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Research Article

Measuring The Impact Of Financial Indicators On The Stock Prices Of Iraqi Private Banks, Based On The Efficient Market Theory

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ABSTRACT

Financial markets are considered an important destination for investors who aim to allocate available economic resources efficiently. Therefore, this research seeks to measure the impact of financial indicators on the stock prices of private banks, in order to assess the efficiency of the Iraq Stock Exchange. The study uses static panel data analysis for the period from 2017 to 2023, focusing on the key influencing factors. The sample includes 16 private banks, excluding some that had financial irregularities. Three econometric models were used: the pooled regression model, the fixed effects model, and the random effects model. The statistical analysis showed that the fixed effects model is the most suitable, based on the LM and Hausman tests. The economic and econometric analysis indicated a positive relationship between the stock prices of Iraqi banks and financial indicators. However, this relationship suffers from certain statistical issues, suggesting the presence of a "spurious regression" problem. This may imply that the Iraq Stock Exchange is not efficient for several economic and technical reasons. The research recommends continuing efforts in econometric studies, especially using both static and dynamic panel data models, to uncover more accurate economic relationships.

Keywords: Panel Data Model, Efficient Market Hypothesis, Market Value.

INTRODUCTION

The developments in economic fields and the increasing financial needs have made it essential to engage with financial systems, which have received great attention at all levels due to their significant role in achieving optimal economic growth. Financial markets are among the active parties and key components in economic activity based on the law of supply and demand at all levels. Financial markets play a fundamental role in achieving economic growth, as the performance of these markets reflects the global economic performance in general and the national economy in particular. They serve as mechanisms for transferring financial resources from savers to investors, which leads to increased rates of economic growth. They also act as mirrors that reflect the state of the national economy that is, the state and development of the financial market is tied to economic, industrial, and financial development in most countries, especially developed ones. A system capable of efficiently mobilizing financial resources is one of the essential requirements to achieve sustainable growth rates and to direct savings from economic units with a financial surplus to those with a financial deficit and to invest them. The Efficient Market Hypothesis (EMH) has been the subject of many academic and professional studies and research. For multiple reasons, studying the efficiency of financial markets is crucial for both public and private sector investors. Of utmost importance is a comprehensive understanding of the market so that investors can make informed decisions about market efficiency, by determining market value, trading volume, and the traded shares reported in the Iraq Stock Exchange (ISX) reports. Most of the literature confirms the importance of market efficiency in making financial decisions, yet empirical evidence reveals deviations from the Efficient Market Hypothesis due to the challenges and complexities modern financial markets face, especially with reliance on technology, which has provided a more accurate understanding of market dynamics and investor behavior. To perform their role, financial markets must be highly efficient. This efficiency is one of the pillars on which the financial market relies, requiring an effective information system to ensure a continuous and low-cost flow of information at all times. Financial markets need a good information system that enables investors to choose the best available alternatives at appropriate prices.

Research Problem

The importance of financial markets is clear to everyone. However, in developing countries, these markets may suffer from inefficiency, which may also be the case with the Iraq Stock Exchange. Therefore, the study will examine the impact of financial indicators on the stock prices of Iraqi private banks.

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Research Question: Is the Iraq Stock Exchange an efficient market? And to what extent do financial indicators affect the stock prices of private banks?

Importance of the Research

Markets reflect the overall economic condition of a country. The efficiency of these markets is an indicator of the success of a state's economic policy. Thus, it is necessary to attempt to understand and analyze the relationships between variables through scientific research to study the factors governing their mutual influences. This helps develop Iraq's economy in general and its financial market in particular by contributing to the growth of national savings, directing them to finance economic projects, providing new investment opportunities, and understanding market efficiency and analyzing its financial indicators.

Research Objectives

1. Analyze the indicators of the Iraq Stock Exchange.
2. Clarify the relationship between the Efficient Market Hypothesis and the indicators of the Iraq Stock Exchange.

Research Hypotheses

1. There is a statistically significant relationship between financial indicators and the stock prices of private banks.
2. The Iraq Stock Exchange is an efficient market.

Research Methodology

The researcher relied on a descriptive method to understand and explain the dimensions of the Efficient Market Hypothesis and on econometric analysis to study the changes in the stock prices of Iraqi banks during the period 2017–2023.

Research Limits

Time limits: The study covers the period 2017–2023, for which complete data on the study sample indicators are available.

Place limits: The study is limited to the Iraq Stock Exchange, focusing on 16 private banks.

First Section: Efficient Market Hypothesis and Financial Indicators

1. Overview of the Iraq Stock Exchange

The Iraq Stock Exchange was established in 1991 under Law No. 24, granting it legal personality for financial trading. It is a public benefit institution and officially began trading on March 23, 1992. Laws regulating this market have followed successively, and companies were established gradually until 2004, when it resumed its activity on June 24, 2004, in Baghdad under Law No. 74, which is similar to Law 24 but grants the Exchange financial independence and the right to open branches in different Iraqi cities. Over the years, this market has achieved several milestones, including Iraq's inclusion in 2010 in the database issued by the International Monetary Fund on Arab financial markets. The Exchange continues to keep pace with all developments and changes in a way that serves the overall economy, banks, and companies. Its goals include:

1. Organizing and training members and listed companies in ways that align with investors' goals.
2. Enhancing investor confidence by maintaining competitiveness, transparency, and safety.
3. Developing the Iraqi capital market to serve the national economy.
4. Helping companies build capital needed for investment.
5. Connecting with Arab and global stock exchanges to improve the Iraqi market (Al-Muhammadi & Ayed, 2023, pp. 233–234).

2. Concept of Financial Markets

The financial system is a key component of the economy, consisting of many elements, especially markets and financial institutions. The financial market is an inseparable part of the dynamic, open, and efficient financial system. Markets are venues where financial instruments are bought and sold. They serve as the central nervous system of the economy, where information flows and is quickly reacted to, resources are allocated, and prices are set. This enables banks, private companies, and investors to obtain the funding they need for their commercial, industrial, and service activities (Al-Hadid & Marhej, 2021, p. 15). Hamza & Abdul-Hamid (2021, p. 259) define the financial market as a technical, organizational, and legal framework under which financial surplus is mobilized and redistributed across different economic sectors to generate higher returns, while also meeting the funding needs of enterprises and providing liquidity. When shares are publicly traded, the market value they acquire can be considered the best estimate of the available information (Sewell, 2011, p. 2). In other words, financial markets are venues for trading various financial assets, directing

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savings to investment, and encompassing all entities, institutions, and financial channels through which funds flow to all economic sectors (Yaseen & Moayyad, 2017, p. 361).

3. Nature of the Iraq Stock Exchange

The ISX has economic, financial, and administrative independence and is managed by a Board of Governors composed of nine members representing various economic sectors of the investment sector. It deals in securities (buying and selling) and serves as a key channel through which funds flow between investors whether individuals or institutions especially private banks, in different economic sectors. This means that savings are directed to different investment areas, enhancing economic development. Its objectives include (Yaseen & Moayyad, 2017, p. 362):

1. Upholding recognized standards for banks and companies to align with investor goals.
2. Achieving investor interests and creating an investment environment conducive to market efficiency.
3. Facilitating efficient and organized trading of stocks and bonds and settling transactions.
4. Assisting institutions in raising capital for banks and commercial companies.
5. Publishing and analyzing financial statistics monthly or annually to provide clear information about the market.

4. Efficient Market Hypothesis (EMH)

A theory is a set of concepts, definitions, and assumptions that explain a term's meaning. Through logical deduction, economic behavior can be predicted. To test a theory's validity, it's important to distinguish between descriptive judgments (what will be) and normative judgments (what should be) (Al-Hasnawi, 2015, p. 16). With economic development, it's become necessary to consider variable magnitudes and their impact on financial markets. Markets are often classified based on competition patterns to determine the efficiency level in resource allocation. The EMH assumes that all assets in a financial market reflect all publicly available information and that any new information is instantly incorporated into asset prices. That is, prices reflect the true value of financial assets, assuming information transparency. Market efficiency is related to investor decisions based on available information. It implies that stock and asset prices fully reflect all available data. Thus, investors cannot consistently predict market changes or outperform it. Some studies highlight inefficiencies and deviations from the ideal concept of a fully efficient market, including expected returns, market values, and trading volumes, which show that some stocks continually outperform or underperform compared to market expectations (Muslim & Puspitasari, 2024, p. 51). Sewell (2011, p. 7) states that a market can only be efficient if there's high transparency and price reflects real-time information and interrelated changes. However, in reality, even efficient markets may sometimes be inefficient. Al-Sarraj (2015, p. 44) notes that in developing countries, most information reaches markets randomly, making economic predictions difficult. Economists agree that there is a strong relationship between information availability and price changes caused by economic and non-economic factors. Stock and asset prices and all related information should always be publicly available, creating a suitable investment environment (Habib & Sabeih, 2014, p. 6). Modern market efficiency depends on many factors, including investor trust in disclosed information. Prices reflect the behavior of market participants and lead to fair value estimation. With globalization and the rise of electronic financial markets, capital flows more freely, enhancing market efficiency through faster transactions and better data transparency. Price volatility is often an implicit measure of uncertainty regarding expected returns, and since it changes over time, models have been developed to better understand market behavior and predict price changes (Naas, 2020, p. 18). Samia (2012, p. 35) highlights several internal and external factors that may challenge EMH, such as:

1. Inefficiency due to obstacles that negatively impact investors.
2. Too much information can confuse individuals and affect decision-making.
3. International and regional pressures may influence economic policies.
4. Slow administrative, financial, and monetary responses can hinder achieving economic balance.

5. Types of Market Efficiency

1. All public and private information is instantly reflected in securities prices, leaving no room for excess returns. Requires no transaction costs, many rational participants, and tax-free trading (Al-Jaafari & Al-Battat, 2020, p. 215).
2. Market prices reflect all publicly available information. Technical or fundamental analysis provides no advantage, and information is instantly priced in (Al-Amiri, 2010, p. 43; Degutis & Novickytė, 2014).
3. Prices only reflect past trading data like previous prices and volumes. In such markets, it's impossible to consistently earn above-average returns through technical analysis (Al-Ghalibi & Al-Shammari, 2014, p. 6).

6. Financial Indicators of Iraqi Banks

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Financial indicators are tools for measuring market efficiency and reflect the complex economic reality. In other words, they measure price levels in the market (Atiyah, 2018, p. 4). Figure (1) illustrates the relationship between financial indicators and market efficiency. Trading Volume Index: Refers to the value of stocks or bonds traded in the market, equal to the number of shares multiplied by the average price during a specific period (Atiyah, 2018, p. 14). It serves as a measure of market strength higher trading volumes reflect stronger market activity. The banking sector ranked second with 38% of total trading (Zada, 2021, p. 797). EMH emphasizes that trading volume reflects efficiency without administrative or legal restrictions hindering market movement. Market Value Index: Represents the closing price of company shares at the end of the last day, month, or year. It tracks developments in company investment activity and thus the economy. It's volatile and influenced by many factors, mainly financial results and performance indicators (Fattima & Rasheed, 2018, p. 41). Number of Traded Shares: The average number of shares traded during the study period (2017–2023) was 110,665, with the highest in 2022 and 2023. The spot exchange rate between two currencies used in preparing accounting reports at a specific date. It's the last price at which a transaction occurs before the market closes. Sometimes calculated by dividing total trade value by total daily volume.

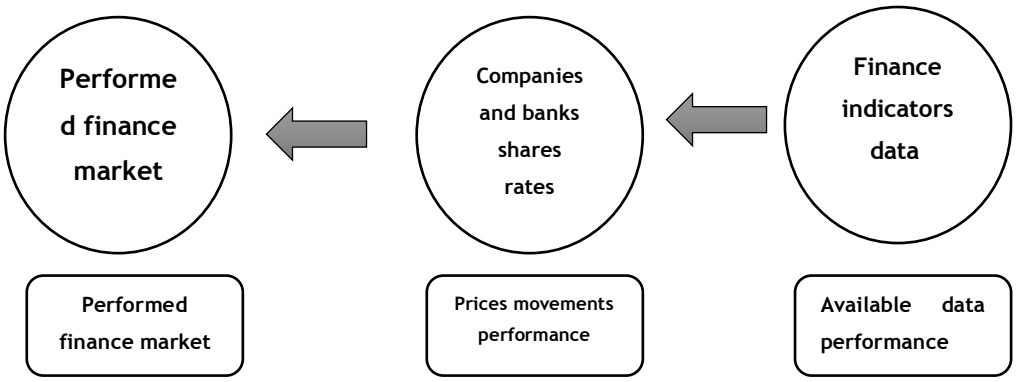

Figure 1: Financial market relationship with Financial indicators.

Theoretical Introduction to Panel Data Regression Models

As is well known, econometrics has received much attention from researchers as quantitative analysis has become an essential tool in understanding and analyzing complex economic relationships. Economists typically base their opinions on a set of hypotheses that help in analyzing and interpreting economic reality and predicting the behavior of economic phenomena. The role of econometrics is to identify economic variables, determine the appropriate econometric model, and then estimate and test the econometric models (Gaballah, 2020: 23). In this section, we will address the concept of panel data models, their various types, and the practical steps to estimate the model using the statistical software EViews 12.

First: Concept of Panel Data and its Types

First, it is necessary to point out that there are two main types of panel models (Dhiaa al-Din & Abdul Hamid, 2023: 35):

1. Static Model: This model uses short-term time periods and does not take into account the time factor (Safaa & Mohammed, 2019: 44).
2. Dynamic Model: This model takes into account the changes over time (Tahtan, 2017: 21). Each model has its own method of analysis and measurement. This study will focus on the first type, as it is important in estimating economic and financial relationships in practical terms (Zakaria, 2017: 67).

Panel data can be defined as a type of data that combines the characteristics of both cross-sectional data and time series data. Cross-sectional data describe the behavior of economic units at a specific point in time, while time series data describe the behavior of a single unit over a relatively long period. This type of data is often referred to as "pooled data," and the different types can be classified as follows (Ben Amra, 2021: 2):

1. Balanced Panel Data: Where the time period is equal for all cross-sectional observations.
2. Unbalanced Panel Data: Where the time periods vary from one observation to another.
3. Long Panel Data: Where the number of cross-sectional units is less than the number of time periods.
4. Short Panel Data: Where the number of cross-sectional units is greater than the number of time periods.

Second: Importance of Estimating Panel Data Models

Panel data provides a suitable framework for developing estimation techniques and obtaining appropriate estimates and results that align with economic reality. This type of estimation has several advantages, the most important of which is that it provides more

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accurate results and information because it combines both time series, which represent the temporal dimension, and different economic units, which represent the cross-sectional dimension. Its importance can be highlighted by the following points (Sahli & Bousaba, 2023: 37):

These models consider the characteristics of the observations, whether they are individuals or institutions, and help in identifying their behavior and economic performance over time. They have the ability to identify certain phenomena and attempt to find appropriate explanations for them, such as economies of scale and technological progress. This model allows studying differences in the behavior of economic units, providing clear translation and additional information about those units, whether they are banks or companies. Therefore, more accurate estimates can be obtained, avoiding the issue of spurious regression. This type of model helps reduce the occurrence of econometric problems such as multicollinearity and heteroscedasticity.

The Panel Data Models = Cross-Sectional Data + Time Series Data, this relationship can be represented by the following equation (Badrawi, 2016: 31):

$$Y_{it}=B_{0i}+\sum^{k}_{j=1} b_j x_{j(it)} + e_{it} \text{ ---------- (1)}$$

Third: Types of Panel Data Models

There are three main types of panel data models (Abdul Razzaq, 2001: 28), Pooled Regression Model (PRM): This is the simplest type of panel model, where all coefficients are fixed across all time periods. The time factor is ignored in this model, and it is represented by the symbol PRM.

- Fixed Effects Model (FEM): This model takes into account the changes in the slope from one economic unit to another within the cross-sectional observations in the sample. It assumes that the parameters change in a fixed manner. This model is thus referred to as the fixed effects model because it represents both the individual and time dimensions. It also helps avoid multicollinearity issues by using dummy variables to identify the cross-sectional units. It is denoted as FEM.
- Random Effects Model (REM): In this model, the constant term changes randomly. The random effect is evident in both the time factor and the cross-sectional units. The Generalized Least Squares (GLS) method is used to estimate the parameters, and it is denoted as REM.

To compare between the three models, we can refer to Figure (2). To select the best econometric model for explaining relationships and understanding the behavior of economic phenomena, the following tests can be used (Dhiaa & Abdul Hamid, 2023: 76):

1. Fisher (F) Test: This test compares the Pooled Regression Model (PRM) with the Fixed Effects Model (FEM). If the F-test value is statistically significant, then the alternative hypothesis, which asserts that the Fixed Effects Model (FEM) is the optimal model, is accepted.
2. Hausman Test: This test compares the Fixed Effects Model (FEM) with the Random Effects Model (REM). If the chi-square test value is statistically significant, the alternative hypothesis, which asserts that the Fixed Effects Model (FEM) is the appropriate model, is accepted.

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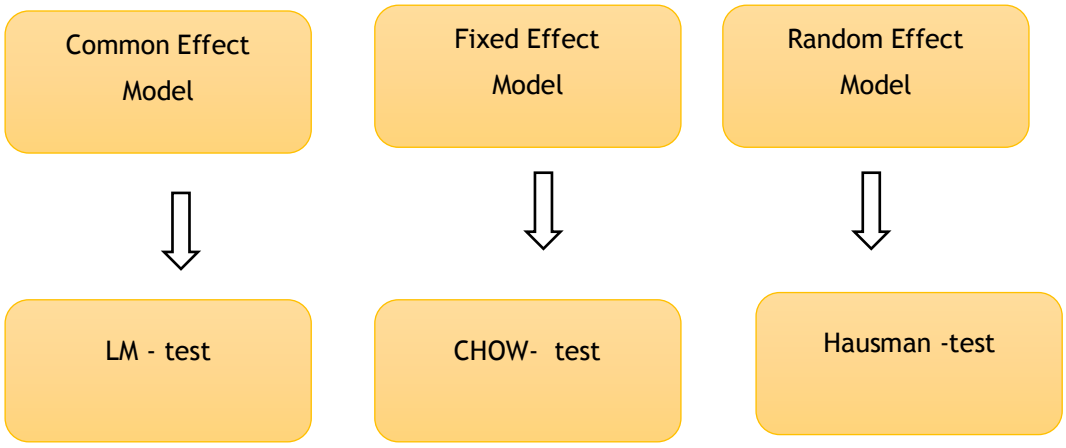

Figure (2): The Relationship Between Panel Data Models and Statistical Tests.

Fifth: Conditions for Using the Panel Data Model (Makhzoumi Zakhiroun, 2020: 49)

including the following

1. It is preferable that the data be balanced, meaning the number of economic units (companies or banks) should have the same number of observations over time.
2. The units under study must be independent of each other, meaning the behavior of an economic unit must be independent of the behavior of other economic units (Ali, 2023: 25).
3. It is preferable to check the basic assumptions and the magnitude of fixed and random effects through the Hausman test and the Lm test before selecting the appropriate model.
4. The accuracy and reliability of the economic data should be verified, as errors in the data will lead to misleading results (Tahtan, 2017: 44).
5. The sample size must be large to ensure the accuracy of statistical and econometric tests (N > 30).
6. The data must combine two dimensions: the cross-sectional dimension, which represents the economic units, and the time series dimension, which represents the time period.

Chapter Three: Estimating the Effect of Financial Indicators on the Stock Prices of Iraqi Private Banks

This chapter will discuss the effect of financial indicators on the stock prices of Iraqi private banks during the period (2017-2023). As mentioned earlier, the study sample operates within the Iraq Stock Exchange, and the static analysis will be used to estimate the parameters of the econometric model according to the panel data model using the statistical software (EViews 12).

First: Study Sample - Private Banks

The study population is represented by the Baghdad Stock Exchange, which includes several companies and private banks. The research sample includes 16 banks listed in the Baghdad Stock Exchange, as shown in the following table (1):

Table (1): Iraqi Private Banks

Bank Name	Year of Establishment	Paid-up Capital
Commercial Bank	1992	250,000,000,000
Bank of Baghdad	1992	250,000,000,000
Iraqi Investment Bank	1993	250,000,000,000
Sumer Bank	1999	250,000,000,000

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Gulf Commercial Bank	2000	300,000,000,000
Ashur International Bank	2005	250,000,000,000
Al-Mansour Bank	2006	250,000,000,000
Iraqi Islamic Bank	1992	250,000,000,000
Middle East Bank	1993	250,000,000,000
Iraqi National Bank	1995	250,000,000,000
Kurdistan Bank	2005	400,000,000,000
United Investment Bank	1994	300,000,000,000
Elaf Bank	2001	250,000,000,000
National Islamic Bank	2005	251,000,000,000
Jihan Bank	2008	255,000,000,000
Across Iraq Bank	2006	264,000,000,000

Second: Describing the Econometric Model

It is well known how important this phase is when preparing the econometric model to obtain the best estimations. This phase involves identifying the economic and financial variables and understanding the nature, type, and strength of the economic relationships. Accordingly, the explanatory variables can be defined as follows: trading volume, denoted as (x1), market value, denoted as (x2), and the number of shares traded, denoted as (x3). The dependent variable (y) represents the stock prices of the Iraqi private banks. We can observe in figure (3) the fluctuations in the studied economic variables.

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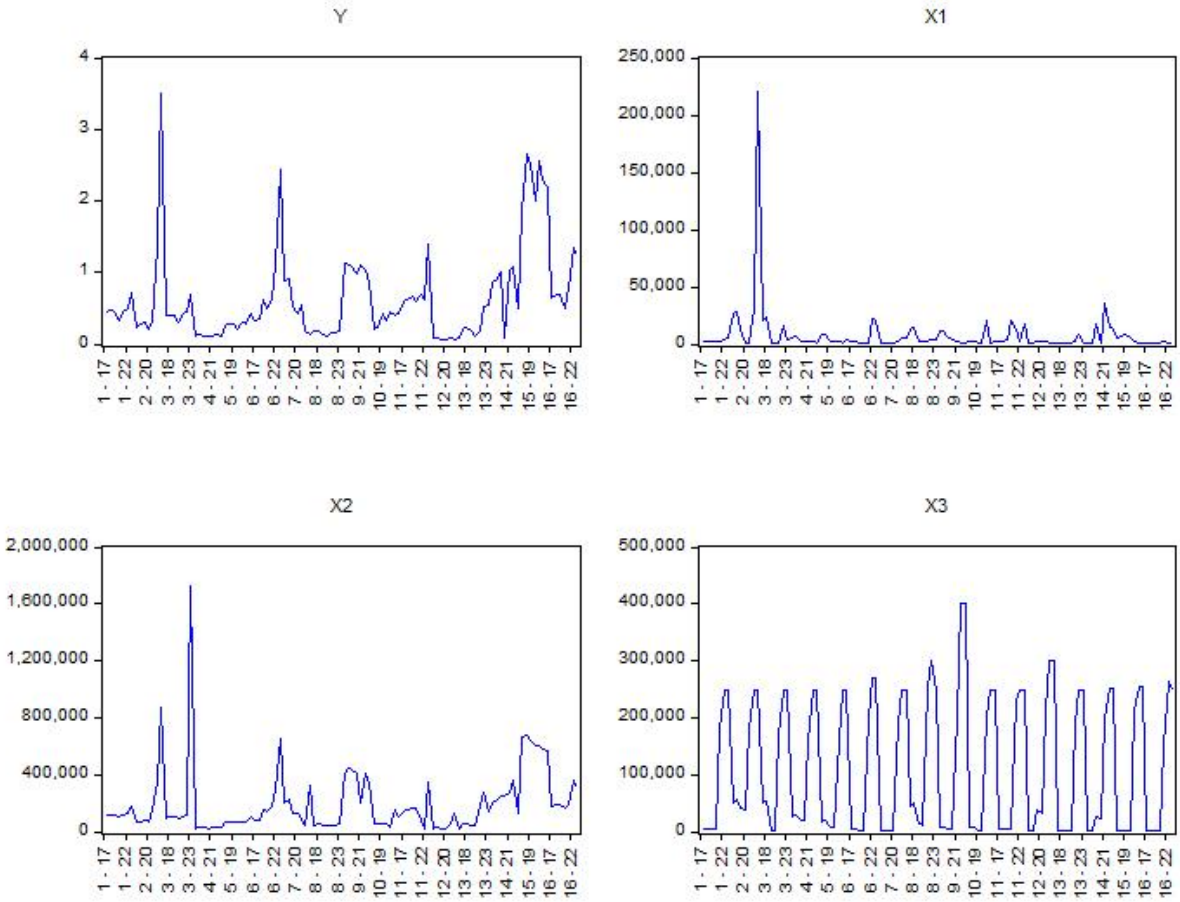

Figure (3): Fluctuations in Economic Variables

Source: Prepared by the researcher using the statistical program EViews12, the annual report on trading activity in the Iraq Stock Exchange for various years, Securities Commission.

From the above, we will attempt to test the data in order to obtain the best estimators. In this regard, the descriptive tests of the data (Y, X1, X2, X3) showed that the studied data does not follow a normal distribution according to the (Jarque-Bera) test, where the value of this test was statistically significant (0.00), as shown in Table (2). This implies that the (OLS) method may not be appropriate, and the researcher must explore more suitable estimation methods. After reviewing the available sources, it was found that a suitable method is the (panel data) regression method, by comparing the static econometric models to avoid the problem of (spurious regression) (Al-Alousi, 2023: 102).

Table (2): Statistical Tests for Describing the Econometric Model

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	Y	X1	X2	X3
Mean	0.634107	7217.273	192109.2	110664.9
Median	0.440000	2117.150	115700.0	38083.25
Maximum	3.500000	220777.0	1725000.	400000.0
Minimum	0.050000	1.500000	18000.00	20.90000
Std. Dev.	0.644487	21689.52	229214.5	119026.3
Skewness	2.082890	8.687954	3.393054	0.495641
Kurtosis	7.567498	85.50643	19.98301	1.671766
Jarque-Bera	178.3402	33176.42	1560.878	12.81861
Probability	0.000000	0.000000	0.000000	0.001646
Sum	71.02000	808334.6	21516235	12394466
Sum Sq. Dev.	46.10531	5.22E+10	5.83E+12	1.57E+12
Observations	112	112	112	112

Second: Correlation Test

This shows the strength of the correlation between the independent variables and the dependent variable:

Table (3): Correlation Study Between Economic Variables

Covariance Analysis: Ordinary
Date: 04/14/25 Time: 21:12
Sample: 2017 2023
Included observations: 112

Correlation t-Statistic Probability	Y	X1	X2	X3
Y	1.000000 ----- -----			
X1	0.454022 5.344420 0.0000	1.000000 ----- -----		
X2	0.729659 11.19128 0.0000	0.299935 3.297568 0.0013	1.000000 ----- -----	
X3	0.174421 1.857825 0.0659	0.141862 1.503060 0.1357	0.207442 2.224046 0.0282	1.000000 ----- -----

Table (3) attempts to explain the strength of the relationship between the studied variables, and the following observations were made:

1. Trading volume (X1) has a positive relationship with stock prices at a rate of (45%).
2. The market value of the stock (X2) has a positive relationship with stock prices at a rate of (72%).
3. The number of traded shares (X3) has a positive relationship with bank stock prices at a rate of (17%).

Third: Regression Equation with (Trend)

From Table (4), it is observed that there is a possibility of no (Trend) between the economic variables, as the value of this (Trend) test is not statistically significant, with the (prob) equal to (0.71).

Table (4): General Trend Equation (Trend)

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Dependent Variable: Y
Method: Panel Least Squares
Date: 04/14/25 Time: 21:49
Sample: 2017 2023
Periods included: 7
Cross-sections included: 16
Total panel (balanced) observations: 112

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.240241	0.079670	3.015436	0.0032
X1	7.66E-06	1.93E-06	3.974289	0.0001
X2	1.84E-06	1.86E-07	9.901787	0.0000
X3	1.81E-07	6.71E-07	0.269122	0.7884
@TREND	-0.011520	0.039943	-0.288418	0.7736

R-squared	0.593498	Mean dependent var	0.634107
Adjusted R-squared	0.578301	S.D. dependent var	0.644487
S.E. of regression	0.418519	Akaike info criterion	1.139427
Sum squared resid	18.74192	Schwarz criterion	1.260788
Log likelihood	-58.80789	Hannan-Quinn criter.	1.188667
F-statistic	39.05527	Durbin-Watson stat	0.712051
Prob(F-statistic)	0.000000		

Third: Estimating the Model Using Panel Data Regression Analysis

To measure the factors affecting the stock prices of Iraqi private banks, multiple linear regression equations can be used to estimate regression equations to reveal the nature and type of relationships between the economic variables. These include the Pooled Regression Model (PME), Fixed Effects Model (FEM), and Random Effects Model (REM). The reason for using static models is that the data pattern used is cross-sectional and short-term, as the number of cross-sections (banks) is larger than the number of time periods (years) used in the study. On the other hand, the double logarithmic equation was used due to the lack of standardization of measurement units between the studied economic variables (Makhzoumi, 2022: 12). Therefore, we will observe the estimation results in Table (5) as follows:

Table (5): Fixed Effects Regression Model

Dependent Variable: LOG(Y)
Method: Panel Least Squares
Date: 04/15/25 Time: 18:19
Sample: 2017 2023
Periods included: 7
Cross-sections included: 16
Total panel (balanced) observations: 112

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.055004	0.845166	-7.164279	0.0000
LOG(X1)	0.025252	0.025318	0.997414	0.3212
LOG(X2)	0.411600	0.076559	5.376210	0.0000
LOG(X3)	0.017433	0.018087	0.963831	0.3376

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.834970	Mean dependent var	-0.887737
Adjusted R-squared	0.803029	S.D. dependent var	0.954506
S.E. of regression	0.423623	Akaike info criterion	1.273442
Sum squared resid	16.68948	Schwarz criterion	1.734616
Log likelihood	-52.31278	Hannan-Quinn criter.	1.460555
F-statistic	26.14080	Durbin-Watson stat	1.576621
Prob(F-statistic)	0.000000		

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The reason for choosing the Fixed Effects Regression Model (FEM) is due to the following statistical results. LM Test: Table (6) shows that the LM test indicates statistical significance, meaning that the Fixed Effects Model can be used.

Table (6): LM Test

Residual Cross-Section Dependence Test
Null hypothesis: No cross-section dependence (correlation) in residuals
Equation: Untitled
Periods included: 7
Cross-sections included: 16
Total panel observations: 112
Cross-section effects were removed during estimation

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	197.8544	120	0.0000
Pesaran scaled LM	5.025482		0.0000
Bias-corrected scaled LM	3.692148		0.0002
Pesaran CD	3.854129		0.0001

Hausman Test: This test shows a significant result (0.00), confirming the possibility of using the Fixed Effects Regression Model (FEM).

Table (7): Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	26.044986	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(X1)	0.025252	0.014488	0.000107	0.2987
LOG(X2)	0.411600	0.669101	0.002713	0.0000
LOG(X3)	0.017433	-0.004516	0.000026	0.0000

Fourth: Economic and Econometric Analysis

From the above, we observe that Table (5) refers to the multiple regression equation (1), which shows the following:

$$LogY = - 6.05 + 0.02 \text{ Log } X1 + 0.41 \text{ Log } X2 + 0.01 \text{ Log } X3 \quad \text{------(1)}$$

1. This means that as the trading volume increases, the stock prices of private banks rise.
2. As the market value increases, it leads to a rise in the stock prices of private banks.
3. As the number of shares traded increases, it leads to a rise in the stock prices of private banks.
4. The overall significance (F) of the estimated model was accepted, with a value of (0.00).

However, what draws attention is the potential issue of spurious regression, which may manifest in the following points:

1. The low values of the coefficients, including trading volume and the number of shares, which were (%2) and (%1) respectively.
2. Some coefficients were not significant, with a relatively high explanatory power of (83%).

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3. The market value coefficient (X2) is statistically significant, implying that an increase in the market value by one unit would lead to a 41% increase in the stock prices of private Iraqi banks, which is a very high percentage and raises doubts. This may suggest misleading results.
4. The constant term (c) appears with a negative value of (-6.05), indicating the presence of automatic factors affecting stock prices when the independent factors equal zero, which is not acceptable from an economic perspective.
5. The estimated model suffers from the issue of non-normality of the error term, as shown in Figure (4). This raises concerns about the model's acceptance from an econometric perspective, as it will affect the significance of the coefficients and weaken the statistical tests, meaning that the model has poor predictive power for the behavior and movement of stock prices of private Iraqi banks.

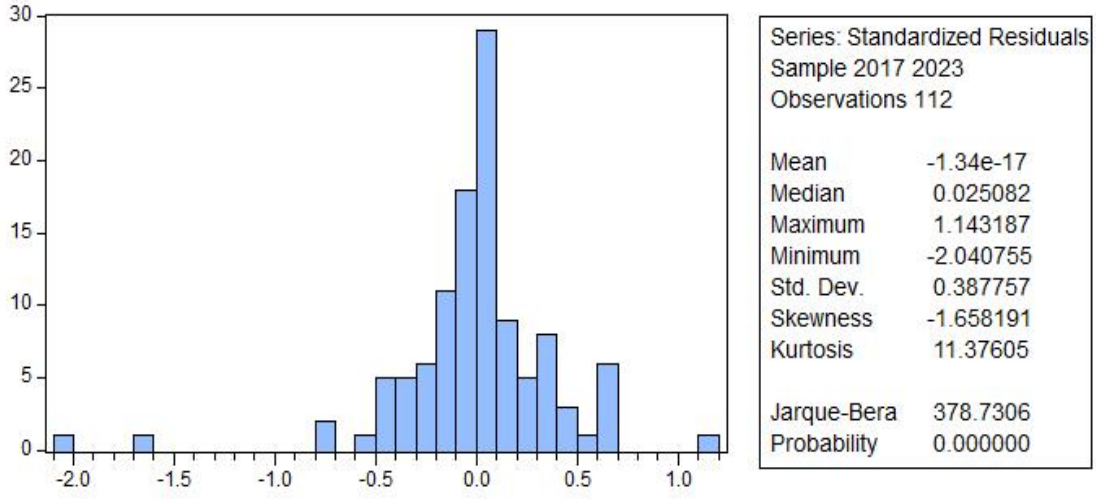

Figure (4) Normal Distribution of the Error Term.

Fifth: Economic and Econometric Analysis

The statistical and econometric results highlight the presence of some econometric problems that negatively affect the model's ability to analyze and interpret financial indicators and their impact on the dependent variable (y), which represents the changes in the stock prices of Iraqi private banks. It should be noted that the Iraq Stock Exchange has witnessed some positive changes; however, these changes have not reached the desired level. We observe an increase in the number of companies and private banks in the Iraq Stock Exchange. As is well known, it is difficult to assess the efficiency of the market, as it is challenging to determine whether the available information and indicators have influenced the stock prices of private banks. Based on the above, the Iraq Stock Exchange cannot be considered an efficient market for the following reasons:

1. The available information may not be accessible to all investors, or there may be a lack of transparency and disclosure of some important information.
2. This includes financial commissions and brokerage fees, which hinder trading activity.
3. Active participation in daily trading is difficult, which reduces the number of active investors and negatively affects market efficiency.
4. There is a lack of regulation to improve investor confidence in the market.
5. These periodically emerge and negatively impact the efficiency of the price movements of Iraqi private bank stocks.
6. There is a deficiency in financial data processing technology, in addition to a shortage of qualified technical staff to analyze market trends.

Absence of Specialized Research and Financial Studies Centers: There are no centers dedicated to researching and studying the causes of stock price fluctuations in Iraqi private banks. Limited International Cooperation: This limits the development of market efficiency and the expansion of investment opportunities in the Iraq Stock Exchange.

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Conclusions

1. The institutional structure and regulatory framework of the Iraq Stock Exchange are characterized by technological underdevelopment, as well as a lack of adequate legal protection to build investor confidence.
2. Information is central to market efficiency, which investors rely on to identify investment opportunities. Stock prices change according to the information available in the market.
3. There is a positive relationship between trading volume (x1), number of shares (x3), and stock prices of private banks, but the relationship is weak and statistically insignificant.
4. According to the efficient market theory, market value equals real value. In the fixed effects model, it was found that for a unit change, prices will increase by (41%), which is a high and economically unreasonable percentage and raises doubts.

The estimated econometric model suffers from some issues that reflect the model's inability to analyze and interpret the changes in the stock prices of Iraqi private banks. This indicates potential inefficiency in the market, a logical outcome of the lack of responsiveness of stock prices to changes in financial indicators.

Recommendations

1. Transparency should be prioritized in the presentation of information in published reports concerning the banks within the Iraq Stock Exchange. Banks should be required to publish quarterly, periodic, and annual data on their official website for easy access and to identify investment opportunities.
2. The Iraq Stock Exchange's efficiency should be improved by requiring banks to use appropriate technology to reach investors, as well as the establishment of specialized financial brokerage firms. This will contribute to increasing investment awareness and encourage investors to seize investment opportunities.
3. International cooperation should be strengthened, particularly with regional banks and investors, to enhance the framework and electronic financial systems.

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