3 n_i^2)}{N}$$

Illustrate the simple:

$N$ : Views.

Number of Share Price Changes.

The  $Z$  statistic is used to test whether the actual number of repetitions is consistent with the hypothesis of the independence of returns, and is calculated as follows: (Zubaidi, 2012: 173)

$$Z = \frac{R - m}{\sigma m}$$

Illustrate the simple:

R: The number of actual duplicates.

m: Number of expected duplicates.

$\sigma$ : Frequency deviation.

If the calculated Z is greater or equal to the table value ( $\pm 1.96$ ) at the 5% level of significance, then the null hypothesis is rejected. We conclude that the returns are not independent of each other and do not move randomly and can be predicted. The weak (Mohammed, 2014: 419).

**C. Variance ratio test: (Severini, 2018: 56-57)**

The test of the contrast ratio proposed by Lo and Mackinlay of recent studies is widely used. This test is based on the hypothesis that random time series variation increases linearly over time (Khalid, 2015: 6) The shares are  $r_1, r_2, \dots, r_T$  with mean  $\mu$  and standard deviation  $\sigma$  and  $r_t, r_s$  are not correlated to all  $s \neq t$  and then are:

$$E(r_t + r_{t-1}) = E(r_t) + E(r_{t-1}) = \mu + \mu = 2\mu$$

As well as:

$$\text{Var}(r_t + r_{t-1}) = \text{Var}(r_t) + \text{Var}(r_{t-1}) = \sigma^2 + \sigma^2 = 2\sigma^2$$

In general, the random sequence  $r_t + r_{t-1} + \dots + r_{t-q+1}$  has the mean  $q\mu$  and the variation  $q\sigma^2$  and is observed by  $r_t + r_{t-1} + \dots + r_{t-q+1}$  are simply stock returns for period q in time t. Thus, the random flow of stock returns will have a simple relationship between the variance of returns for multiple periods and the variation of returns for a single period.

This fact is used to test random traffic by comparing the estimated value of the variance of returns:

$$r_t + r_{t-1} + \dots + r_{t-q+1}, t = q, \dots, T$$

At the estimated value of the variance  $r_1, r_2, \dots, r_T$  If the random walk hypothesis remains the same, the ratio of these estimates should approach q.

To have a certain value of q, it is as follows:

$$S_q^2 = \frac{\sum_{t=q}^T (r_t + r_{t-1} + \dots + r_{t-q+1} - q\bar{r})^2}{T - q}$$

Which is basically the simple variance of  $r_t + r_{t-1} + \dots + r_{t-q+1}, t = q, q + 1, \dots, T$  where the divisor is equal to the sample size minus one, Instead of subtracting the sample mean for these values we subtract  $q\bar{r}$  as follows:

$$\bar{r} = \frac{1}{T} \sum_{t=1}^T r_t$$

$S_q^2$  indicates the variance of the profits  $r_1, r_2, \dots, r_T$  and that the ratio of the variance statistic is given in the following relation:

$$V_q = \frac{T}{T - q + 1} \frac{1}{q} \frac{S_q^2}{S^2}$$

Under the random walk we get:

$$\frac{1}{q} \frac{S_q^2}{S^2} = 1$$

$T / (T - q + 1)$  is an adjustment time that is designed to improve the standard approximation of the  $V_q$  distribution in small samples. We note that the contrast test, like the Box-Ljung test, is a test of correlation in stock returns.

Under the null hypothesis that random returns of stock returns are constant,  $\sqrt{T}(V_q - 1)$  is almost evenly distributed at zero mean and variance illustrated by  $2(2q-1)(q-1)/(3q)$ . Thus, the statistical standard test is as follows:

$$\bar{V}_q = \sqrt{T} \sqrt{\frac{3q}{2(2q-1)(q-1)}} (V_q - 1)$$

Thus, we reject the null hypothesis at large  $|\bar{V}_q|$  values. The value-p-value of the test is as follows:

$$P(|Z| > |\bar{V}_q|)$$

Where Z contains natural distribution and  $V_q, 0$  is the observed value of  $V_q$  and therefore we have:

$$P(|Z| > |\bar{V}_{q,0}|) = 2(1 - \phi(|\bar{V}_{q,0}|))$$

Where  $\phi$  refers to the normal distribution function.

**D. Rescaled Range Test: (Severini, 2018: 58-59)**

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The Box-Ljung test, the test of contrast ratio and the frequency test are important tests in detecting the correlation between returns in close periods. However, another approach may reject the random walk hypothesis. This method is whether returns are associated with a long period. For example, there may be multiple years in which the monthly revenue is generally large (but not always). Rescaled range testing is a test designed to detect long-term correlation.

The test statistic is given in the following relation:

$$H = \frac{\max_{1 \leq k \leq T} \sum_{t=1}^k (r_t - \bar{r}) - \min_{1 \leq l \leq T} \sum_{t=1}^l (r_t - \bar{r})}{S\sqrt{T}}$$

Where S is the standard deviation of the sample from  $r_1, r_2, \dots, r_T$  meaning that H is the range of variables:

$$\sum_{t=1}^k (r_t - \bar{r}), k = 1, 2, \dots, T.$$

The large H values reject the null hypothesis of the random run of returns.

In the case of large H values, this indicates that  $t_1, t_0$  times exist:

$$\sum_{t=1}^{t_1} (r_t - \bar{r})$$

A positive value is significant though:

$$\sum_{t=1}^{t_0} (r_t - \bar{r})$$

The table values are:

Table (1) shows the scale values of the variable range test.

Critical value	Level of importance
1.620	0.10
1.747	0.05
1.862	0.025
2.098	0.005

Source of the researchers preparation

When comparing the value of H with the tabular values in Table 1, if the value of H is smaller than the tabular value, we accept the null hypothesis (the ISX60 index in the ISX follows the random walking hypothesis and therefore the judgment on its efficiency) (ISX60 is not followed by the ISX60 index in the Iraqi market for securities, the hypothesis of random walking and hence the judgment on its efficiency), at the level of significance (0.10, 0.05, 0.025, 0.005).

### The third topic: The practical aspect:

#### I- Description of the sample study:

The sample of the study in the Iraqi market for securities included the daily price series of the ISX60 general index which represents the shares value of (60) joint stock companies listed in the Iraqi market for securities. The study period extends start 1/1/2015 until 31/12/2017. Data from the ISX60 index during the study period from the first trading session from 2015 to the last trading session in 2017, which contains 650 views of the index, and all of this data was obtained from the website of the Iraqi market for securities ([www.isx-iq.net](http://www.isx-iq.net)). The daily returns were calculated through the natural logarithm of the indicators and according to the following equation: (Chung, 2006: 62)

$$R_t = \ln \frac{P_t}{P_{t-1}}$$

Illustrate the simple:

$R_t$ : index returns on day t.

$P_t$ : Stock Prices Today t

#### II-Analysis & test of Study hypothesis:

##### A.The Serial Correlation Test for the ISX60 Market Index:

In order to test the random flow of the Iraqi Stock Exchange to judge the efficiency of the market at the weak level, through the serial correlation of the daily returns of the ISX60 market index, the delay of the daily returns of the Iraq Stock Exchange Index was taken. Reject the null hypothesis that all self-correlation coefficients are equal to zero, to the daily yield series of the ISX60 market index, and to compare  $Q_{LB}$  with  $\chi^2$  tabular as shown in the equation above. The results of the program are based on the value of P-value, so

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the null hypothesis is rejected at a significant level of 5%, and we conclude that there is a link between the views, and therefore the ISX60 market index does not follow the random traffic and thus the Iraqi market for securities is not efficient at the level There is a possibility of extraordinary returns from some investors.

Table (2) Results of the serial test of the daily returns of the ISX60 market index in the Iraqi Stock Exchange for the sample of the study.

The general index of the ISX60 market		Lag
P-Value	Q <sub>LB</sub>	
0.000	26.673	1
0.000	26.678	2
0.000	26.684	3
0.000	28.715	4
0.000	32.957	5
0.000	42.295	6
0.000	45.645	7
0.000	47.006	8
0.000	48.094	9
0.000	49.329	10
0.000	52.761	11
0.000	55.981	12

Source of the researchers preparation

Thus, the alternative hypothesis is accepted (ISX60 ISX60 does not follow the random walking hypothesis according to the Serial Correlation Test).

### B. The Runs Test for the ISX60 Market Index

Depending on the results shown by the Runs test and in the table (2), we note that the statistical Runs test was greater than the tabular value of  $1.96 \pm$ , as this demonstrates that the actual number of occurrences less than the expected number of them, and as the value of the p-value that is equal to .000 smaller than the moral 5% level and therefore reject the null hypothesis hypothesis of independence between the market index returns ISX60, and accept the alternative hypothesis there is independence between the returns of the index ISX60 market, and through the test results of duplicates it supports serial link test results, and therefore, the ISX60 market index returns do not move And prices and prices can be predicted Of achieving returns it is unusual by some investors, and accordingly, the Iraq Stock Exchange does not follow random walking and thus be inefficient when the weak efficiency level, thus rejected the null hypothesis and accept the alternative hypothesis for the study of the theory (the market index does not follow ISX60 in Iraq market Securities hypothesis of random walking according to the Runs test).

Table (3)

p-value	Runs test	
0.000	-6.9979	The general index of the ISX60 market

Source of the researchers preparation

Results of the frequency test for the daily returns of the ISX60 market index in the Iraqi Stock Exchange for the sample of the study

### C. The Variance Ratio Test for the ISX60 market index:

Table (4) shows the test result and analysis of the ISX60 general index. The first column represents the test parameter and the second column represents the sum of the weighted self-correlation to the optimum grade of +1. The optimum grades are those that are tested through the R program used for the test, We can say that the test parameter lies outside the previously mentioned table 1.96, thus rejecting the null hypothesis and accepting the alternative hypothesis at a significant level of 5%, which states that the ISX60 market index does not follow the random walking hypothesis according to variance test ratio test), and that the results of this brother Bar supports serial test results and duplicates, and therefore, the Iraqi market for securities to be inefficient within the weak level of efficiency, and can therefore be some investors to achieve returns is unusual.

Table (4).

Total weighted self-correlation to + 1	Test parameter
1.36718	3.27955

Source of the researchers preparation

Variance ratio test results for the daily returns of the ISX60 market index in the Iraqi Stock Exchange for the sample of the study

**D. The Rescaled Range Test for the ISX60 Market Index:**

Table (5) shows the results of the test for the variable range and is illustrated by the calculated value of H and the comparison with the table values at the level of 5% is 1.747. Since the calculated value is greater than the numerical value, we reject the null hypothesis and accept the alternative hypothesis ISX60 in the Iraqi Stock Exchange the random walking test according to the modified range test. Therefore, the results of this test support the results of the correlation test, the repeatability test and the test of the contrast ratio. Thus, the ISX60 index does not follow the random walking, Financial inefficient the weak level and the possibility of achieving extraordinary returns by some investors.

Table (5).

H	ISX60 Stock Market
2.24843	

Source of the researchers preparation

Rescaled Range Test results for the daily returns of the ISX60 market index in the Iraqi Stock Exchange for the sample

**TheFourth topic:**

**Conclusions:**

1-According to the concept of efficiency, stock prices must respond quickly to new information provide the market that will change the view of the dealers of the stock-issuing company, and the information must come independently to the market, it is expected that the movement of prices random in the market efficient, Among market participants to obtain information, none of them will be able to take the lead in obtaining information and analysis and thus not be able to achieve extraordinary returns at the expense of others.

2-Using the Serial Correlation Test, there is a correlation between ISX60 returns on the Iraqi Stock Exchange and thus does not follow random walking. Thus, the Iraqi Stock Exchange is inefficient the weak level of efficiency. There is the possibility of achieving extraordinary returns By some investors.

3-By using the Runs test, returns from the ISX60 market index in the Iraqi market for securities are not independent of one another. Thus, they do not follow random walking. Thus, the Iraqi market for securities is inefficient the weak level of efficiency. Standard by some investors.

4-Using the Variance Ratio test, the test parameter is outside the tabular value  $\pm 1.96$ , so that the returns of the ISX60 index in the Iraqi market for securities do not follow the random walking and thus the Iraqi market for securities is inefficient within the weak level of efficiency, Unusual returns by some investors, under this test.

5-By using theRescaledrange test (through the calculated value of H) and by comparison with the table values at a significant level of 5% is 1.747. Since the calculated value is greater than the tabular value, the returns of the ISX60 index in the Iraqi market for securities do not follow the walking The Iraqi market for securities is not efficient the weak level of efficiency, and there is the possibility of achieving extraordinary returns by some investors.

**Recommendations:**

1-The necessity of working supervisors in the Iraqi market for securities to activate all the ways that will work to communication information to all investors and thus raise the efficiency of the Iraqi market for securities in order to avoid the possibility of achieving unusual returns by some investors.

2-To create an economic and investment climate by easing legislative restrictions, opening the way for investors, diversifying the investment climate and attracting difficulties, in a manner that achieves the market for efficiency and contributes to the efficient allocation of community resources.

3-It is possible that the companies listed on the Iraqi Stock Exchange will be required to issue quarterly or semi-annual budgets, in addition to the annual budgets, which will have an important role in this field. On the conditions of companies, thus make stock prices reflect the reality of these companies.

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