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The Impact of Macroeconomic Variables on the Performance of the Iraqi Stock Market

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Recent stock market volatility is a result of economic problems that require the attention of policymakers and current scholars. Consequently, this article examines the effect of macroeconomic variables such as inflation, national income, employment rate, interest rate, and gross domestic product (GDP) growth on the Iraqi stock market. From 1988 through 2020, this study uses secondary data from the World Bank Database. In addition, the Dynamic Auto-regressive Distributed Lags (DARDL) method was used to examine the association between constructs. Inflation, national income, employment rate, interest rate, and GDP growth were found to have strong and positive correlations with the Iraqi stock market. This article assists regulators in creating policies regarding the sustainability of the stock market utilizing macroeconomic factors.

Key words: Macroeconomic variables, inflation, national income, employment rate, interest rate, the stock market in Iraq.

1. INTRODUCTION

Unlike other markets, a country's stock market deals with selling and acquiring securities such as shares. The stock market is critical for a nation's economy to be formed on solid ground. Its economic relevance results from two factors (Anh et al., 2021). First, it gives the means to increase economic investment. Second, it fosters healthy rivalry among businesses and stimulates business effectiveness on the part of individual businesses, hence promoting economic growth. Thirdly, it provides a platform for individuals and organizations to use their funds to profit and sustain their living standards. As potential customers, these individuals contribute to their respective nations' economic progress (Insaidoo et al., 2021). If the stock market's success, as represented by stock returns, is substantially higher, investors have greater wealth and confidence in the future. Purchasing securities raises total spending as an investment in companies. The tendency to improve and maintain stock market performance increases the business effectiveness of organizations. Moreover, stronger stock market performance raises people's living standards and stimulates economic trade (Lin et al., 2022).

Numerous macroeconomic factors such as inflation, GDP growth, national income, employment rate, and lending interest rate impact the stock return. There is inflation when there is an increase in the prices of services and goods in the economy. Typically, economic activity is brisk in these circumstances, and there is a struggle to improve production to increase sales. Consequently, the improved financial condition enables the corporations to provide bigger stock returns (John, 2019). The rise in GDP growth indicates economic advancement and improved economic and technological resources. Therefore, increased business efficiency and profitability incentivize corporations to boost stock returns (Faris et al., 2021). The National Income of a country represents the total value of the goods and services produced by its residents and businesses over its fiscal year. When product and service production increases and revenue increases, the stock's return also rises (Hassan et al., 2019). The employment rate determines the amount of labor in various economic sectors. The rise in the employment rate results in increased output and greater stock market gains. Similarly, the lending interest rate is beneficial and stable; corporations have the power to expand their businesses and pay more for their stocks on the market (Ali, 2022).

In its early years, the Iraqi stock market was limited to pen-and-paper trading, and a whiteboard was used to clear each company's purchase and sell prices. In 2006, the Iraqi stock exchange was closed for many months due to unrest. In the same year, however, there were 92 trading sessions (an average of two per week), 57 billion shares (worth 146 billion dinars) were traded, and 38,000 trades were executed (Aljawaheri et al., 2021). The trading floor is open three days a week from 10:00 a.m. to 12:00 p.m. The Iraqi stock market was opened to foreign investors in August 2007. The financial crisis of 2008 had little effect on it. It commenced electronic trading in April 2009. Only five companies were available for electronic trading, but more were expected to be added in the following months. The stock market experienced one of the world's finest first quarters of 2018 due to an influx of investors encouraged by the demise of the Islamic State. As a result of recent developments, the number of publicly traded enterprises is gradually increasing. Still, the Iraqi market faces numerous obstacles, and its performance is inconsistent (Al-Wattar et al., 2019). Consequently, a study on the performance of the Iraqi stock exchange is necessary. The present study satisfies this condition because its purpose is to examine the effects of macroeconomic parameters such as inflation, GDP growth, national income, unemployment rate, and lending interest rate on stock return.

This study provides a substantial contribution to the body of knowledge. Several authors in the past have investigated the role of macroeconomic factors such as inflation, GDP growth, national income, employment rate, and lending interest rate in stock return. However, these scholars have focused on only one or two elements for elaborating stock returns. The current study's analysis of all these parameters used to evaluate stock returns is significantly more detailed. Therefore, it contributes to the literature. 2) Most studies have evaluated the correlation between inflation, GDP growth, national income, employment rate, and lending interest rate with the stock return at a certain time. However, the present study, which evaluates the above-mentioned macroeconomic determinants' impact on stocks over a lengthy period, contributes to the existing knowledge. 3) For the Iraq stock market, there is minimal research and discussion on the variation in stock returns due to changes in macroeconomic parameters such as inflation, GDP growth, national income, employment rate, and lending interest rate. This gap is filled by the current article, which focuses on the performance of the Iraqi stock exchange.

In addition to the introduction, the second section of the study provides a pertinent literature review. Thirdly, there is information regarding collecting data and its analysis to extract outcomes. In the debate, the results are confirmed. Later, study implications, limits, and a conclusion are provided briefly.

2. LITERATURE REVIEW

The success of the stock market determines the strength of an economy. It increases the trading of goods and services within the economy and the overall investment in the country's businesses (Asaad et al., 2020). Stock returns reflect the real performance of a country's stock market. Several macroeconomic factors influence stock returns, such as inflation, GDP growth, national income, employment rate, and lending interest rate. The relationship between inflation, GDP growth, national income, employment rate, and lending interest rate with stock return has been examined in various ways in the extant literature. In the next paragraphs, the relationship between macroeconomic factors such as inflation, GDP growth, national income, employment rate, lending interest rate, and stock return is demonstrated by analyzing prior research.

Inflation is the steady increase in the prices of goods and services over a particular period. During an inflationary time, the demand for various goods and services is high, and the higher prices may result in increased profits for manufacturers. When firms acquire greater profits, they are also prepared to pay higher stock dividends (Innocent et al., 2018). Alqaralleh (2020) examines the correlation between inflation and stock returns. From January 2000 through January 2019, G7 countries provided monthly time-series data regarding inflation and stock returns. Nonlinear Autoregressive Distributed Lag (NARDL) was utilized for analysis. The findings revealed an inverse link between inflation and stock gains. The increase in stock returns raises the demand for goods and services, resulting in inflation as the price level rises.

Similarly, the rising inflation rate increases the companies' sales earnings and stock returns. Raghutla et al. (2020) investigate the connection between inflation, output, and stock returns. The IMF and Bloomberg's online International Financial Statistics were utilized to obtain statistics on industrial production, the price index for inflation, and stock prices on the Bombay Stock Exchange. January 1990 to June 2016 was the selected analysis period. The results reveal a favorable relationship between inflation, production, and stock returns. If the inflation rate increases, there will be an increase in the overall output of the firms, which will lead to a rise in stock returns.

While the GDP growth rate is increasing, economic activity within the country is thriving. When certain companies actively function and accomplish larger production and marketing for their products and services, their actual earnings also improve. In this circumstance, corporations increase the projected dividend on their shares (Kalam, 2020). Huy et al. (2020) investigate the effects of GDP growth rate on stock prices. Data for the relevant parameters and stock prices were acquired from Vietcombank (VCB), a Vietnamese commercial bank with a share capital structure, between 2014 and 2019. The analysis suggests a correlation between the GDP growth rate and stock prices. Companies in a nation with a continually higher rate of GDP growth are utilizing modern production methods to meet their clients' needs. Therefore, businesses may produce more revenue from product sales, and their improved financial standing enables them to pay bigger dividends on stock. Thus, economic growth and stock prices are positively correlated. Gunarto et al. (2019) study the effects of macroeconomic indices such as GDP growth, inflation, and interest rate on stock returns. Time-series, cross-sectional, and event studies were used as a research design. For 2008-201, information on macroeconomic conditions and stock returns was collected from large-scale Indonesian corporations. The descriptive statistics, correlation, normality, multicollinearity, regression, F, and t-test, were performed to obtain reliable results. These results demonstrated a positive association between GDP growth, other macroeconomic indicators, and stock returns.

The rise in national income represents the rise in the value of goods and services produced by the economy over a certain period. The output of products and services increases as the national income rises, and the production level is anticipated to increase and yield more profits. With increased production and marketing of goods and services, businesses may be able to create greater money. These corporations offer greater stock returns (Cavalli et al., 2022). Swaroop et al. (2020) investigate the relationship between GDP growth, national income, and stock returns. India provided the data for the national income-nexus-

stock return and the GDP-nexus-stock return for the years 1998-2019 and 2019-2020, respectively. Unit root tests, Johansen Co-integration test, Granger Causality test, and VEC Model with Wald test were conducted to extract results from the data analysis. According to the findings, there was a substantial positive correlation between national income, GDP growth, and stock returns. Business firms can conduct their operations sustainably in nations focusing on increasing and sustaining the national income.

Consequently, the efficiency and effectiveness of business operations result in increased earnings and a rise in stock market value. Ranjbar et al. (2018) explore the influences of national income stock returns using 1995-2015 data from D8 nations. To propose a model, the GMM method was utilized. The value of a company's shares and other securities on the stock market depends on the company's operational performance. When the national income rises, the corporation may enhance its business performance and raise the prices of its shares and other securities on the stock market.

All economic actions, whether or not they include the use of technology, are performed by human resources. The employment of laborers is crucial for the firm's survival and for enhancing its stock market value due to increased company profitability (He et al., 2020). (Goel et al., 2021) analyze the relationship between the employment rate and stock returns in a study piece. The United States serves as the focal point for investigating the desired relationship between 1985 and 2018, using data obtained from official websites governed by Scott Baker, Nick Bloom, and Steven Davis. When the employment rate increases and enterprises hire more productive capital, departments, facilities, and manufacturing units may be expanded, and items can be advertised more effectively, according to the study.

The increased sales increase the period's overall profitability. After subtracting profits as reserves, corporations now have more money to give to shareholders. Therefore, with the growth in the employment rate, stock returns increase. Masood et al. (2019) did quantitative research to examine the relationship between employment rate, oil prices, and stock return. Through the OECD website and oil intelligence report, G7 nations, including Germany, Italy, Japan, the United Kingdom, France, Canada, and the United States, provided data for the factors. The study hypothesizes that an increase in the employment rate increases the level of production in all business organizations and the need for oil reserves. The rising prices of oil commodities cause the stock prices of oil businesses to increase. Therefore, employment rate and stock returns are positively correlated.

The lending interest rate is the rate of fees imposed by lenders on borrowed money. If the interest rate is reasonable and advantageous, corporations can afford to finance a substantial amount of their operations. The increased capital provided by loans helps companies to implement innovative approaches and resources. Organizations can gain business effectiveness and competitive advantages through innovation adoption. Successful businesses can provide greater stock returns (Iqmal et al., 2020). Dwi (2019) examines the significance of interest rate, investment, inflation, return on assets, and stock returns. The relevant data was compiled from SOE banks listed on the Indonesian Stock Exchange from 2012 to 2016, including PT Bank Negara Indonesia Tbk, PT Bank Mandiri Tbk, PT Bank Rakyat Indonesia Tbk, and PT Bank Tabungan Negara Tbk. Multiple linear regression analysis, t-test, and F-test were performed using SPSS 19.

The findings revealed a substantial relationship between lending interest rates and stock returns. Rafiq et al. (2019)'s literary workout centered on the relationship between Interest rate, Exchange rate, market risk, and bank stock returns. Pakistan provided the panel data for the years 2007 to 2018. The authors utilized OLS to examine the relationship between these variables. The findings revealed a correlation between lending interest rates and stock return. A competitive lending interest rate offered by commercial banks encourages economic investment. To the extent that they can arrange for greater returns on their shares and other securities, the companies that benefit from loans with reasonable interest rates can increase their capacity.

3. RESEARCH METHODS

This article examines the influence of macroeconomic variables such as inflation, national income, employment rate, interest rate, and GDP growth on the Iraqi stock market. From 1988 through 2020, this study uses secondary data from the World Bank Database. The study's equation is given below:

$$SR_t = \alpha_0 + \beta_1 INF_t + \beta_2 GDPG_t + \beta_3 NI_t + \beta_4 EMR_t + \beta_5 LIR_t + e_t \quad \textbf{(1)}$$

Where;

SR	=	Stock Return
t	=	Period
INF	=	Inflation
GDPG	=	Gross Domestic Product Growth
NI	=	National Income
EMR	=	Employment Rate
LIR	=	Lending Interest Rate

The primary variable of the study was the stock market return, which was measured with stocks traded, and total value (% of GDP). In addition, the study employed five macroeconomic variables as predictors, including inflation as measured by consumer prices (annual%), GDP growth as measured by GDP growth (annual%), national income as measured by adjusted net national income (annual% growth), employment rate as measured by employment to population ratio, 15+, total (%), and lending interest rate as measured by lending interest rate (%). Table 1 contains the variables that can be measured.

Table 1: Variables with Measurements

S#	Variables	Measurement	Sources
01	Stock Market Return	Stocks traded, total value (% of GDP)	WDI
02	Inflation	Inflation, consumer prices (annual %)	WDI
03	Gross Domestic Product Growth	GDP growth (annual %)	WDI
04	National Income	Adjusted net national income (annual % growth)	WDI
05	Employment Rate	Employment to population ratio, 15+, total (%)	WDI
06	Lending Interest Rate	Lending interest rate (%)	WDI

The research employs descriptive statistics to illustrate the specifics of the variables. In addition, the article employs the correlation matrix, which illustrates the direction of the relationship between variables. In addition, the study utilized the Phillips-Perron (PP) and augmented Dickey-Fuller (ADF) tests to determine the existence of the unit root. The following equations are given:

$$d(Y_t) = \alpha_0 + \beta t + YY_{t-1} + d(Y_t(-1)) + \varepsilon_t \quad \textbf{(2)}$$

Additionally, the article also applies the (Westerlund et al., 2008) approach that shows the co-integration exists or not. The equations are given below:

$$\mathrm{LM}_{\varphi}(\mathrm{i}) = \mathrm{T}\hat{\varphi}_{\mathrm{i}}\,(\hat{\mathrm{r}}_{\mathrm{i}}/\hat{\sigma}_{\mathrm{i}} \quad \textbf{(3)}$$

$$\mathrm{LM}_{\tau}(\mathrm{i}) = \hat{\varphi}_{\mathrm{i}}/\mathrm{SE}(\hat{\varphi}_{\mathrm{i}}) \quad \textbf{(4)}$$

In given equations, besides standard error exposed by $\hat{\varphi}_i$, while long-run measured variance is exposed by $r^{2}{}_i$, scalar polynomial with L lag length exposed by $\varphi i\,(L) = 1 - \sum \varphi_{ij} L^j$, and factor loading parameters vector I exposed by ρ_i.

In addition, the DARDL method was used to examine the association between constructs. It is a novel strategy created by Jordan and Philips. It eliminates every shortcoming of the ARDL method. It applies when some variables lack unit roots at I(0) while others lack unit roots at I. It also applies when there is co-integration. In addition, 5000 simulations are performed for the vector of parameters using multivariate normal distributions for the DARDL simulations model. The equation is given as follows:

$$\Delta SR_t = \alpha_0 + \sum\delta_1\Delta SR_{t-1} + \sum\delta_2\Delta GDPG_t + \sum\delta_3\Delta GDPG_{t-1} + \sum\delta_4\Delta INF_t + \sum\delta_5\Delta INF_{t-1} + \sum\delta_6\Delta NI_t + \sum\delta_7\Delta NI_{t-1} + \sum\delta_8\Delta EMR_t + \sum\delta_9\Delta EMR_{t-1} + \sum\delta_{10}\Delta LIR_t + \sum\delta_{11}\Delta LIR_{t-1} + \varepsilon_t \quad \textbf{(5)}$$

4. FINDINGS RESULTS

The research employs descriptive statistics to illustrate the specifics of the variables. The study's findings revealed that the average SR value was 33.073 percent, the average INF value was 51.270 percent, and the average GDPG value was 7.316 percent. In addition, the study results revealed that the average NI value was 5.776%, the average EMR value was 38.1136%, and the average LIR value was 15.507%. Table 2 displays these results.

In addition, the article employs the correlation matrix, which illustrates the direction of the relationship between variables. Inflation, national income, employment rate, interest rate, and GDP growth were found to have significant and positive relationships with the Iraqi stock market. Table 3 displays these results.

In addition, the PP and ADF tests are utilized to determine whether or not the unit root exists. According to the results, the SR, INF, GDPG, and LIR have no unit root at the level, whereas the NI and EMR have no unit root at the first difference. Table 4 displays these results.

In addition, the article applies the (Westerlund & Edgerton, 2008) methodology that demonstrates whether or not co-integration exists. The results revealed that the p-values are less than 0.05 and the t-values are greater than 1.96, indicating the existence of exposed co-integration. Table 5 displays these results.

The article also utilized the DARDL methodology to examine the relationship between constructs. Inflation, national income, employment rate, interest rate, and GDP growth were found to have strong and positive correlations with the Iraqi stock market. Table 6 displays these results.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
SR	33	33.073	0.756	31.893	34.323
INF	33	51.270	104.067	-16.117	448.500
GDPG	33	7.316	21.782	-64.047	57.818
NI	33	5.776	9.283	-30.149	16.672
EMR	33	38.113	0.753	35.556	38.825
LIR	33	15.507	2.225	12.293	19.215

Table 3: Matrix of Correlations

Variables	SR	INF	GDPG	NI	EMR	LIR
SR	1.000					
INF	0.482	1.000				
GDPG	0.115	0.002	1.000			
NI	0.091	-0.055	0.111	1.000		
EMR	0.760	0.322	0.176	0.201	1.000	
LIR	0.823	0.375	0.054	0.203	0.585	1.000

Table 4: Unit Root Test

	ADF		PP	
Series	Level	First difference	Level	First difference
SR	-3.844***	------	-2.553***	------
INF	-4.965***	------	-2.895***	------
GDPG	-2.084***	-----	-3.722***	------
NI	------	-5.738***	------	-5.674***
EMR	------	-5.893***	------	-6.896***
LIR	-3.673***	------	-4.383***	------

Table 5: Co-integration Test

Model	No Shift		Mean Shift		Regime Shift	
	Test Stat	p-value	Test Stat	p-value	Test Stat	p-value
LM_T	-4.783	0.000	-4.855	0.000	-5.449	0.000
LM_φ	-4.378	0.000	-4.733	0.000	-5.786	0.000

Table 6: Dynamic ARDL Model

Variable		Coefficient	t-Statistic	Prob.
ECT		-3.985***	2.837	0.031
	INF_{t-1}	1.289***	4.883	0.000
INF		2.895**	2.893	0.029
	$GDPG_{t-1}$	3.739*	4.873	0.000
GDPG		1.749***	6.734	0.000
	NI_{t-1}	2.894***	5.747	0.000
NI		1.893***	2.322	0.041
	EMR_{t-1}	0.675**	3.367	0.020
EMR		0.830**	4.673	0.000
	LIR_{t-1}	2.843***	5.776	0.000
LIR		3.267**	4.332	0.000
Cons		3.998**	2.219	0.047

R square = 62.377 Stimulation = 5000

5. DISCUSSIONS

The results indicated that inflation is positively related to stock return. These results are consistent with John (2019)'s research, which demonstrates that output and other economic activity are at their height during an inflationary time. In this scenario, corporations gain greater profits on individual products and total sales. The return on shares increases as a result of excessive earnings. Previous research by Omodero et al. (2019) on the effects of inflation on stock return supports these findings. According to the authors, stock returns are now greater than they were when the country was experiencing widespread inflation.

The results demonstrated a positive correlation between GDP growth and stock return. These findings are consistent with the findings of Li et al. (2022), which demonstrate that when a nation's GDP growth increases, there is a tendency for all economic sectors to become more productive. This increases the demand for additional products utilized as raw materials or other production resources. Consequently, rising prices increase the stock's return. These findings are corroborated by a recent study by Chue et al. (2019), which demonstrates that when the GDP growth rate increases, so do the demand; thus, the prices of products and services increase. Increasing the return on the stock is ultimately made possible by a rise in sales revenue.

The results indicated a correlation between national income and stock return. These results are consistent with Palma (2019)'s research, which indicates that growth in the national income indicates favorable economic conditions in which businesses can raise their efficiency and earn greater profits. Thus, their financial position is improving, and the company's stock performance must also rise. These findings are corroborated by a prior study by Priyambudi et al. (2021), which demonstrates that if a country has a larger national income, the companies will generate bigger profits through the sale of their products and services, as well as indirect revenues so that they can pay more for stock shares.

The results indicated a positive relationship between the employment rate and stock return. These findings are consistent with the conclusion of Mazur et al. (2021)'s study, which asserts that when the employment rate is high, a greater number of workers engage in economic activities. Greater productivity can result in increased stock returns for corporations. These findings are consistent with a prior study by Dakhoul (2018), which claims that employing additional people might provide firms with competitive advantages and higher stock returns. The findings revealed a correlation between loan interest rates and stock performance. These findings are consistent with Gao et al. (2022)'s research, which indicates that if the lending interest rate is greater than the previous rate, the amount of money lent will also be greater. Individual firms will be more able to generate profits and distribute them to their shareholders. These findings are also consistent with Rehan et al. (2019)'s research, which asserts a positive relationship between loan interest and stock return.

6. THEORETICAL IMPLICATIONS

This study's theoretical contributions to academic decision-making during research make it significant. The study investigates the effects on stock return of macroeconomic factors such as inflation, GDP growth, national income, employment rate, and lending interest rate. For analyzing the stock market's performance, previous authors have examined only one or two of inflation, GDP growth, national income, employment rate, and lending interest rate. The present article contributes to the body of knowledge by analyzing the stock market's performance using all of these factors. In addition, this is one of the first attempts to examine the role of the aforementioned macroeconomic factors in the performance of the Iraqi stock market.

7. EMPIRICAL IMPLICATIONS

This article is vital to emerge economies because it focuses primarily on the stock market's performance. The study provides significant recommendations on how economic policies should be designed to improve the stock market's performance. The study demonstrates that inflationary periods should be favored to increase stock returns and improve stock market performance. This article assists regulators in creating policies regarding the sustainability of the stock market utilizing macroeconomic factors. The study also suggests that the GDP growth rate should be accelerated and maintained to increase the return on the stock.

Moreover, with effective economic policies, the national income should rise to increase stock returns. It is suggested to economists working on behalf of the nation's welfare that they should work to create employment opportunities for the populace and increase the national employment rate. It will increase the rate of return on stocks and the stock market's performance. It reveals to an economy's policymakers that the lending interest rate must be set appropriately to increase the return on the stock.

8. CONCLUSION

This study examined macroeconomic factors' effects on the stock market's performance. Iraq's economy was examined to collect empirical data on inflation, GDP growth, national income, employment rate, lending interest rate, and stock returns. Inflation, GDP growth, national income, employment rate, and lending interest rate were found to have a positive relationship with stock return. Results indicated that during inflationary periods, a company's ability to pay dividends on its stock increases, and a rise in dividend yield improves the stock market's performance. In addition, the results revealed that during periods of accelerating GDP growth, businesses could enhance their operational efficiency and increase their share prices.

Similarly, when the national income is high, individual businesses can improve their overall performance and increase their stock returns. In addition, the results indicated that an increase in the employment rate increases the production of goods and services and the efficiency of other business operations, thereby boosting stock returns. Moreover, according to research findings, an appropriate lending interest rate provided capital for business expansion and increased stock returns.

9. LIMITATIONS

Future researchers will need to address the limitations of the present study in their research. This study examines the impact of a limited number of macroeconomic factors, such as inflation, GDP growth, national income, employment rate, and lending interest rate, on stock returns. Several additional influencing factors beyond these macroeconomic factors are missing, and the study's scope is narrower. For a more accurate evaluation of stock returns, interested researchers must consider these limitations and add microeconomic variables. This research examines the relationship between inflation, GDP growth, national income, employment rate, lending interest rate, and stock returns concerning the Iraqi economy. This limits the validity of the study to a single nation. For more reliable results, researchers must also visit other economies.

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