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EFFECT OF FINANCIAL RATIOS ON THE STOCK PRICE: A CASE STUDY OF PLANTATION SECTOR IN MALAYSIA

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ABSTRACT

The plantation sector is a key sector in the Malaysian economy, with a significant contribution to the nation's GDP. This study examines the relationship between financial ratios and stock prices of the plantation industry in Malaysia. The study adopts a quantitative research design to examine the effect of individual and combination of financial ratio on stock prices of 30 plantation companies at Kuala Lumpur Stock Exchange (KLSE). The predetermined and random effect models are presented to estimate the panel data model and Hausman specification test applied to define appropriate model for either the fixed or random effects. The results reveal that the majority of individual financial ratio can predict future capital gain on agribusiness stocks, while the ratio of book to market value (BM) contributes as a highest predictive power on capital gain. The correlations identified between these financial metrics and stock returns underscore the importance of financial analysis in investment decision-making, highlighting how nuanced assessments of a company's financial statements can reveal significant opportunities for informed investment strategies. Furthermore, the study accentuates the necessity for robust financial reporting standards and practices that can enhance the accuracy of financial reporting, thereby contributing to a more transparent and reliable market ecosystem.

Keywords: *Plantation Sector, Financial Ratios, Kuala Lumpur Stock Exchange (KLSE), Panel Data Model, Capital Gain.*

INTRODUCTION

The plantation sector in Malaysia, a crucial component of the agricultural industry, is centered around the cultivation of major crops like palm oil, rubber, and cocoa on extensive plantations. As a pivotal contributor to the Malaysian economy that the plantation sector has been tremendously contributed to the Malaysia GDP and most significant production, alongside other notable crops such as rubber, cocoa, tea, and coffee (Statista, 2023). Moreover, this sector boasts a rich historical tapestry, dating back to the British colonial era, a period marked by the substantial development of rubber plantations and other cash crops. Meanwhile, the plantation sector has tremendously contributed to the Malaysian GDP.

In the contemporary landscape, the sector is predominantly overseen by large multinational corporations and government-linked entities. However, it also encompasses numerous smallholders who play a vital role in crop cultivation on a more modest scale, as highlighted by (Pelupu, Healy, Wright, Bradbury and Coulton, 2020) in their study on smallholder dynamics. These diverse participants in the plantation sector navigate a myriad of challenges, including the volatility of commodity prices, evolving regulatory frameworks, and pressing environmental concerns. Despite these hurdles, the sector continues to be an integral force in driving Malaysia's economy, significantly contributing to employment and export earnings. The recent years have seen a paradigm shift towards more sustainable and environmentally conscious practices within the sector. Efforts to bolster productivity while simultaneously curtailing environmental degradation have become increasingly prominent, as emphasized in studies like those of which delve into the sustainability initiatives in tropical plantation agriculture.

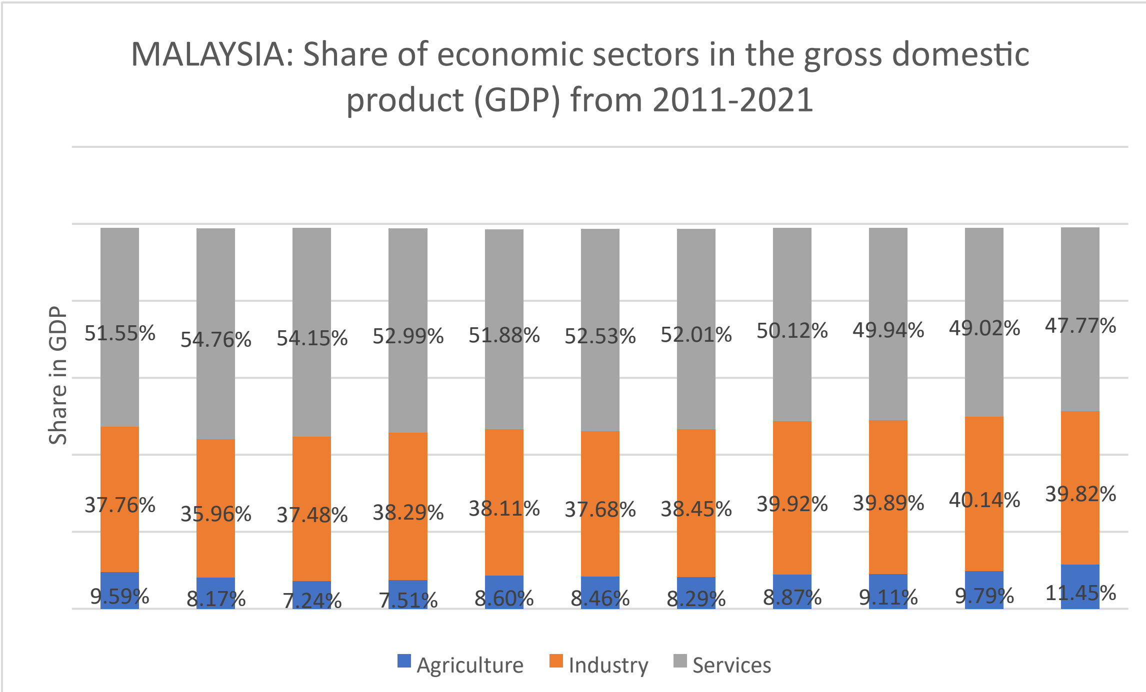

Figure 1. Percentage share of GDP contribution from the plantation sector
Source: Statista (2023)

Financial ratios are essential tools for assessing the financial strength and operational efficiency of a company, influencing its stock market valuation (Fridson and Alvarez, 2022). They provide insights into profitability, leverage, liquidity, and efficiency, aiding stakeholders in making informed decisions about equity securities. Some key ratios include the Price-to-Earnings (P/E) ratio, Debt-to-Equity (D/E) ratio, Return on Equity (ROE), and Current Ratio (CR) (Elmerraji, 2022). These ratios are widely discussed in financial literature and are organized into categories such as profitability, liquidity, solvency, and valuation (Elmerraji, 2022). Valuation ratios, such as the Price-to-Earnings (P/E) ratio, put the company's insight into the context of its share price, serving as useful tools for evaluating investment potential (Fidelity, 2013). They are calculated using different measures of a company's stock value to come up with a ratio and are valuable tools for evaluating investment potential (Elmerraji, 2022).

A heightened P/E ratio may suggest that the stock is potentially overvalued in relation to its earnings, signaling caution unless there is an anticipation of growth in future earnings (Brealey, et al., 2014). The D/E ratio elucidates the degree to which a company is leveraged, offering a glimpse into its financial stability; an elevated ratio might indicate a higher risk, particularly if the firm's earnings are not consistent (Ross, et al., 2010). ROE is indicative of a company's efficiency in generating profits from its shareholders' equity, with superior ROE values being typically coveted as they suggest an adept utilization of investment capital (Damodaran, 2012). Meanwhile, the CR measures a firm's capacity to settle short-term obligations with its short-term assets, with a higher ratio reflecting a preferable liquidity position (Gitman, et al., 2015).

The challenge of accurately predicting stock price movements through financial ratios is a crucial aspect of investment strategy in the stock market, particularly in the context of Malaysia's plantation sector. Financial ratios act as barometers of a firm's financial health, offering insights into potential future stock price trajectories (Abdurofi, 2021). There are several studies that have examined the relationship between financial ratios and stock prices in the agricultural sector (Dadrasmoghadam and Akbari, 2015; Purba, et al., 2023). However, a substantial obstacle is the scarcity of empirical studies that elucidate the relationship between these financial ratios and stock prices within this specific sector (Chen and Yuan, 2021). This deficiency in research and data, can lead to a tepid investment climate in the sector, as investors may be reluctant to commit funds without clear indicators of financial performance (Kushwaha and Sabu, 2020). This lack of information can have far-reaching consequences. Investors' reticence, stemming from insufficient data, might result in plantation companies facing a dearth of financial resources. This scenario can severely impact their operational capabilities and expansion prospects, potentially increasing their dependence on debt. Elevated debt levels heighten the risk profile of these companies, potentially undermining their financial solvency (Brigham, 2016).

Conversely, a comprehensive understanding of the relationship between financial ratios and stock prices could significantly benefit the plantation sector. Accurate financial analysis can catalyze investment, funneling essential capital into the sector for growth and innovation. This influx of investment can enhance operational efficiency and stimulate sector-wide growth, contributing positively to the macroeconomic framework (Berk and Dermazo, 2007). The plantation sector, backed by informed and confident investment, can thus embark on a trajectory of sustained growth and economic contribution. Hence, the objective of the study is to examine the relationship between financial ratios and stock price of the plantation sector in Malaysia.

MATERIAL AND METHODS

Study location and data collection

This study adopts a quantitative research design to examine the relationship between financial ratios and stock price in the plantation sector in Malaysia. Cross-sectional data will be collected at a specific point in time from selected plantation companies listed on the Malaysian stock exchange. The sample for this study will be selected using a purposive sampling technique. The reason of applying purposing sampling since the study will only focus to obtain the data based on the plantation sector in Kuala Lumpur Stock Exchange (KLSE) as a sample size of the study. Cross-sectional data reflect financial ratios from the 30 plantation companies, while the time-series applies the change of stock price over time in a period of 5 years from 2018 until 2022. Factors such as market capitalization, financial stability, and the availability of financial data will be considered when selecting the sample (Hair et al., 2019). By ensuring a representative sample of plantation companies, the findings can be more generalizable to the plantation sector.

Data for financial ratios will be collected from various sources, including annual reports, financial databases, and specialized financial research platforms (Malaysian Palm Oil Council, 2021). Financial ratios such as return on assets (ROA), debt ratio (DR), current ratio (CR), and dividend yield (DY) will be calculated for each company in the sample based on their financial statements. Historical stock price data will be retrieved from financial databases or online sources (Financial databases). Daily, weekly, or monthly stock returns will be calculated based on the chosen frequency using the formula: $((P1 – P0) / P0) * 100$, where P0 represents the initial stock price and P1 represents the subsequent stock price. Moreover, the study will observe the data for a period 5 years, starting from January 2018 till December 2022. For 5-year observation period in the Kuala Lumpur Stock Exchange provides a robust foundation for investment decision-making, risk assessment, and performance evaluation, given the market's historical fluctuations and the need to differentiate between short-term and long-term trends. The process of collecting data was filtered by using five criteria as:

1. The company must be from plantation sector and the criteria refer to the theory.
2. The company must be listed on the Kuala Lumpur Stock Exchange (KLSE) main board before 1 January 2018, and the stocks of companies must not be suspended for more than 12 months.
3. The stocks of companies must not be delisted during the period of study.
4. The data of all variables for all companies must be available in DataStream.
5. The Dividend Yield of companies must not be zero for more than 7 months at any time period.

Data analysis

The study will be analyzed using EVIEWS data analysis and statistical software for professionals. While panel data regression techniques will be utilized as the original data collection based on cross sectional and time series. Cross-sectional data reflected stock return from the different firms, and the time-series reflected the changes within stock return over time in each firm. Before directing the prospective regression on this study, the unit root test methods apply to examine the stationary of the variables. Additionally, the predetermined and random effect models are presented to estimate the panel data model and Hausman specification test applied to define appropriate model for either the fixed or random effects. If the random effect is the appropriate model, then the Breusch and Pagan test should be applied to determine whether random effect or ordinary least square are the appropriate model.

Generally, this research will execute the Generalized Least Squares (GLS) method to correct the set of covariance and t-statistic which will be more efficient than the Ordinary Least Square (OLS) method (Hok, 2012). However, the generalized least squares method assists to tackle the heteroskedasticity and nonnormally distributed residuals. Whereas the heteroskedasticity test standard errors to complete a correct standard error since White's test does not rely on the perception of normality that might create suitable results. When data are ordered in chronological order, the error on one time may impact the error on the next time periods, so this research also employs the Durbin-Watson (DW) test to identify the autocorrelation. The illustration of panel data model can be explained by Figure 2 below.

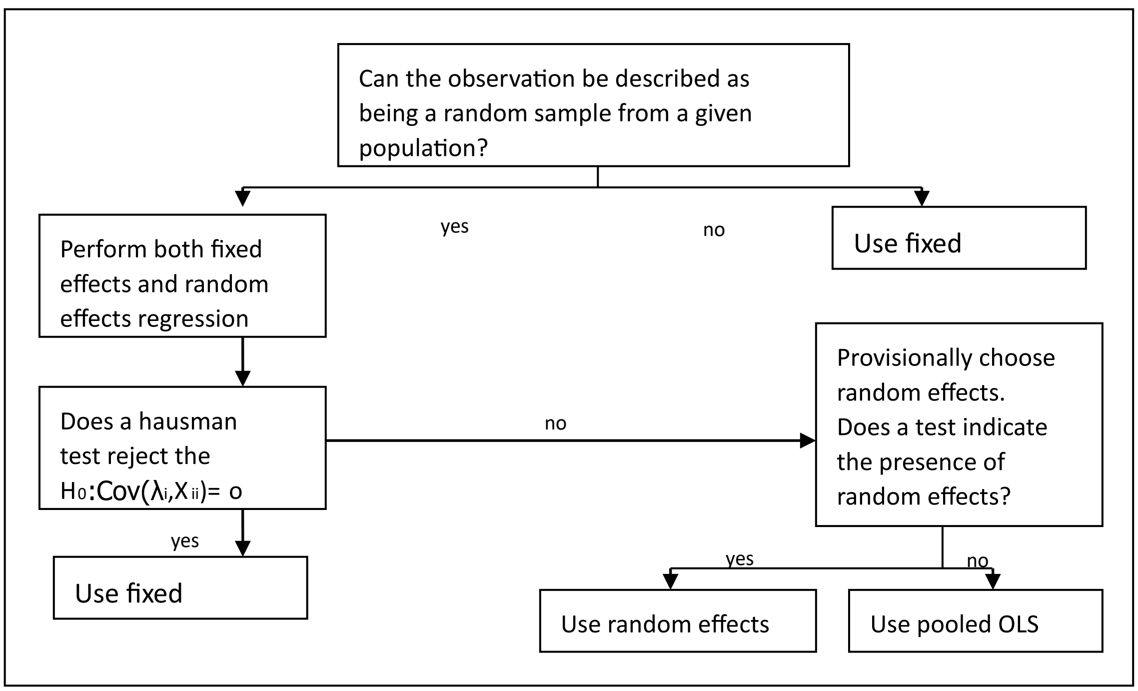

Figure 2. Choice of Regression Model in Panel Data
Source: Hok (2012)

Employing regression analysis, a powerful statistical tool, to estimate the precise impact of financial ratios on stock prices. This analytical framework will facilitate the identification of any significant relationships between the variables of interest, while simultaneously controlling for other relevant factors that may exert an influence. By carefully delineating and isolating the effect of financial ratios, the study will offer nuanced and robust insights into their direct impact on stock prices, thereby contributing to the existing body of knowledge in the field. It is worth noting that this comprehensive data analysis approach draws upon the well-established research methodologies as delineated by Hair et al. (2019). By adhering to these established protocols, the study aims to ensure methodological rigor, enhance the credibility of the findings, and foster a robust research framework that is both reliable and valid (Kropko and Kubinec, 2020).

The study will utilize panel data models to formulate prospective regressions and used straightforward regression models to assess the 5 hypothesis which are formulated on the foundation of association between each financial ratios and stock prices. The regression models will be constructed as the following form:

The multiple predictive regression models.

SPit = β0 + βi1DYi(t-1)+βi2CRi(t-1)+βi3DERi(t-1)+βi4ROAi(t-1) + εit ……………………………(1)

Where,

SP_{it} = the stock price, where I = stock and t = time period

β0 = the estimated constant,

β_1 = the coefficient for DY of the I th stock

β_2 = the coefficient for CR of the I th stock

β_3 = the coefficient for DER of the I th stock

β_4 = the coefficient for ROA of the I th stock

$DY_{i(t-1)}$ = DY factor of the I th stock in t-1 as time period

$CR_{i(t-1)}$ = CR factor of the I th stock in t-1 as time period

$DER_{i(t-1}$ = DER factor of the I th stock in t-1 as time period

$ROA_{i(t-1)}$= ROA factor of the I th stock in t-1 as time period

ε_{it} = error term.

Hypothesis

H_1 : There is relationship between stock price of the plantation firms in the period (t) and DY in the period (t-1)

H_2 : There is relationship between stock price of the plantation firms in the period (t) and CR in the period (t-1)

H_3 : There is relationship between stock price of the plantation firms in the period (t) and DER in the period (t-1)

H_4 : There is relationship between stock price of the plantation firms in the period (t) and ROA in the period (t-1)

RESULT AND DISCUSSIONS

Descriptive statistics

The descriptive statistics of each independent variable (CR, DR, DY, ROA) and dependent variables (SP) that are summarized by the mean, standard deviation, minimum and maximum value in panel data sets (Table 1). The type of data variables is used by percentage to provide a proportional data set. In order to detect reliable and reasonable data, the value of the mean and the standard deviation should be close as appropriate as the result provided. The result of standard deviation of stock price in this study constituted 6.1%.

Table 1: Descriptive Statistics of the Effect Financial Ratios on Stock Price

Variables	Mean	Std.Dev	Min	Max
Independent				
CR	11.4	24.3	0.0	142.01
DR	0.2	0.2	0.0	0.9
DY	0.1	0.3	0.0	3.0
ROA	0.0	0.1	-0.5	0.4
Dependent				
Stock Price	3.8	6.1	0.1	26.3

Notes: CR, DR, DY, ROA and SP are respectively current ratio, debt ratio, dividend yield, return on asset and stock price.

Table 2: The Unit Root Test of the Effect Financial Ratios on Stock Price

Unit test root	Independent				Dependent
	CR	**DR**	**DY**	**ROA**	**SP**
LLC					
Statistic	-102.305	-12.580	-12.890	-29.096	-17.362
P-value	0.000	0.000	0.000	0.000	0.000
IPS					
Statistic	-11.718	0.0365	-0.597	-1.559	-1.679
P-value	0.000	0.515	0.275	0.060	0.047
BU					
Statistic	6.149	2.303	4.689	2.369	1.730
P-value	1.000	0.989	1.000	0.991	0.958

Notes: 1) CR, DR DY ROA and SP are respectively current ratio, debt ratio, dividend yield, return on assets and stock price. 2) LLC, IPS and BU are respectively Levin-Lin-Chu, ImPesaran-Shin and Breitung unit root tests.

In panel data analysis, testing for unit roots is essential to ensure that variables are stationary, meaning their statistical properties, such as mean and variance, do not change over time (Kropko and Kubinec, 2020). The unit root tests presented in Table 2, specifically Levin-LinChu (LLC), Im-Pesaran-Shin (IPS), and Breitung (BU), are commonly employed to verify the stationarity of variables in a data set. Table 2 shows results for several financial ratios—Current Ratio (CR), Debt Ratio (DR), Dividend Yield (DY), Return on Assets (ROA)—as independent variables, and Stock Price (SP) as the dependent variable. The LLC test results display significant stationarity across all variables at the 1% level with p-values of 0.000. For the IPS test, CR and SP display stationarity with p-values of 0.000 and 0.047 respectively, indicating significance at the 1% level. DR, DY, and ROA do not show significance in the IPS test, which suggests that they may not be stationary based on this test. The BU test, however, indicates non-stationarities for all variables due to high p values ranging from 0.958 to 1.000, suggesting that the variables do not have unit roots according to this test. Despite the non-significant results from the BU test for all variables and the IPS test for some variables, the stationarity of the data set is predominantly supported by the LLC and IPS tests for CR and SP. These results suggest that the panel data set is largely stationary, which is a favorable condition for further analysis to assess the impact of financial ratios on stock prices. Stationary data sets are preferred as they are more reliable for making inferences in econometric analysis.

Panel data analysis

Table 3: The Ordinary Least Square, Fixed Effect, Random Effect, Hausman and Autocorrelation Test of Each Independent Variable to the Stock Price

METHOD	CR	DR	DY	ROA
OLS p-value	0.888	0.007	0.752	0.000
Decision	-	OLS	-	OLS
FIXED EFFECT p-value	0.429	0.017	0.621	0.343
Decision	-	-	FE	-
RANDOM EFFECT p-value	0.413	0.048	0.659	0.538
Decision	RE	-	-	-
HAUSMAN TEST p-value		0.009		
Decision		FE		
DURBIN WATSON p-value		1.134		
Decision		EA		

Notes: 1) * the test may be applicable if the RE is the appropriate option in Hausman test and also can be indicated to evaluate heteroskedasticity. 2) CR, DR, DY, ROA and SP are respectively current ratio, debt ratio, dividend yield, return on asset and stock price. 3) FE, RE and OLS are respectively fixed effect, random effect models and ordinary least square. 4) NA and EA are respectively no autocorrelation and existing autocorrelation

Table 4: The multiple predictive regression results of the stock price

Stock price	β_0	β_{i1}	β_{i2}	β_{i3}	β_{i4}	Adjust R^2(%)	p-value
Fixed effect model	$SPit = \beta0 + \beta i1DYi(t-1) + \beta i2CRi(t-1) + \beta i3DERi(t-1) + \beta i4ROAi(t-1) + \varepsilon it$						
Agribusiness firms	4.63	-0.01	-2.98	-0.27	-1.28	0.95	0.000

Notes: 1) CR, DR DY ROA and SP are respectively current ratio, debt ratio, dividend yield, return on assets and stock price. 2) β_0 Is unsystematic predictable constant component or the estimated constant β_{i1} β_{i2} β_{i3} and β_{i4} are respectively the predictable coefficient of the DY, CR, DER and ROA factors of the i th stock, i = 1,2,3,…,n.

Table 4 shows the multiple predictive regression results of the stock price. This table appears to summarize the results of a multiple regression analysis that was conducted to predict stock prices for agribusiness firms using a fixed effect model. In this model, the stock price (SP_{it}) is the dependent variable, and it is predicted by several independent variables, each associated with a beta coefficient (β). Here, β_0 represents the constant term of the regression, while β_{i1} to β_{i4} are the coefficients for the predictor variables DIY, CR, DER, and ROA, respectively, at time t for firm i. The predictor variables typically represent different financial ratios or market indicators that are hypothesized to have an impact on the stock price. It is emphasized by the study of Dadrasmoghadam and Akbari (2015) that CR and ROA have a significant effect on stock price. The εit term represents the error term or the residual of the regression at time t for firm i. The numerical results for the agribusiness firms Indicate that the constant term β_0 is 4.63, suggesting that if all predictor variables were zero, the stock price would be 4.63 units. The coefficients for the predictor variables are as follows: β_{i1} is -0.01, β_{i2} is -2.98, β_{i3} is -0.27, and β_{i4} is -1.28. These coefficients indicate the expected change in the stock price for a one-unit change in the respective predictor variable, holding all other variables constant.

The explanation provided delves into the performance and statistical validity of a predictive model concerning stock prices, highlighted by its adjusted R-squared (R^2) value of 0.95 and a p-value of 0.000. The adjusted R^2, an enhanced version of the R^2 statistic that accounts for the number of predictors in the model, indicates a remarkably high degree of explained variability in stock prices 95%, to be precise. This high value signifies that the model excels in capturing the relationship between the stock prices and the predictor variables, suggesting that these variables are highly relevant and effectively explain a vast majority of the changes observed in stock prices. The essence of such a high adjusted R^2 value is that the model demonstrates an excellent fit to the data, making it a reliable tool for forecasting stock price movements based on the selected predictors (Abdurofi, 2021).

Furthermore, the mention of a p-value of 0.000 underscores the statistical significance of the model's results. In statistical analysis, the p-value tests the probability of observing the collected data, or more extreme, under the assumption that the null hypothesis is true, which in this context suggests that the predictor variables have no effect on stock prices. A p-value as low as 0.000 virtually nullifies the null hypothesis, indicating that the probability of the observed relationships occurring by chance is extremely low. This strong evidence against the null hypothesis reinforces the belief that the predictor variables indeed have a significant impact on stock prices. Thus, the combination of a high adjusted R^2 and a negligible p-value not only attests to the model's ability to accurately explain changes in stock prices but also confirms the statistical significance of these explanations, bolstering the model's predictive power and reliability in understanding stock price dynamics (Chen and Yuan, 2021).

CONCLUSION

This study has meticulously examined the influence of various financial ratios on the stock prices of companies in the plantation sector, revealing a nuanced relationship that transcends mere numerical analysis. The significant correlation found between stock prices and financial ratios such as ROA, CR, DR, and DY underscores the importance of financial health indicators in the eyes of investors and market analysts. These findings not only validate the theoretical framework that financial ratios are critical markers of a company's operational and financial efficiency but also highlight the sector-specific dynamics that can influence investor sentiment and market performance. The research sheds light on the intricate ways in which these financial ratios serve as a barometer for financial stability and investor confidence within the highly competitive and volatile plantation industry. The ramifications of this study are profound, offering a lens through which investors, financial analysts, and corporate managers can better understand the plantation sector's financial landscape. By demonstrating the predictive value of specific financial ratios on stock prices, the research empowers stakeholders with actionable insights to refine their investment strategies and financial planning. For academicians and policymakers, the study provides a foundation for further exploration into the financial mechanisms that govern stock market behavior, encouraging a deeper inquiry into the causal relationships and potential for predictive analytics in investment science. Furthermore, this study accentuates the necessity for robust financial reporting standards and practices that can enhance the accuracy of financial ratio analysis, thereby contributing to a more transparent and reliable market ecosystem. In light of the insights garnered from this study, several recommendations can be made to capitalize on the understanding of financial ratios' impact on stock prices. Investors are encouraged to adopt a more holistic approach to financial analysis, considering a wide array of financial ratios in conjunction with sector-specific trends and macroeconomic indicators. Financial managers within the plantation sector should strive for financial optimization, balancing profitability with liquidity and solvency to foster a favorable perception among investors. For future research, it is imperative to explore longitudinal studies that can capture the temporal dynamics of financial ratios and stock prices, providing a more comprehensive understanding of how these relationships evolve over time. Moreover, there is a need for comparative studies across different sectors to identify unique financial indicators that could influence stock prices, thereby offering a broader perspective on financial analysis and investment strategy. Finally, regulatory bodies must continue to advance financial disclosure and transparency requirements, enabling a more informed and efficient market that can react adeptly to financial information.

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