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El Nino on Stock Prices

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ABSTRACT

Objective: *This study examines the impact of deflation, exchange rates, and net profit margins (NPM) on the stock prices of 21 agricultural companies listed on the Indonesia Stock Exchange (IDX) for the period 2022–2024 during the El Niño phenomenon, which causes drought and food supply disruptions.* ***Method:*** *The correlation between variables is analyzed quantitatively using panel data regression.* ***Results:*** *The results show that the exchange rate, with relatively small fluctuations, has no significant impact on stock prices, while NPM and deflation have a significant impact. A high NPM indicates attractive profitability and operational efficiency, while deflation encourages investors to transfer capital to the agricultural sector when general goods prices fall.* ***Novelty:*** *These results support SDG 8 on decent work and sustainable economic growth by highlighting investor responses to company fundamentals and macroeconomic conditions during El Niño.*

INTRODUCTION

El Nino often causes long dry seasons that negatively impact food production. Due to the decline in agricultural yields due to these extreme weather, food supply is limited, and prices tend to rise. However, after a drought, the stability of supply can sometimes lead to a sharp drop in prices, which can lead to deflation. Indonesia experienced a deflation rate of 0.03% in May 2024 as a result of a decline in the price of food commodities, including rice. This shows how the recovery of supply can lower food costs and impact the agricultural industry, even though El Niño initially negatively impacted production.

El Nino can disrupt the weather patterns that usually occur. This can lead to changes in the growing season, so farmers cannot adjust their planting and harvesting schedules. Drought due to El Nino can lead to a decrease in the production of crops such as oil palm, rubber, and coffee[1]. Lack of rainfall inhibits plant growth, while the need for additional irrigation systems increases operational costs. In January-February 2024, corn prices soared due to low harvest area due to delayed planting due to the impact of El Nino 2023, which pressured production below the level of the last three years while triggering an increase in raw material costs due to supply disruptions [2][3].

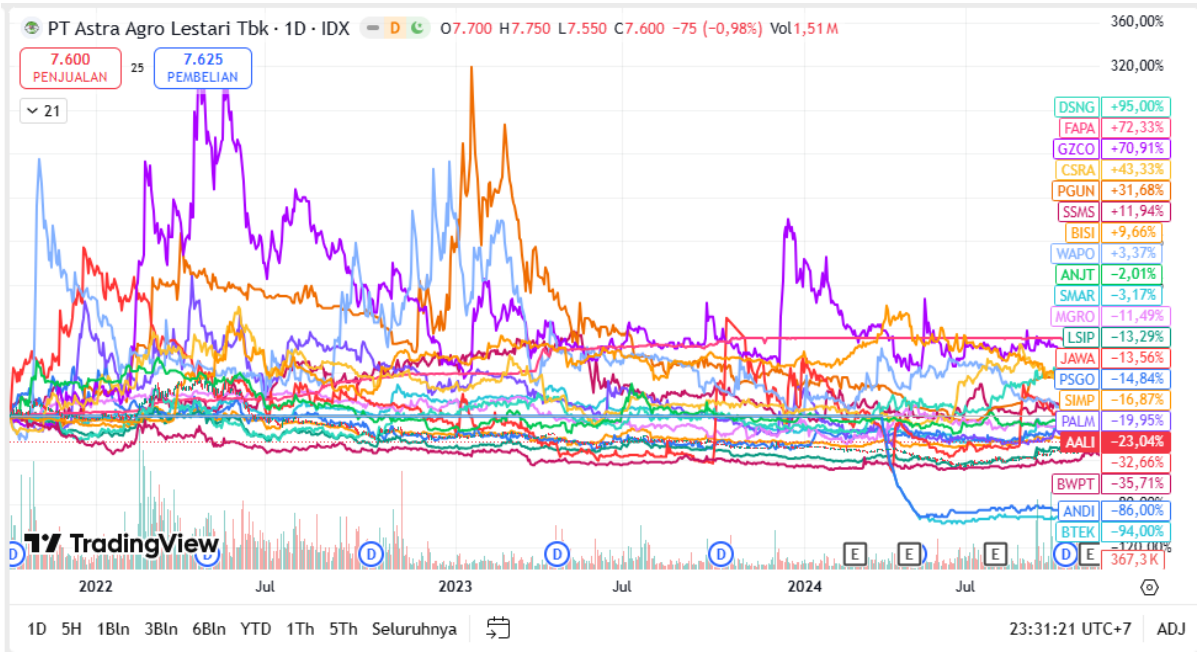

Figure 1. Movement of Company Stock Prices in the Agricultural Sector
Source : tradingview.com

Based on the graph, there is a decrease that shows the impact of El Nino weather. The El Nino phenomenon has the potential to have a negative impact on agricultural production, especially in the agricultural sector, which in turn affects the share prices of related issuers. According to[4] the movement of the stock price can be predicted through the analysis of market ratios and financial ratios, which basically reflect the fundamental condition of the company. Investors use the current stock price as a benchmark to predict the future performance of a company. Especially in the context of an economy that is experiencing a decline in people's purchasing power.

In the context of the Indonesian economy, declines often reflect a decline in aggregate demand which indicates a weakening of economic activity and people's purchasing power. Deflation is suspected to be a general and continuous decline in the prices of goods and services[5]. This decrease in prices, goods, and services can cause consumers to switch to cheaper products. This has the potential to reduce sales for companies in the agricultural sector. In September 2024, Indonesia experienced deflation of 0.12%, continuing the deflationary trend for five consecutive months. The price decline was mainly contributed by food commodities such as red chili, cayenne pepper, purebred chicken eggs, and purebred chicken meat. This deflation was influenced by adjustments in the food supply side due to the harvest and price stabilization. In deflationary conditions, this volatility can increase, affecting the stability of the stock price of agricultural companies[6]. Although the price of major foods such as rice or corn may increase, deflation in the agricultural sector may arise due to a decline in the prices of other commodities The impact of El Nino is not felt directly across all types of agriculture[7].

A decrease in output in the agricultural sector due to El Nino can cause a weakening of the rupiah exchange rate. The price of a country's currency against another is known

as the exchange rate. The entire amount of money to be spent is the price in question, and the value of the currency can change, making it more expensive or cheaper. The economy is affected by exchange rates, especially export developments. The agricultural sector is a sector that experiences a deficit or weakening due to changes in exchange rates[9]. When international food prices rise due to natural disasters, countries with high dependence on food imports can face depressed exchange rates, as the demand for foreign currency for food purchases increases[10][11].

El Nino not only has a direct impact on production and costs, but it also affects macroeconomic conditions broadly. Market changes due to El Nino, such as a decline in global demand for some commodities, can depress the prices received by farmers and agricultural companies[12]. This adds to the uncertainty of profitability, thus risking lowering the Net Profit Margin (NPM), especially in countries that depend on the agricultural sector for export earnings. An increase in NPM can increase investor confidence, which in turn can increase demand for shares of agricultural sector companies[13]. Companies with high asset value and revenue do not always have high NPM ratios. This shows that operational efficiency and cost control greatly affect the profitability of agricultural sector companies[14]. NPM evaluates a company's capacity to generate profits at a specific level of revenue, assets, and share capital. In addition, NPM also reflects the company's efficiency in reducing costs over a period of time[15][16].

Previous research has shown that deflation and exchange rates have a significant influence on stock prices, where deflation often reflects weakening aggregate demand which can reduce company earnings and stock prices, while weakening exchange rates also negatively impact stock values. However, the impact of positive results is still visible when comparing the net profit margin with the stock price, which is inconsistent. Some studies have suggested that net profit margin growth has a positive impact on stock prices because it attracts investors, while other studies suggest that net profit margins do not have a significant influence, so other factors may be more considered by investors in decision-making[17][18][19].

This study specifically analyzes the influence of deflation, exchange rates, and net profit margin (NPM) on the agricultural sector, as well as filling the gap in the literature by exploring the specifics of the El Nino phenomenon on these variables, an aspect that was still limited in previous studies. This study aims to analyze the effect of deflation on the stock price of the agricultural sector during the El Nino phenomenon, examine the impact of exchange rates on stock price movements, and evaluate the relationship between Net Profit Margin (NPM) and stock prices in economic periods influenced by climate fluctuations and commodity price volatility. By understanding the interaction between deflation, exchange rates, and NPM on stock price performance, this study is expected to provide insights into the impact of El Nino on the agricultural sector, people's purchasing power, and sales[20][21][22].

Problem formulation :

1. Does Deflation affect stock prices in IDX companies in the agricultural sector?

2. Does the Exchange Rate affect the stock price of IDX companies in the agricultural sector?
3. Does Net Profit Margin affect stock prices in IDX companies in the agricultural sector?

Research question:

Is it true that predictions related to Deflation, Exchange Rate, and Net Profit Margin affect the stock price in the agricultural sector?

Research Objectives:

To measure the extent of each Deflation, Exchange Rate, and Net Profit Margin variables to stock prices in the agricultural sector.

Category SDGs:

This research is in accordance with the indicators of 8 Sustainable development goals (SDGs), namely Decant Work and Economic Growth.

Stock Price

One measure of the effectiveness of a company's management is its stock price, when the stock price of a company continues to rise, investors or potential investors know that the business is operating profitably. Along with the more individuals who consider an issuer, the greater their tendency to invest in it, the issuer benefits greatly from the trust of investors or potential investors. The share price of an issuer increases in line with the level of demand for the share. The value of a company is reflected in its share price; If it performs well, investors will most likely want to buy the shares. The financial success of a company as measured by its financial ratio indicators is one of the fundamental elements that can also affect stock prices[23][24].

$$Stock\ price = Closing\ Price$$

Deflation

Deflation is a decrease in the price of goods and services over a given period, often caused by weak aggregate demand or an increase in productivity that is not offset by demand. Studies show that deflation is a big challenge for developing countries because of the higher volatility of the prices of basic necessities than developed countries. In Indonesia, deflation can reduce people's purchasing power and affect economic stability. Falling prices can make it difficult for producers to maintain profitability, which has an impact on reduced production and unemployment. Therefore, deflation requires appropriate fiscal and monetary policies to stimulate demand and maintain economic stability[25].

$$Deflation\ Rate = X\ 100\% \frac{IHK\ (Tahun\ Sebelumnya - IHK\ (Tahun\ Berjalan)}{IHK\ (Tahun\ Sebelumnya)}$$

Exchange Rate

The exchange rate is an economic variable that has a significant role in maintaining the monetary stability of a country. The exchange rate not only affects the current account balance but is also a key indicator in evaluating the financial health of a country. Financial stability can be reflected in the currency exchange rate that continues to increase consistently. Exchange rate changes also have an impact on international capital and investment movements, which affect cross-border fund flows. An exchange rate, or often

referred to as an exchange rate, is an agreement that determines the exchange rate of a currency between two countries, both for current and future payments[26][27].

$$Rupiah\ Exchange\ Rate = \frac{Kurs\ Tengah_t - Kurs\ Tengah_{t-1}}{Kurs\ Tengah_{t-1}}$$

Net Profit Margin

Net Profit Margin (NPM) is a ratio that shows the ratio between net profit, after deducting all expenses including taxes, and total sales. This ratio reflects the company's efficiency in managing costs and expenses related to sales. Profitability is an element that indicates the extent of a business's effectiveness in generating revenue and profits from sales, assets and capital they manage[28]. Profitability provides insight into how well a business manages its resources. The more productive a company is, the more efficient its performance will be, and the higher its NPM. Investor confidence in lending to companies increases as a result of this productivity. In other words, NPM determines the net profit of each transaction in rupiah, which makes it an important metric for evaluating a business's ability to manage expenses and generate profits.

$$Net\ Profit\ Margin\ = \frac{Laba\ Bersih\ (Net\ Profit)}{Total\ Penjualan}\ \text{X}\ 100\%$$

RESEARCH METHOD

This study uses a quantitative approach to analyze the influence of deflation, exchange rates, and net profit margin (NPM) on stock prices in the agricultural sector, with data derived from the financial statements of agricultural industry companies listed on the Indonesia Stock Exchange (IDX). Stock prices are dependent variables, while rupiah exchange rates, NPM, and deflation are independent variables. To ensure a representative sample, this study uses purposive sampling techniques, based on the criteria of companies that are active and have complete data during the research period. This study aims to provide an accurate analysis of the influence of these three variables on the dynamics of the agricultural sector in Indonesia.

Table 1 Research Sampling Criteria

No	Sample Criteria	Quantity
1	Companies in the Agricultural Sector Listed on the IDX in 2022 to 2024	28
2	Companies in the Agricultural Sector listed on the stock listing board for the period 2022 to 2024	28
3	Companies in the Agriculture Sector that did not launch annual financial statements in the period 2022 to 2024	7
4	Companies in the Agricultural Sector that have complete data for the research variables: Deflation, Exchange Rate, Net Profit Margin and Stock Price.	21

Based on the criteria that have been set, 21 manufacturing companies in the agricultural sector, namely PT Astra Agro Lestari Tbk (AALI), PT Andira Agro Tbk (ANDI), PT Austindo Nusantara Jaya Tbk (ANJT), PT BISI International Tbk (BISI), PT Bumi Teknokultura Unggul Tbk (BTEK), PT Eagle High Plantations Tbk (BWPT), PT Cisadane Sawit Raya Tbk (CSRA), PT Dharma Satya Nusantara Tbk (DSNG), PT FAP Agri Tbk (FAPA), PT Wahana Pronatural Tbk (WAPO), PT Gozco Plantations Tbk (GZCO), PT Jaya Agra Wattie Tbk (JAVA), PT PP London Sumatra Indonesia Tbk (LSIP), PT Mahkota Group Tbk (MGRO), PT Provident Agro Tbk (PALM), PT Pradiksi Gunatama Tbk (PGUN), PT Palma Serasih Tbk (PSGO), PT Sampoerna Agro Tbk (SGRO), PT Salim Ivomas Pratama Tbk (SIMP), PT Sinar Mas Agro Resources and Technology Tbk (SMAR) and PT Sawit Sumbermas Sarana Tbk (SSMS) were selected based on the availability of complete data for 2022-2024. Panel data regression was used in this study to fully understand the dynamics of variables. Deflationary data, net profit margin exchange rates, and share prices of agricultural companies listed on the Indonesia Stock Exchange for 2022–2024 are processed analytically in this study using the EViews application. In addition to the various statistical and economic characteristics relevant to panel data regression analysis, EViews was chosen for its ability to handle time series data and panel data. The central objective of this study is to examine the influence of Deflation (X1), Exchange Rate (X2), and Net Profit Margin (X3) on Stock Price (Y) in agricultural sector companies. This study focuses on data sourced from 2024 for agricultural sector companies listed on the IDX [29].

RESULTS ANS DISCUSSION

Results

Statistics are a collection of data, both numerical and non-numerical, that is arranged in the form of tables, graphs, or diagrams to briefly describe a problem, such as the size of data concentration (mean, mode, median) and data distribution. The main goal of statistics is to simplify complex data into easy-to-understand information, making it easier to compare between groups or phenomena. In addition, statistics serve as a basis for decision-making by providing estimation, risk analysis, and identification of patterns or relationships between variables. Data processing and analysis in this study was carried out with the help of the EViews 12 application program.

Table 1. Descriptive Statistical Analysis Results

	X1	X2	X3	Y
Mean	-1.75064	2.642546	2.203222	5.622123
Median	-1.57637	2.666707	2.301981	6.291569
Maximum	-0.0157	2.681146	3.582539	6.882437
Minimum	-3.84857	2.579153	0.855747	0.198851
Std. Dev.	0.625515	0.045571	0.640169	1.305002
Skewness	-0.66493	-0.65412	-0.12432	-1.73057
Kurtosis	8.487357	1.499301	2.544756	6.860988

Jarque-Bera	83.684	10.40444	0.706306	70.57773
Probability	0	0.005504	0.70247	0
Sum	-110.29	166.4804	138.803	354.1937
Sum Sq. Dev.	24.25869	0.128757	25.40858	105.5879
Observations	63	63	63	63

Source: Data processed in 2025 with E-Views 12

The variable X1 (Deflation) shows a fairly varied data pattern with uneven distribution characteristics. This can be seen from the mean value of -1.75964 and the median value (median) of -1.57637, where the proximity of these two values indicates that during the observation period, the agricultural sector more often experiences mild to moderate deflationary conditions. The X1 data range moves from a minimum value of -3.84857 (reflecting the occurrence of extreme deflation in a given period) to a maximum of -0.0157 (very mild deflation), with a total range of 3.83 points. The level of data diversity is moderate, with a standard deviation of 0.625515, but it is found that there is a very asymmetrical distribution pattern. A very negative skewness value of -0.66493 indicates some extreme deflationary events that attract distribution. It can be concluded that the effect of Deflation on Stock Prices is significant because there is a fairly deep deflation in a certain period with considerable variability. These varied deflationary fluctuations make investors use them as an important reference in investment decision-making.

The variable X2 (Exchange Rate) shows a very stable and consistent data pattern. This can be seen from the almost similar mean and median values, where X2 has a mean of 2.642546 and a median of 2.666707, the X2 data range moves from a minimum of 2.579153 (reflecting relatively strong exchange rate conditions) to a maximum of 2.681146 (when there is light pressure on the exchange rate), with a total range of only 0.102 points. The proximity of the median mean value indicates that the distribution of data on the variables is very even and almost symmetrical. The level of data diversity is also relatively low, with a standard deviation of 0.045571, so that no extreme spikes in values are found. The moderate positive skewness value of -0.65412 indicates a slight distribution tendency but is still within the limits of reasonableness. The effect of the exchange rate on the stock price also showed insignificant results because the stability of the exchange rate maintained during the study period did not provide significant volatility. Investors are likely to consider other fundamental factors of the company more than relatively controlled exchange rate movements and do not create any significant pressure or boost to the stock price volatility of agricultural sector companies.

The X3 (Net Profit Margin/NPM) variable shows different characteristics with wider data variability. X3 has a mean mean value of 2.203222 which is smaller than the median of 2.301981. This difference indicates a negative skewness of -0.12432, which

indicates that the data distribution tends to be almost symmetrical. The sizable standard deviation of X3 of 0.640169 indicates a high degree of variation, with a range of data from a minimum of 0.855747 (reflecting the existence of a company with low profitability) to a maximum of 3.582539 (the ability of some companies to generate considerable profits), with a total range of 2.73 points. This high level of data dissemination shows that the profitability of agricultural sector companies during the study period is volatile and uneven. This high variability has been proven to have a significant effect on stock prices, where there is profitability that must be achieved before investors respond positively. The actual relationship between NPM and Stock Price is strong enough under current data conditions that it can be concluded that NPM (X3) is an important factor in influencing stock price (Y), in line with the research findings that the influence of X3 on Y is significant.

Chow Test

The best panel regression model was identified using the Chow test. The fixed effect model is used if the probability value of F is less than 0.05, which indicates that the individual differences are significant. On the other hand, the general-effect model is chosen if the probability value of F is higher than 0.05 which indicates that there is no significant difference.

Table 2. Chow Test Results

Redundant Fixed Effects Tests Equation: Untitled Test cross-section fixed effects			
Effects Test	**Statistic**	**d.f.**	**Prob.**
Cross-section F	2.927781	(20,39)	0.0020
Cross-section Chi-square	57.762247	20	0.0000

Based on the above test output, it can be seen that the probability value for the Chi-square cross-section is 0.0000 which is smaller than 0.05 (0.0000 < 0.05). This shows that there is a significant difference in fixed effect between cross-section units, so the model chosen is the Fixed Effect Model (FEM).

Hausman Test

The best panel models are selected using the Hausman test. The Fixed Effect Model is still selected if the probability is less than 0.05 but if the probability is > 0.05, then the Random Effect Model is selected.

Table 3. Hausman Test Results

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	4.573884	3	0.2058

The results of the Hausman Test show that the probability value (Prob.) for Cross-section random is 0.2058. Since this probability value is greater than 0.05 (0.2058 > 0.05), the null hypothesis that the best model is the Random Effect Model (REM) is accepted.

Lagrange Multiplier Test (LM)

The Lagrange Multiplier (LM) test developed by Breusch-Pagan is used to determine the choice of a model between a Random Effect Model (REM) and a Common Effect Model (CEM). The rule of thumb is: If the probability value of the Breusch-Pagan cross-section is less than 0.05 (Prob. < 0.05), then the model to be chosen is the Random Effect Model (REM). Conversely, if the probability value is greater than 0.05 (Prob. > 0.05), then the most appropriate model is the Common Effect Model (CEM).

Table 4. Lagrange Multiplier Test Results

Lagrange Multiplier Tests for Random Effects
Null hypotheses: No effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

	Test Hypothesis		
	Cross-section	**Time**	**Both**
Breusch-Pagan	8.365590 (0.0038)	1.369652 (0.2419)	9.735243 (0.0018)
Honda	2.892333 (0.0019)	-1.170321 (0.8791)	1.217646 (0.1117)
King-Wu	2.892333 (0.0019)	-1.170321 (0.8791)	-0.243787 (0.5963)
Standardized Honda	3.052216 (0.0011)	-0.585012 (0.7207)	-2.283400 (0.9888)
Standardized King-Wu	3.052216 (0.0011)	-0.585012 (0.7207)	-2.913328 (0.9982)
Gourieroux, et al.	--	--	8.365590 (0.0057)

The results of the Breusch-Pagan Lagrange Multiplier (LM) Test show that the probability value for Cross-section is 0.0038. Since this probability value is less than 0.05 (0.0038 < 0.05), the null hypothesis (CEM is better than REM) is rejected. This indicates that the Random Effect Model (REM) is more appropriate than the Common Effect Model (CEM). Thus, after considering the results of the previous Hausman Test which also selected REM, it can be concluded that the Random Effect Model (REM) is the most appropriate model to use in the regression analysis of this panel data.

Selected Models

Thus, after considering the results of the previous Hausman Test which also selected REM, it can be concluded that the Random Effect Model (REM) is the most appropriate model to use in the regression analysis of this panel data.

Table 5. Model Selection Results

Model Testing	Model Test Results	Model Results
Chow Test	0.0000 < 0.05	FEM
Hausman Test	0.2058 > 0.05	REM
Uji Lagrange Multiplier	0.0038 < 0.05	REM

Hypothesis Test

Determination Coefficient Test (R^2)

The coefficient of determination (R^2) is used to measure how much proportion or percentage of the variability of the bound (dependent) variable can be explained by all independent variables in the regression model. In other words, this coefficient indicates the degree of suitability or predictability of the model. In multiple linear regression models, the most commonly used and recommended value of the determination coefficient is Adjusted R-Square (adjusted R^2), as this value already takes into account the number of independent variables included in the model [30].

Table 6. Determination Coefficient Test Results (R^2)

Root MSE	1.196702	R-squared	0.408456
Mean dependent var	9.142136	Adjusted R-squared	0.367660
S.D. dependent var	5.293864	S.E. of regression	1.247218
Akaike info criterion	3.431003	Sum squared resid	90.22209
Schwarz criterion	3.601093	Log likelihood	-103.0766
Hannan-Quinn criter.	3.497900	F-statistic	10.01212
Durbin-Watson stat	0.831882	Prob(F-statistic)	0.000003

Based on the results of the determination coefficient test, the Adjusted R-Square value was obtained as 0.367660 (or around 36.77%). This value means that the independent variables (X1, X2, and X3) collectively have a proportion of influence or ability to explain variations in the bound variable (Y) of 36.77%. The rest, 63.23%, is influenced and explained by other variables outside the regression model and the scope of this study.

Persial Hypothesis Test (T Test)

The T test in multiple linear regression serves to determine whether each independent variable significantly affects the dependent variable separately. The independent variable is said to have a significant influence if the probability value is less than 0.05 (Prob. < 0.05). Conversely, if the probability value is greater than 0.05 (Prob. > 0.05), then the independent variable has no significant influence individually [31]

Table 7. Partial Hypothesis Results (T Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.41782	5.925462	3.614540	0.0006
X1	0.380661	0.099427	3.828549	0.0003
X2	-3.041911	1.908209	-1.594118	0.1163
X3	-9.891805	3.905365	-2.532876	0.0140

Based on the results of the t-test (Partial Significance Test) that has been carried out, it can be concluded that:

1. The t-Statistical value of the variable Deflation (X1) is 3.828549 with a probability value of 0.0003. It can be concluded that the variable X1 significantly affects the dependent variable (Y) because 0.0003 < 0.05.
2. The t-Statistical value of the Exchange Rate variable (X2) is -1.594118 with a Probability value of 0.1163. Since 0.1163 > 0.05, it can be concluded that the variable X2 has no significant influence on the dependent variable (Y).
3. The t-Statistical value of the variable Net Profit Margin (X3) is -2.532876 with a Probability value of 0.0140. Since 0.0140 < 0.05, it can be concluded that the variable X3 has a significant influence on the bound variable (Y).

Simultaneous Hypothesis Test (F Test)

The F test evaluates the cumulative impact of all independent factors on the dependent variables in multiple regression. The criteria are simple: significant simultaneous effects are indicated by a probability of less than 0.05 and no significant simultaneous effects are indicated by a probability greater than 0.05.

Table 8. Results of Simultaneous Hypothesis Test (F Test)

Root MSE	1.196702	R-squared	0.408456
Mean dependent var	9.142136	Adjusted R-squared	0.367660
S.D. dependent var	5.293864	S.E. of regression	1.247218
Akaike info criterion	3.431003	Sum squared resid	90.22209
Schwarz criterion	3.601093	Log likelihood	-103.0766
Hannan-Quinn criter.	3.497900	F-statistic	10.01212
Durbin-Watson stat	0.831882	Prob(F-statistic)	0.000003

Based on the results of the F (Simultaneous Significance) test that has been carried out, the F-Statistical Probability value of 0.000003 is obtained. Since the F-statistical probability value is 0.000003 which is smaller than 0.05 (0.000003 < 0.05), the hypothesis that there is a simultaneous influence is accepted. It can be concluded that the independent variables (X1, X2, and X3) together (simultaneously) have a significant influence on the bound variables (Y).

Discussion

The Effect of Deflation on Stock Prices

The results of the Deflationary variable hypothesis test are proven to have a significant influence on the share price of agricultural sector companies. This is also supported by descriptive results that state that the deflationary variability is quite high with a wide range reflecting substantial price fluctuations, so it is an important signal for investors in making investment decisions. The positive influence of deflation indicates that the decline in stock prices encourages investors to shift their portfolios to real sectors such as agriculture which are considered more stable and defensive. Contextually, the deflation that occurred during the observation period was often triggered by an abundance of food supply due to a good harvest season, analyzed by [32]. According to the results of this study, the positive effect of deflation on the stock price of the agricultural sector shows that the decline in price levels during the observation period is not perceived by investors as a signal of weakening demand, but as a reflection of abundant supply and improved production performance due to the harvest season. The deflation that occurred during the El Nino period in this study was *supply-driven*, reflecting the operational efficiency and stability of the performance of agricultural companies. This condition encourages investors to shift their investment portfolios to the agricultural sector which is considered more defensive and has strong long-term fundamental prospects. Thus, deflation in the context of this study is a positive signal that increases investor confidence in the productivity of the agricultural sector and has an impact on the increase in stock prices.

The results of this study are supported by research [33] that the deflation that occurs is supply-based productivity, so that it is responded positively by investors and has an impact on increasing the stock price of the agricultural sector, in contrast to deflation due to weakening demand which generally has a negative impact. This suggests that investors' response to deflation is influenced by accompanying economic conditions. Seasonal deflation due to increased supply and production efficiency in the agricultural sector is perceived positively by the market. These findings confirm that investors are more focused on the company's operating fundamentals than just aggregate price changes in response to deflation. This condition shows that deflation in the agricultural sector is not seen as a signal of economic weakness, but rather as an indicator of the stability of performance and the company's long-term prospects.

The Effect of Exchange Rates on Stock Prices

The results of the exchange rate variable hypothesis test proved to have no significant influence on the share price of agricultural sector companies. Descriptive results showing that exchange rates do not have a real impact on stock prices further reinforce this in the agricultural sector in line with findings [34], [35] which state that the influence of exchange rates on stock markets varies between countries and is not always significant. Although exchange rates are a key economic indicator and have the potential to influence the agricultural sector, the study found that investors do not prioritize exchange rates when determining the value of shares of agricultural companies. Investors

are usually more affected by the company's internal fundamentals, which indicate its operational performance and stability. [36], [37]

The results of this study are supported by previous research [38] and also supported by the journal [39] which proves that macroeconomic variables such as interest rates and exchange rates do not always have a significant influence on stock prices. These findings suggest that the stability of the stock price of the agricultural sector reflects investors' focus on the company's long-term financial performance and fundamental prospects, so macroeconomic fluctuations and corporate actions that do not change the real economic value of the company are not a major concern. Investors consider that the company's operating conditions and ability to maintain profitability determine the value of the stock more than temporary external changes [40]. During the study period, exchange rate stability also strengthened the perception that macroeconomic risks are relatively under control. Therefore, investment decisions are based more on the internal performance of agricultural sector companies in the face of economic and climate dynamics.

The Effect of Net Profit Margin on Stock Price

The results of the variable Net Profit Margin (NPM) hypothesis test show that there is a significant influence on the Stock Price. The findings in this study expand the study conducted by [41] the relationship between financial ratios and stock prices by considering the role of dividend policy as a moderation variable. In contrast to the findings which stated that Net Profit Margin had no significant effect directly, this study found that NPM had an effect on stock prices. At a low level of profitability, the increase in NPM has not been able to increase the stock price because it is perceived to be unstable. However, after passing a certain level of profitability, the increase in NPM was responded positively by investors as it reflected continued operational efficiency.

The results of this study are supported by previous research [42] and also supported by journals [43] which prove that profitability, measured by ratios such as NPM, has an influence on stock prices. This research is in line with findings that show the effect of Net Profit Margin on stock prices. That the relationship between NPM and stock prices has a turning point, where at low profitability levels NPM has not been responded positively by investors. However, once it passes a certain level of profitability, the increase in NPM drives the stock price up because it reflects the company's operational efficiency and fundamental strength. This condition suggests that investors are more sensitive to the sustainability of profits than simply an increase in short-term profitability [44].

CONCLUSION

Fundamental Finding : This study shows that deflation and Net Profit Margin (NPM) have a significant effect on the stock price of the agricultural sector during 2022–2024 in the context of El Nino, while the exchange rate has no significant effect. Seasonal deflation is responded positively by investors because it reflects an increase in supply and production efficiency, while the influence of NPM is gradual, where low profitability can suppress stock prices but at a more stable level it actually increases investor interest.
Implication : The investment approach in the agricultural sector is supported by

important findings about the beneficial impact of deflation on net profit margins, especially during seasonal deflation after a major harvest. This research provides important insights for investors and stakeholders in understanding the stock market dynamics of the agricultural sector in the midst of extreme climatic conditions such as El Nino. **Limitation :** Although they account for only a small fraction of price volatility, these three variables collectively have a considerable impact on stock prices; the rest are influenced by additional factors that are not studied. **Future Research :** To deepen our understanding of the dynamics of the stock price of the agricultural sector, further research is recommended to expand the scope of control variables and extend the analysis period to allow comparisons between pre- and post-El Nino conditions as well as examination of variations within subsectors.

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REFERENCES

[1] P. T. Astra and A. Lestari, "PT. Astra Agro Lestari Tbk.," *Jakarta. PT Astra Agro Lestari Tbk*, no. April, p. 2006, 2024.

[2] Aulia Ivanka Rahmana, "Corn Prices Are Predicted to Rise, Here's the Impact on Poultry Issuers," Investikuku.

[3] Iswanto, et al., "The Impact of Climate Change and the El Nino Phenomenon on the Plantation Sub-Sector (Oil Palm Oil, Rubber, Coffee, and Cocoa)," Library of the Secretary General of Agriculture.

[4] S. S. Permatasari and M. Mukaram, "The Effect of Financial Ratios on Stock Prices," *Journal of Business and Investment Research*, vol. 4, no. 3, p. 47, 2025, doi: 10.35697/jrbi.v4i3.1256.

[5] Budiyanti Eka and Nita Mulia Deniza, "The Impact of Deflation on the Economy and Efforts to Overcome It," 2024.

[6] B. E. Prihatiningsih and A. Susanti, "Mufakat Mufakat," *Journal of Economics, Accounting, Management*, vol. 2, no. 2, pp. 91–107, 2023.

[7] A. Wahyudi and E. N. Aysiyah, "DEFLATION CONTROL STRATEGY IN INDONESIA: AN ISLAMIC ECONOMIC APPROACH IN ANSWERING ECONOMIC CHALLENGES Amin Wahyudi State Islamic Institute of Ponorogo Erinda Nur Aysiyah State Islamic Institute of Ponorogo," vol. 9, 2024.

[8] N. B. Situmorang, "THE EFFECT OF NET PROFIT MARGIN, RETURN ON ASSET, RETURN ON EQUITY, AND DEBT TO EQUITY RATIO, ON STOCK PRICES (Empirical Study on Mining Companies Listed on the IDX for the 2013-2018 Period)," *EBISTEK Journal (Business Economics and Technology)*, vol. 3, no. 1, 2022.

[9] W. R. Tamalia Nur Fadillah, Dedi Budiman Hakim, "THE ASYMMETRIC EFFECT OF THE RUPIAH EXCHANGE RATE ON THE EXPORT VALUE OF THE INDONESIAN AGRICULTURAL SECTOR," vol. 6, pp. 154–165, 2022.

[10] M. Fatmawati and R. R. Sugiharti, "The Dynamics of the Rupiah Exchange Rate Against the US Dollar: The Monetary Approach Method," *Qu Journal of Economics*, vol. 11, no. 2, p. 265, 2021, doi: 10.35448/jequ.v11i2.13227.

[11] A. T. N. Nguyen, "Currencies in Turbulence: Exploring the Impact of Natural Disasters on Exchange Rates," *IMF Working Papers*, vol. 2024, no. 186, p. 1, 2024, doi: 10.5089/9798400289385.001.

[12] and A. Setiyanto. Mardianto, Sudi, "Analysis of the Impact of El Nino on Food Crop Production," 2023.

[13] R. Tesniwati, S. Sriyanto, I. Windarti, and F. Rakhmita, "The Effect of Return on Asset, Return on Equity, Net Profit Margin, and Earning Per Share on Stock Price," *Eqien - Journal of Economics and Business*, vol. 11, no. 04, pp. 45–47, 2022, doi: 10.34308/eqien.v11i04.1286.

[14] A. A. Salsabillah, M. Anwar, and I. Wikartika, "Analysis of the Profitability of Pharmaceutical Sub-Sector Companies Listed on the Indonesia Stock Exchange," *SEMARaK JOURNAL*, vol. 5, no. 1, pp. 52–61, 2022, doi: 10.32493/smk.v5i1.18419.

[15] S. N. K. Murthi, A. Subaki, and Sumardi, "The Effect of Sales Growth, Receivables Turnover, Inventory Turnover, Company Size and Leverage on Profitability," *ULTIMA Accounting*, vol. 13, no. 2, pp. 271–293, 2021.

[16] Christina Dewi Wulandari and Tri Damayanti, "The Influence of Capital Structure, Company Size and Liquidity on Company Value with Profitability as an Intervening Variable," *Journal of Accounting and Business Management*, vol. 2, no. 1, pp. 01–18, 2022, doi: 10.56127/jaman.v2i1.68.

[17] Sri R. D. F. Siregar, "The Effect of Net Profit Margin and Earnings Per Share on Stock Prices in Health Sector Companies Listed on the Indonesia Stock Exchange for the 2019-2021 Period," vol. 2, no. 4, pp. 1–68, 2023.

[18] Wahyu Leman, "The Effect of Net Profit Margin and Current Ratio of Food and Beverage Companies on Stock Prices on the Indonesia Stock Exchange," *EKONOMIKA45 : Scientific Journal of Management, Business Economics, Entrepreneurship*, vol. 10, no. 2, pp. 652–664, 2023, doi: 10.30640/economics45.v10i2.2168.

[19] R. Septiano and L. Sari, "Changes in Net Profit Margins and Their Impact on Stock Prices: An Overview of the Food and Beverage Industry," *Jurnal Revenue*, vol. 4, no. 2, pp. 731–738, 2024.

[20] R. S. G. S. Sipayung, "Indonesia's Economic Growth Dynamics 2023 and Projected Challenges in 2024," setkab.go.id.

[21] (Erna, "The Effect of Exchange Rates and Coal Prices on Stock Prices," *Chapter II Literature Review 2.1*, vol. 12, no. 2004, pp. 6–25, 2022.

[22] A. Santika, Y. Rahayu, N. Ernawati, and J. Zuhriatusobah HS, "The Effect of Net Profit Margin, Earning Per Share, Inflation and Rupiah Exchange Rate on Stock Prices," *Owner*, vol. 7, no. 1, pp. 753–763, 2023, doi: 10.33395/owner.v7i1.1269.

[23] M. P. Harianto, Wahidahwati, & Priyadi, "The Effect of Financial Ratios on Stock Prices in Manufacturing Companies Listed on the IDX," *Accounting Science and Research*, vol. 12, no. 2, pp. 1–22, 2024.

[24] A. J. Staugaitis and B. Vaznonis, "Financial Speculation Impact on Agricultural and Other Commodity Return Volatility: Implications for Sustainable Development and Food Security," *Agriculture*, vol. 12, no. 11, p. 1892, 2022, doi: 10.3390/agriculture12111892.

[25] W. C. Ananda and A. B. Santoso, "The Effect of Inflation, Interest Rates, and Rupiah Exchange Rates on Stock Returns in Banking Companies Listed on the Indonesia Stock Exchange (2018-2020)," *J-MAS (Journal of Management and Science)*, vol. 7, no. 2, p. 726, 2022, doi: 10.33087/jmas.v7i2.559.

[26] J. F. Salim, "The Influence of Monetary Policy on Economic Growth in Indonesia," *Ekombis: Journal of the Faculty of Economics*, vol. 3, no. 2, pp. 7–15, 2024, doi: 10.35308/ekombis.v3i2.435.

[27] F. J. Sodik, F. Rachmansyah, D. D. Ananda, D. Wicaksono, and A. Fadilla, "Monetary Policy Challenges and Opportunities for Developing Countries in the Era of Globalization," *Journal of Macroeconomics and Social Development*, vol. 1, no. 3, pp. 1–7, 2024, doi: 10.47134/jmsd.v1i3.198.

[28] M. H. Nur Maulidah Rachmah, Detak Prapanca, "The Role of Profitability, Liquidity, and Leverage on Internet Financial Reporting Study of Manufacturing Companies Listed on the IDX," vol. 09, no. 2, pp. 466–477, 2024.

[29] F. Ramadhani, H. Maya, K. Sari, and D. Prapanca, "Food & Beverage Sector Share Price Up At The Same Time, Why?," *Management Studies and Entrepreneurship Journal*, vol. 5, no. 2, pp. 3983–3998, 2024.

[30] I. M. Pratiwi, Marseto, and Sishadiyati, "ANALYSIS OF THE INFLUENCE OF POPULATION, HUMAN DEVELOPMENT INDEX AND MINIMUM WAGE ON UNEMPLOYMENT IN BANGKALAN REGENCY," *Jurnal Syntax Transformation*, vol. 2, no. 6, pp. 2721–2769, Jun. 2021.

[31] S. Sulantari, W. Hariadi, E. D. Putra, and A. Anas, "Multiple Linear Regression Analysis to Model the Factors Affecting the Value of Indonesia's Annual State Debt Addition," *Unisda Journal of Mathematics and Computer Science (UJMC)*, vol. 10, no. 1, pp. 36–46, 2024, doi: 10.52166/ujmc.v10i1.6631.

[32] C. L. Gilbert and C. W. Morgan, "Food price volatility," *Philosophical Transactions of the Royal Society B: Biological Sciences*, vol. 365, no. 1554, pp. 3023–3034, Sep. 2010, doi: 10.1098/rstb.2010.0139.

[33] G. Baltussen, L. Swinkels, B. Van Vliet, P. Van Vliet, * Baltussen, and B. Swinkels, "Investing in deflation, inflation, and stagflation regimes," *Financial Analysts Journal*, vol. 79, pp. 5–32, Jul. 2023, Accessed: Jan. 27, 2026. [Online]. Available: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4153468

[34] A. J. Majok, D. Kaluge, and D. Satria, "Analyzing the Effects of Interest Rates, Inflation, and Exchange Rates on Stock Market Performance: A Comparative Study Of Indonesia and Japan," *Journal of Indonesian Applied Economics*, vol. 12, no. 1, pp. 13–26, Feb. 2024, doi: 10.21776/ub.jiae.2024.012.01.2.

[35] W. A. Elgharib, M. Elmarzouky, and D. Shohaieb, "How Do Stock Returns Respond to a Currency Devaluation Announcement?," *Journal of Risk and Financial Management*, vol. 18, no. 12, Dec. 2025, doi: 10.3390/jrfm18120663.

[36] N. David, "Exchange Rate Shock and Financial Stability In Nigeria: An Empirical Analysis," 2022. [Online]. Available: www.ijhssm.org

[37] I. O. Fasanya and O. A. Akinwale, "Exchange Rate Shocks and Sectoral Stock Returns in Nigeria: Do Asymmetry and Structural Breaks Matter?," *Cogent Economics and Finance*, vol. 10, no. 1, 2022, doi: 10.1080/23322039.2022.2045719.

[38] U. N. Kayani, A. F. Aysan, A. Gul, S. A. Haider, and S. Ahmad, "Unpacking the asymmetric impact of exchange rate volatility on trade flows: A study of selected developed and developing Asian economies," *PLoS One*, vol. 18, no. 10 October, Oct. 2023, doi: 10.1371/journal.pone.0291261.

[39] D. El-Diftar, "The impact of exchange rates on stock market performance of the Emerging 7," *Journal of Capital Markets Studies*, vol. 7, no. 2, pp. 125–139, Dec. 2023, doi: 10.1108/JCMS-03-2023-0005.

[40] D. Sunaryo, "Importance of Current Ratio and Dividend Yield Ratio in Moderating Process on Stock Prices," *Ilomata International Journal of Management*, vol. 3, no. 3, pp. 380–402, Jul. 2022, doi: 10.52728/ijjm.v3i3.490.

[41] N. Albart, H. Purnomo, U. Suherman, L. Judijanto, and S. Hermuningsih, "The Effects of Net Profit Margin, Debt Ratio, Total Assets Turnover, and Current Ratio on the Stock Prices of IDX 30 Companies within 2018-2022," *International Journal of Science and Society*, vol. 5, no. 5, p. 2023, 2023, [Online]. Available: http://ijsoc.goacademica.com

[42] O. M. Ajeigbe, "DYNAMICS OF OIL PRICE, EXCHANGE RATE AND THE TRADE PERFORMANCE OF QUOTED INDUSTRIAL SECTORS AT THE ALL SECURITIES MARKET (ASEM) IN NIGERIA," *Adv. Soc. Sci. Res. J.*, vol. 9, no. 4, pp. 267–286, Apr. 2022, doi: 10.14738/assrj.94.12106.

[43] Martinus Robert Hutauruk, "The potential impact of fundamental value, market value, and firm size as moderator variable on firm value at Indonesia palm oil company," *World Journal of Advanced Research and Reviews*, vol. 14, no. 2, pp. 14–2, May 2022, doi: 10.30574/wjarr.2022.14.2.0449.

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