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ANALYSIS OF THE EFFICIENCY OF THE IRAQI FINANCIAL MARKET: AN ECONOMETRIC STUDY OF WEAK-FORM EFFICIENCY FOR THE PERIOD (2015–2024)

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Abstract
In the current study, we seek to test whether the Iraqi financial market operates efficiently at a level of weak-form. We do this by analyzing the volatility of the ISX Main 60 index for the 2015-2024 span. The study utilised a panel methodology that included the Augmented Dickey-Fuller (henceforth ADF). This is to gauge how stationary or otherwise the time series is in addition to also employing tests to detect patterns and assess unpredictability. Findings from our study revealed that the daily returns series is stationary but also confirmed the presence of marked autocorrelation and a clear deviation from randomness. This tells us that returns can be partially predicted. In conclusion, the study found that the Iraqi financial market fails to display weak-form efficiency, and this means that it is feasible to achieve abnormal returns using strategies based on technical analysis and historical information. Important recommendations were also provided for investors and policymakers in order help develop Iraq's capital markets.

Keywords: Market Efficiency Hypothesis, Returns, Iraqi Financial Market, Time Series, Forecasting.

Introduction

The important role of the Efficient Market Hypothesis (henceforth EMH) within conventional financial theory cannot be denied as most of its assumptions are attributed to it. The theory has gained such wide popularity that in 1978, a researcher from the University of Chicago, Michael Jensen, stated that one cannot find economic assumption supported by stronger scientific evidence than the hypothesis under discussion (Jensen, 1978).

The notion itself emerged alongside financial markets, but it did not reach academic maturity until the 1980s. This was mainly through the work of Eugen Fama. The hypothesis was initially crafted by G. Gibson in 1889, when he published a book titled "The Stock Markets of London, Paris and New York," in which he clearly covered ground on market efficiency and considered stock prices to reflect the best available information about them (De Moor etal., 2013). Moreover, the Frenchman L. Bachelier, who wrote "Speculation Theory" in 1900, is regarded an early pioneer of this theoretical premise, as he concluded that the

mathematical expectations of a speculator in the financial market are zero (Sewell, 2011). This theory continued to develop until Eugen Fama came along, who was able to come up with a clear definition of the efficient market for the first time in 1965. The EMH took centre stage in research for more than thirty years, and this theory, Maheran (2009) asserts, is based on three main principles:

The first: Investors are rational, and securities are evaluated in a rational manner.

The second: It revolves around the premise that assumes complete assimilation of all pertinent data by market participants before executing any financial determinations.

The third: Decision-makers always seek personal benefit.

Research Importance:

The research empirically assess EMH in the Iraq Stock Exchange (henceforth ISX), being one with visible challenges in the field in the Middle East. Markets in post-conflict economies are relatively uncharted territory in the financial literature compared to other emerging markets. This testifies to the valuable addition the current study intends to contribute to academic knowledge.

In addition, a span of nine years ,(namely 2015 – 2024) which witnessed significant events that deeply affected the Iraqi economy, such as the war on terrorism, fluctuations in oil prices, the COVID-19 pandemic, and political and social unrest. Therefore, analyzing market efficiency during this turbulent period can yield unique insights into how financial market can stand the test of time as well as whether it can cushion non-economic external shocks.

Research Objectives:

The current study takes as its core evaluate how efficiently the Iraq Stock Market operates in its weak form for the period (2015- 2024). This involves evaluating whether stock prices can show all historical data in hand, and thus determining the possibility of using it to forecast future prices and gain abnormal profits.

Research Problem:

Although the gradual growth of the Iraq Stock Market since its re-establishment, it is still, one has to admit, viewed as a shallow emerging market characterized by instability. The main problem addressed by this study lies in the ambiguity and uncertainty as regards how much information the market reflects, particularly at the level based on past price movements, particularly during the period (2015-2024).

Research Methodology

A descriptive-analytical approach was used and in this we applied a quantitative analytical element and time series analysis for market index data.

The study looked at all the companies trading on ISX from the first day of 2015 until the last day of 2024. As a sample for this study, we chose the ISX60 index on the grounds that it is the official and standard market index. It represents the performance of the sixty most liquid and capitalized companies in the market. Therefore, it is the most attractive for investment and most representative of overall market behavior. Historical data were

collected on a daily basis from reports and data published on the (ISX) webpage and global financial data platforms.

Python programming language was used to conduct the following analyses: Descriptive Statistics, the ADF and Run tests.

Research Hypotheses:

H_0: It is hypothesised that if the ISX index displays day-to-day returns that do not follow a steady pattern, then we can view the market as reacting properly to historical price data.

H_1: It is hypothesised that if the ISX index displays day-to-day returns that move in a steady and predictable fashion, we can then view the market as conducive to its past trading information.

Theoretical Framework

Efficient Market Theory

This proposes that market security prices comprehensively incorporate all information currently at our disposal (Seth & Chowdary, 2017). We might note here, too, that it dismisses the possibility that trading systems in financial markets could depend only on the information available now to achieve returns better than what we would typically expect under normal market conditions. In other words, making unusual profits in the future (Fama, 1970). This means that the average investor cannot hope to beat the market in a consistent fashion and any efforts exerted to collect and analyze such information in order to achieve extra profits are wasted efforts. According to the Efficient Market Theory, no one knows more than the market.

This theory takes as its core the rationality of investors, who work to maximize expected utility accurately and always price financial assets rationally based on information available to everyone. As long as this is the case, stock prices take different directions over time, and changes in prices cannot be predicted since they occur as a result of new and unexpected information. Let us consider, moreover, that the principle which says prices show all available information, as brought by the efficient market theory, makes it impossible for investors to get any extra profit or beat the market without taking more risk, as per Hede (2012).

In a market that works efficiently, an asset's price can be taken as matching the value that investors sensibly would anticipate it to have. To illustrate this in an example, if we consider the present value of stock prices, the stock price matches the present value of expected future dividends and may be represented straightforwardly by the following equation:

$$P_t = \sum_{i=1}^{\infty} \frac{E_t(d_{t+i})}{(1+\delta)^i}$$

In this context:

Pt represents the present price of the stock at time t.

Et(dt+i) denotes the expected future cash flows at time t+i, based on the information accessible on the day.

δ this refers to discount factor, accounting for the stock's risk.

One can see clearly that the theory of financial market efficiency had a very successful start for many years after it first appeared. We can note that researchers gave many good theoretical reasons to support it. What is more, many studies and results came out, and almost all of these appeared to back the theory up. So, it is not a surprise that the whole field of financial research, and especially the area dealing with the stock market, decided to build much of its work on this theory and its practical uses, according to Shleifer (2000). A set of important concepts have been associated with this theory, most notably the notion of market efficiency and investor rationality.

Market Efficiency: An Overview of the notion

We can start with the idea from Fama in 1965. Fama said that an efficient market is a place with many logical people who are all trying to win and make the most money. In this situation, every single person is trying to forecast the future price of stocks. And they all do this by simply looking at the important information that exists in their hands, which is information that is basically free for everyone to get. In an efficient market, new information affects the true value of stocks and is reflected (immediately) in actual prices due to competition. Therefore, a market which incorporates all known information can be termed as efficient. Here are some definitions of an efficient market given by various researchers:

- We can mention here a definition by Jensen (1978) that a market may be considered efficient for a specific set of information. This situation happens when one finds that it is not possible to gain any extra profit by making trades using that same information.
- In a related context, Malkiel (1992) provided a similar definition of an efficient market, considering a capital market to be efficient if it fully and explicitly reflects all available information in stock pricing. It is also so as regards to a specific set of information if stock prices are not affected when this information is disclosed to all market participants, and trading based on this information does not yield any additional returns.
-Another definition of Market efficiency by Al-Hanawi (2000) who sees it as extension of classical economic theory, which holds that no excess profits exist under conditions of competition.
- It is also defined by (Chance, 2001) who sees market efficiency as the characteristic of a market in which the prices of traded financial instruments reflect their true economic value to investors.
- We have another definition by Hindy (2007) who noted that a financial market can be termed efficient when the price of a stock displays all the information we know about it. This is true for all kinds of information. It does not matter if the information comes from financial statements, news reports, past stock prices, studies on how the economy affects the company, or any other information that could affect the stock's value.

From the above, we can come to a consensus that an efficient market is characterized by the following key features:

1. Investors are rational and act and make decisions logically.
2. Investors base their decisions on the principle of utility maximization.
3. All information related to securities and companies is available to everyone without additional costs.
4. Stock prices reflect their true value, so any change in these prices, whether up or down, is the result of unexpected positive or negative information.
5. Any news about a stock appears in its price instantly.

Efficiency in financial markets. An overview of types

1. Operational Efficiency: This refers to the trading system, including transaction completion costs, settlement periods, price limits, and other characteristics of the trading system.
2. Allocative Efficiency: This concerns the optimal allocation of available resources, meaning the extent to which traders direct their financial surpluses towards the best assets.
3. Informational Efficiency: This pertains to the cost, speed, and accuracy of information reaching traders.

Market Efficiency Levels

Fama (1970) identified three forms for the theory. The first is the weak one, and the second is classified as semi-strong, and the last one is strong. These are classified according to what information is reflected in stock prices.

. The following is a brief explanation of each model:

Weak Form:

This model is called the Random Walk. It means that share values display all data coming from the market beforehand, like old prices, trading volume, and other aspects. Because future price changes are random, the past data cannot give correct prediction. So we can infer so clearly here that nobody can use this data to make extra profit, and it is also not possible to beat the market. This model is named weak form, simply because the information in prices is public and easy to get. For this reason, technical analysis cannot help investors to earn profit, since everybody already knows the same information.

Semi-Strong Form

In this model, stock prices show all public information one would expect. This includes old price data and historical records, but also new information. This can be be exemplified by the company annual reports where, each year, it generates financial documents that have detailed account statements, summaries of what the company owns and owes, as well as records of its earnings and expenditures. It can also show us company announcements, and economic indicators such as inflation and unemployment. The model says that stock prices react fast and in a neutral way to new public information. Because of this, it is not feasible to beat the market or get very high returns when the information is already known by everyone and directly reflected in the prices.

Strong Form

In this model, share values can display not only all data made accessible to the public but also internal and private details from the company. So it is a mix of public and private information, and therefore even company management cannot make a profit based on internal information nor benefit from important decisions or private policies to outperform the market. According to this form, it is inconceivable to overcome the neutral market forecast by anyone, which reacts immediately to new information by directly adjusting stock prices. However, it is difficult to believe in this model in practical reality due to the difficulty of obtaining all private information and the impossibility of all market participants accessing it.

Investor Rationality and the Market Efficiency Hypothesis

Investor rationality is seen as one of the main pillars that traditional finance depends on. It is also an important point where traditional finance and behavioral finance do not agree on it. In general, rationality is understood as an ideal way for individuals to make their decisions (Subramaniam & Velnampy, 2017). Simon (1982) defined it as a pattern tailored for achieving specific goals within certain constraints and limitations. As for economic rationality, it is unlimited rationality, which means that goals are clear and well-known, all data can accessed by those with decision-making tasks and reflected in the market neutrally, and options and alternatives present in a consistent fashion (Subramaniam & Velnampy, 2017). A rational decision results from an organized decision-making process aimed at maximizing expected benefits (Robbins & Judge, 2007). During this process, investors evaluate investment alternatives based on expected costs and benefits and then choose the most appropriate alternative that achieves the best trade-off between return and risk (Loewenstein et al., 2001).

Traditional finance theories in general, and the EMH in particular, are based on the idea that investors seek to maximize their benefits by making rational decisions based on the analysis and study of all available options and alternatives using all available information. Statman (1988) suggested that smart investors must look at and think about all information thoroughly in order to do well in investing. On the other hand, March & Simon (1958) considered that investors can think and calculate very well, so they can exploit their mental prowess and look at every possible option and its expected outcomes to maximize expected utility before deciding anything. Furthermore, the Capital Asset Pricing Model (CAPM) assumes in advance that all investors are rational and have access to the same information, and that they analyze information in the same way (Aronson et al., 2003).

According to Fama (1965), under EMH, all investors respond immediately and independently to market data on their own, so consistently earning above-average returns is not conceivable. EMH assumes that investors are fully logical and can themselves calculate the true value of securities.

Table (1): Related Previous Studies

Researchers	Year	Study Title	Methodology	Key Findings
Smith & Johnson	2023	Emerging Market Efficiency in the Middle East: A Comparative Analysis	Randomness and Autocorrelation Tests	6 out of 7 markets are inefficient at the weak form level
Al-Hassani & Rahman	2022	Efficiency of the Iraqi Financial Market: Post-Conflict Analysis	ADF, Conditional Variance Test	Gradual improvement in efficiency, but still below weak form level
Abdullah et al.	2023	Impact of Economic Reforms on Arab Market Efficiency	Regression and Time Series Analysis	Positive correlation between financial reforms and market efficiency
Chen & Ibrahim	2022	Comparative Market Efficiency: MENA vs. Asian Emerging Markets	GARCH Model, Randomness Tests	Arab markets are less efficient than Asian emerging markets
Omar & Fatima	2023	Impact of FinTech on Iraqi Market Efficiency	Benchmark Analysis and Field Survey	Digital transformation improves market efficiency, but slowly
World Bank Group	2023	Financial Market Development in Fragile Economies Report	Institutional and Legal Analysis	Weak governance is a major barrier to market efficiency
Al-Mohammed & Singh	2022	Impact of Oil Prices on Oil Market Efficiency	Cointegration Analysis and VAR Models	Strong correlation between oil volatility and lower market efficiency
IMF	2023	Regional Report for the Middle East and Central Asia	Market Efficiency and Financial Development Indicators	Noticeable improvement in market efficiency, still below the global average

From Table (1) above, we observe the consistency of the results, asMost recent studies agree that Arab markets in general are still inefficient at a weak level.

Weak-form Test of the Iraqi Financial Market Efficiency

Spatial and Temporal Boundaries of the Study

The ISX is considered an emerging market, established in 2004 as a successor to the Baghdad Stock Exchange in order to support the national economy by providing opportunities to mobilize local savings, attract investments, and stimulate the primary market where new joint-stock companies are established and their capital is increased to drive economic development and raise the standard of living for all segments of society. The market is divided into: the regulated market and the second market. It includes securities of several companies and institutions distributed as follows:

1. The number of companies listed on the regulated trading platforms, the second market, and the unannounced companies reached 104 companies.
2. The number of companies registered on the unlisted companies platform (ISX-OTC) reached 8 companies.

By 2024, it was estimated that there were 112 companies trading on the ISX, which constitute the study population.

Spatial and Temporal limitations

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2. The number of companies registered on the unlisted companies platform (ISX-OTC) reached 8 companies.

As noted earlier, in 2024, we can recall that there were 112 companies trading on the ISX, which constitute the study population.

The study period extends from 1/1/2015 to 31/12/2023, and the study included all companies listed on the ISX. The ISX60 index was selected as the sample for the study, as it is the official and standard index of the market, representing the performance of the sixty most liquid and capitalized companies in the market.

We sourced the data from the ISX portal which includes daily market index data as well as: daily closing price, market capitalization, and daily trading volume for all the stocks under study during the study period.

Test of Efficiency in the ISX

Our research falls within traditional finance studies based on financial market efficiency. Therefore, this study first starts by checking if the ISX is weak-form efficient before exploring other levels. According to the financial market efficiency theory, current prices are not related to previous prices, and thus studying historical stock prices to predict their future prices is a futile process (Maital, Filer, & Simon, 1986). Fama (1965) demonstrated that stock movements are random. In this type of efficiency, we may find that today's share values include everything from earlier trades, so one cannot predict what will happen next using historical data (Fama, 1990).

There are a number of endeavours looked at this aspect (e.g. Dezelan, 2000), (Cheung & Coutts, 2001), (Buguk & Brorsen, 2003), (Appiah-Kusi & Menyah, 2003). Most of these studies relied on testing the unpredictable path of market prices using various statistical methods. In this study, we will first calculate the day-by-day movements of the index and then examine their statistical properties before starting the market efficiency test as follows: Calculating the day-by-day movements of ISX index using the equation (Tsay, 2011):

$$\mathbf{Rt = ((P(t+1)-Pt)) /Pt}$$

In this equation:

Rt = Daily Return of the Index

Pt = Price in time period t

Pt+1 = Price in time period t+1

Figure (2) below is a chart of the index's returns.

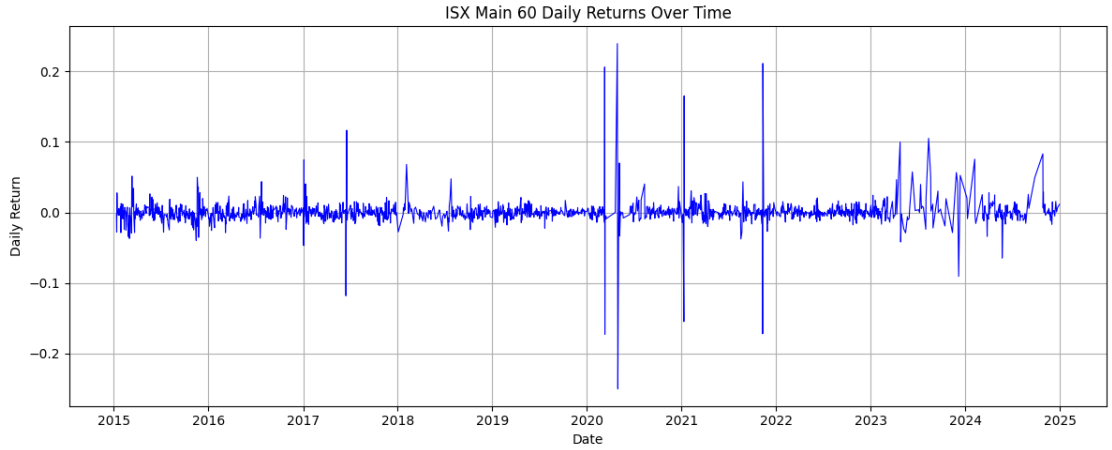


Figure (1): Market Index Returns Graph

Source: Outputs of Python

Studying how the index returns behave and change over time:

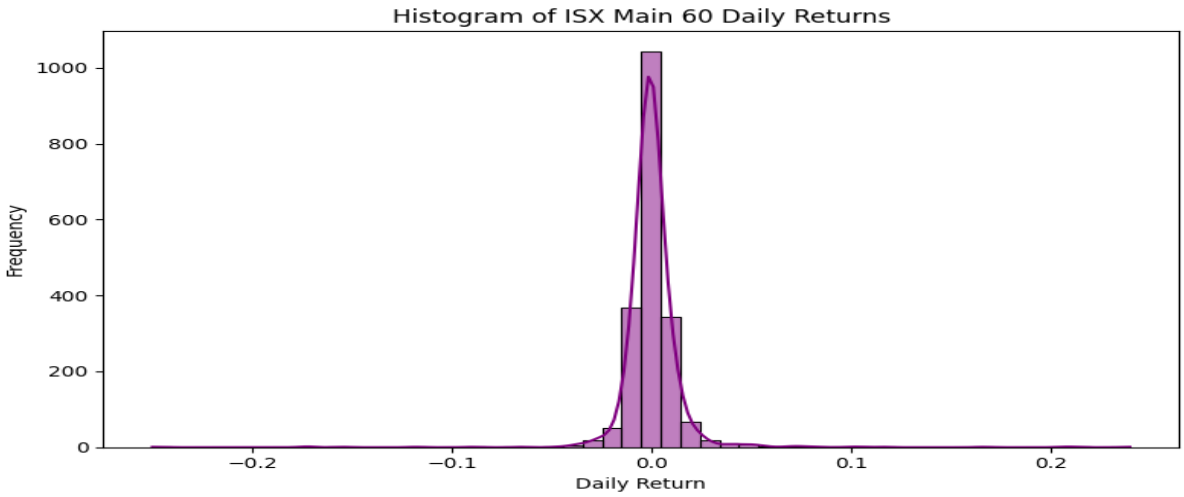
Table (2) below summarises the key numbers taken out of the index's day-by-day performance. How far the typical value is from the middle value shows whether the returns are unevenly spread. It is also evident that the skewness value reached 1.09, which is greater than zero (the standard skewness value for a normal distribution). This tells us that the frequency distribution of the series is right-skewed and uneven around the mean. The kurtosis coefficient reached 82.37, which is greater than 3 (the standard kurtosis value for a normal distribution), meaning that the distribution is highly peaked compared to the normal level. This leads us to the initial conclusion that the return series suffers from heteroscedasticity over time. This actually tells us that the fluctuations of the return series do not stay constant near the central value, in addition to the presence of volatility clustering at different periods of the time series, as can be seen in Figure (2) below, which shows the graphical representation of the return series. This tells us the return data do not behave in the way a normal distribution would expect it to be.

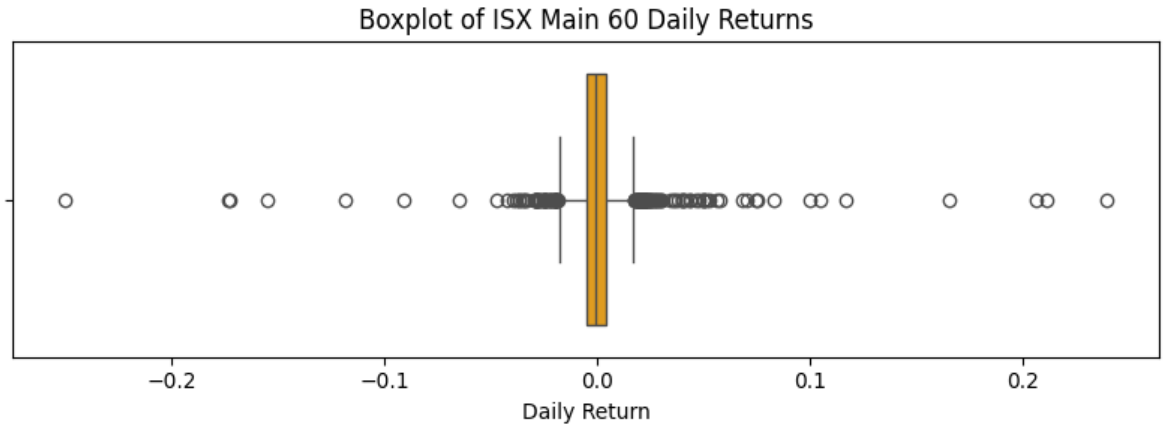
Table (2): Statistical characteristics of the daily return series of the market index

Descriptive Statistics	
MEAN	0.000165
STD	0.017347
Minimum	-0.250100
Maximum	0.239500
SKEWNESS	1.09
KURTOSIS	82.37

Source: Prepared by the researcher based on the outputs of Python

Figure (2): Distribution of returns of the market index





Source: Outputs of Python

1. The ADF Test

Dickey & Fuller (1979, 1981) developed a statistical test to detect the trend coefficient of a time series. Under its baseline assumption, the model is treated as having a persistent stochastic trend, which indicates a case of non-stationarity. The alternative hypothesis states that there is no unit root and that the series is stationary.

Table (3): Results of the ADF test

Scale	**Value**	**Statistical Significance**
Test Statistic	212.3943	Very high value
P-Value	0.0000	Less than 0.01
Conclusion	There is a self-relationship	Null hypothesis of randomness rejected

Source: Prepared by the researcher based on the outputs by Python

1. T

esting the autocorrelation of the index's return series:

This test is useful in detecting the extent to which returns are autocorrelated over time. When a random process results in data, the current observation can sometimes be related to earlier ones. These earlier moments in time are known as lags, and this link is called autocorrelation. This can be shown according to the following model:

Yt= a + b1Yt-1 + b2Yt-2 + …….bnYt-n

where:

Yt = Study variable

b = Autocorrelation coefficients

n = number of slowdown periods

Autocorrelation is tested using the Ljung-Box Q-Statistics (shown in Table 3 below), which allows us to accept or reject the above-mentioned null hypothesis H0. If the probability of the Q statistic is <0.01, this leads us to reject the this hypothesis (Ananzeh, 2016).

Table (3): Results of Ljung-Box test

Scale	Value	Statistical Significance
Test Statistic	212.3943	Very high value
P-Value	0.0000	Less than 0.01
Conclusion	There is a self-relationship	Null hypothesis of randomness rejected

Source: Prepared by the researcher based on the outputs of Python

To test for autocorrelation using a correlogram, we select 10 lag periods and as can be seen in Table (4) below, which shows that the probability of the autocorrelation coefficients being zero (or the probability of no autocorrelation in the return series being equal to zero) at all lag periods. From this, we can say that the return series contains autocorrelated movements. This tells us that daily returns are related to each other. This also tells us that it goes against Fama's view of how efficient markets behave and also goes against the random-walk idea, showing that the ISX does not meet the basic efficiency standard.

Table (4): The autocorrelation of index returns

Period	Correlation Coefficient	Interpretation
Period 1	0.4733	Very strong connection
Period 2	-0.0009	Very weak
Period 3	-0.0013	Very weak
Period 4	0.0210	Weak
Period 5	0.1319	Medium correlation
Period 6	0.2873	Strong connection
Period 7	0.1721	Medium correlation
Period 8	-0.0043	Very weak
Period 9	-0.0039	Very weak
Period 10	0.0071	Very weak

Source: Prepared by the researcher based on the outputs of Python

(Run test)

This test shown in Table (5) below checks whether the data sequence comes from a real random mechanism or if it is just after some other pattern.

Table (5): Results of (Run Test)

Scale	Value	Statistical Significance
Z-Statistic	-6.1756	High absolute value
P-Value	0.0000	Less than 0.01
Conclusion	The distribution is not random	Null hypothesis of randomness rejected

Source: Prepared by the researcher based on the outputs of Python

Final results (Table 6 below)

Table (6):Final assessment of market efficiency

Test	Result
The (ADF) Test	Inefficient
Autocorrelation (Ljung-Box) Test	Inefficient
Randomness (Run Test)	Inefficient
Overall Conclusion	Prices are not a complete reflection of past information

Source: Prepared by the researcher

Results and recommendations:

Results:

What we found here is that the Iraqi market is not weak-form efficient, which rides roughshod over the idea in traditional finance that investors are always rational. Results show that the ISX departs from historical information efficiency. Indeed, the statistical analysis we conducted has shown a statistically significant autocorrelation in the return series, and the Run Test showed a clear deviation from the non-predictability model. In addition, the ADF test indicated the stability of the return time series, suggesting the possibility of predicting returns based on historical information. Together, these results support the presumption of inefficiency we put forward and which is based on past prices in the Iraqi market, opening the door to the potential for achieving abnormal returns using trading strategies based on technical analysis and prediction based on historical data.

Key recommendations:

-The results help investors understand the nature and mechanism of the market. An inefficient market indicates the possibility of achieving abnormal returns through analyzing historical trends (technical analysis) or active strategies, taking into account the high risks associated with that.

- For regulatory bodies and policymakers, the results highlight structural weaknesses in the market (such as lack of transparency, low liquidity, and dominance of non-economic factors). This provides concerned stakeholders (such as the Iraq Securities Commission) with data-driven evidence to guide reform efforts and set appropriate policies for decision-making aimed at enhancing market efficiency and stability.

References

1. Abdullah, A., Rahman, K., & Hussein, S. (2023). The impact of economic reforms on the efficiency of Arab stock markets. Journal of Emerging Market Finance, 22(2), 145–167.
2. Abraham, A., Seyyed, F. J., & Alsakran, S. A. (2002). Testing the random walk behavior and efficiency of the Gulf stock markets. The Financial Review, 37(3), 469–480.
3. Al-Hanawi, M. S. (2000). Analysis and evaluation of stocks and bonds. Alexandria: Al-Dar Al-Jamiaa.
4. Al-Hassani, F., & Rahman, A. (2022). Efficiency of the Iraqi stock market: A post-conflict analysis. International Journal of Financial Studies, 10(3), 45–62.
5. Al-Khazali, O., Ding, D., & Pyun, C. S. (2007). A new variance ratio test of random walk in emerging markets. Financial Review, 42(2), 303–317.
6. Al-Mohammed, T., & Singh, D. (2022). Oil price shocks and market efficiency in petroleum-exporting countries. Energy Economics, 108, 105891.
7. Aronson, J. A., Rilling, J. K., Nystrom, L. E., & Cohen, J. D. (2003). The neural basis of economic decision-making in the ultimatum game. Science, 300(5626), 1755–1758.
8. Babajide, A. A., & Adetiloye, K. A. (2012). Investors' behavioural biases and the security market: An empirical study of the Nigerian security market. Accounting and Finance Research, 1(1), 219–229.
9. Borges, M. R. (2010). Efficient market hypothesis in European stock markets. The European Journal of Finance, 16(7), 711–726.
10. Chance, D. M. (2001). Introduction to derivatives and risk management (5th ed.). Harcourt College Publishers.
11. Chen, L., & Ibrahim, M. (2022). Comparative market efficiency: MENA vs. Asian emerging markets. Emerging Markets Review, 51, 100876.
12. De Moor, L., Van Den Bossche, F., & Verheyden, T. (2013). A tale of market efficiency. HUB Research Paper Series, 5.
13. Elango, R., & Hussein, M. I. (2008). An empirical analysis on the weak-form efficiency of the GCC markets. International Business & Economics Research Journal, 7(11), 15–24.
14. Fama, E. F. (1965). The behavior of stock market prices. The Journal of Business, 38, 34–105.
15. Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance, 25(2), 383–417.
16. Fama, E. F. (1991). Efficient capital markets II. Journal of Finance, 46, 1575–617.
17. Hindy, M. I. (2007). Securities and capital markets. Alexandria: Al-Maaref Establishment.
18. International Monetary Fund (IMF). (2023). Regional economic outlook: Middle East and Central Asia. Washington, DC: IMF Publications.
19. Jensen, M. (1978). Some anomalous evidence regarding market efficiency. Journal of Financial Economics, 6, 95.
20. LeRoy, S., & Porter, R. (1981). The present-value relation: Tests based on implied variance bounds. Econometrica, 49(3), 555–574.

21. Letkiewicz, J. C., & Fox, J. J. (2014). Conscientiousness, financial literacy, and asset accumulation of young adults. Journal of Consumer Affairs, 48(2), 274–300.
22. Lim, K. P., & Brooks, R. D. (2011). The evolution of stock market efficiency over time: A survey of the empirical literature. Journal of Economic Surveys, 25(1), 69–108.
23. Lo, A. W. (2007). Efficient markets hypothesis. In The New Palgrave Dictionary of Economics (2nd ed.). Palgrave Macmillan.
24. Loewenstein, G. F., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk & feelings. Psychological Bulletin, 127(2), 267.
25. Maheran, N. (2009). Behavioral finance vs traditional finance. Advance Management Journal, 2(6), 2.
26. Omar, S., & Fatima, A. (2023). The impact of fintech on the efficiency of the Iraqi stock market. Journal of Financial Technology, 15(1), 78–95.
27. Robbins, S. P., & Judge, T. A. (2007). Organizational behavior (12th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
28. Seth, R., & Chowdary, B. (2017). Behavioural finance: A re-examination of prospect theory. Theoretical Economics Letters, 7, 1135.
29. Sewell, M. (2011). History of the efficient market hypothesis. UCL Department of Computer Science, RN/11/04.
30. Shleifer, A. (2000). Inefficient markets: An introduction to behavioral finance. Oxford University Press.
31. Smith, J., & Johnson, P. (2023). Efficiency of emerging markets in the Middle East: A comparative analysis. Journal of International Financial Markets, 31(4), 210–228.
32. Statman, M. (1988). Investor psychology and market inefficiencies. ICFA Continuing Education Series, 1988(2), 29–35.
33. Statman, M. (1999). Behavioral finance: Past battles and future engagements. Financial Analysts Journal, 55(6), 18–27.
34. Subramaniam, V. A., & Velnampy, T. (2017). Rationality: A central point between traditional finance and behavioural finance. International Journal of Research – Granthaalayah, 5(6), 391.
35. World Bank Group. (2023). Financial market development in fragile economies: A comprehensive report. World Bank Publications.