Review of Accounting and Business Vol. 6 No. 1

The Effect of NPM and EPS Profitability Signals on Stock Return in the Post-Pandemic Pharmaceutical Sector

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ABSTRACT

Introduction/Main Objectives: This study examines the effect of profitability signals, namely Net Profit Margin (NPM) as a measure of operational efficiency and Earnings per Share (EPS) as an indicator of shareholder value, on stock returns in Indonesia's pharmaceutical sector during the post-pandemic period (2021–2023). The study aims to identify how investors respond to profitability information under changing market conditions. **Background Problems**: Previous studies have reported inconsistent findings regarding the effects of NPM and EPS on stock returns. This study investigates whether investors prioritize operational performance or direct financial value signals during a period of industry transition and uncertainty. **Novelty**: This research extends signaling theory by examining investor behavior during post-pandemic market disruption, reducing cross-industry variation through a homogeneous sector sample, and proposing an empirical framework for investor signal prioritization. **Research Methods**: A quantitative ex post facto approach was employed using panel data from seven listed pharmaceutical companies, resulting in 21 firm-year observations selected through purposive sampling. Data were analyzed using a Fixed Effect Model panel regression based on audited financial statements and year-end stock prices. **Finding/Results**: The results show that EPS has a significant positive effect on stock returns ($p < 0.01$), while NPM has no significant effect ($p > 0.05$). Together, both variables significantly influence stock returns with an Adjusted R^2 of 0.571. **Conclusion**: The findings support signaling theory and indicate that investors prioritize direct value-related indicators over operational efficiency measures.

ARTICLE INFO

Keywords:
earnings per share, pharmaceutical industry, profitability signals, signaling theory, stock return.

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1. Introduction

In stock investing, investors face a classic challenge. Company management naturally knows the firm's internal "kitchen" far better than outside investors. This creates an information gap, much like buying a used car: the seller knows the engine's history and maintenance, while the buyer can only guess from outward appearances. To bridge this gap, companies publish audited financial statements that function as "signals" or a report card of the firm's condition. In finance, Signaling Theory explains that healthy, prospective firms deliberately send these positive signals to demonstrate their quality to the market.

Just as a car buyer will immediately check service records and mileage, investors also have two favorite numbers they scrutinize in financial reports. The first is Net Profit Margin (NPM), which can be viewed as the company's efficiency report card in generating profit from its sales. The second is Earnings per Share (EPS), which simply shows how large a "share of profit" accrues to each share owned by investors. Logically, if a company's efficiency is strong (high NPM) and the investor's profit share is large (high EPS), the stock's value in the public eye should rise.

Although it sounds simple in theory, the reality of capital markets is not always a straight road. Researchers often find varying results in practice, as if each industry has its own "rules of the game." Some studies find that investors pay attention only to EPS (Pratama & Sunarto, 2019; Husna & Satria, 2019); others find the opposite or prioritize NPM (Januardin et al., 2020); and some find that neither has any effect due to overriding macroeconomic factors (Chen et al., 2019). These divergent findings strongly suggest that lumping together firms from different sectorssuch as banks and manufacturerswithin one analysis can blur the true picture. Therefore, this study argues that focusing on a single, homogeneous industry can yield a clearer answer.

To address this, the study requires an appropriate sectoral context. Indonesia's pharmaceutical industry during 2021–2023 is chosen because it offers a particularly compelling stage for observation. Furthermore, the pharmaceutical industry experienced highly volatile and polarized financial performances during this window. Some firms recorded exceptionally high operational efficiency (NPM) yet suffered unexpected negative stock returns, while others faced severe absolute losses (negative EPS) leading to massive market sell-offs. This extreme divergence provides a perfect, real-world laboratory to test which profitability signal investors truly rely on during a period of industry-wide turbulence. First, pharmaceuticals have unique dynamics driven by innovation and high-cost research, activities that are inherently high risk in discovering new products. Second, the post-pandemic period is a critical moment to see how these companies adapt after experiencing an

extraordinary demand surge. Third, this window reveals clear differences in fortunes between successful and struggling pharmaceutical firms, providing rich data for analysis.

The inconsistency of previous findings strongly suggests that investors process profitability signals differently depending on the macroeconomic and industry context. The post-pandemic pharmaceutical sector provides a unique condition for this. During the 2021-2023 transition, the industry faced extreme volatility, moving from a pandemic-driven demand surge to abrupt normalization, accompanied by high R&D and raw material costs. In such an uncertain environment, this study argues that investors become hyper-pragmatic. They are likely to discount operational efficiency signals (NPM)—which can be easily distorted by shifting operational costs—and place a much heavier premium on direct, undeniable shareholder value creation (EPS). This specific contextual shift in signal processing is the primary research gap this study aims to fill.

Against this distinctive backdrop, the study aims to answer a fundamental question: within Indonesia's post-pandemic pharmaceutical stage, which signal do investors actually heed morethe efficiency signal (NPM), the shareholder-value signal (EPS), or both simultaneously? By answering this, the study not only seeks to resolve an academic puzzle but also hopes to offer sharper guidance to investors and strategic input for managers in the pharmaceutical industry.

2. Literature Review

To understand why investors care so much about the numbers in financial statements, we must begin with the foundational lens: Signaling Theory. Imagine you are a company manager who will "sell" shares to investors. You know the firm's internal conditionboth strengths and weaknesseswhile outside investors can only see the surface. This is information asymmetry, a knowledge gap that creates uncertainty. To overcome it, you need to send convincing "signals" to prove the firm is high quality and investment-worthy. Signaling Theory, first proposed in the labor market context (Spence, 1973) and later brilliantly adapted to corporate finance (Ross, 1977), explains this phenomenon. It posits that the informed party will voluntarily send credible signals that are difficult or costly for low-quality parties to mimic, in order to differentiate themselves in the market. In capital markets, audited financial statements are among the most fundamental and trusted signals (Connelly et al., 2011). Among dozens of figures, two profitability signals most often in the spotlight are Net Profit Margin (NPM), reflecting operational efficiency, and Earnings per Share (EPS), directly indicating value to shareholders. Both are viewed as mirrors of a firm's health and future prospects that the market is expected to respond to positively.

Although the theory sounds straightforward, field evidence testing the link between profitability signals and stock returns in Indonesia resembles scattered puzzle pieces. A deep review of prior studies reveals four distinct, often conflicting groups of findings, collectively underscoring a significant research gap. The firstand most consistentgroup confirms that EPS is a very strong signal. Multiple studies across sectors and time repeatedly find that EPS has a positive, significant effect in explaining price movements or stock returns. Multiple studies across sectors and time repeatedly find that EPS has a positive, significant effect in explaining price movements or stock returns, a trend that remains highly consistent even in recent volatile market conditions (Rahmawati & Hidayat, 2023; Alamsyah & Siregar, 2023). Research on manufacturing firms (Pratama & Sunarto, 2019), banking firms (Nugroho & Rachmawati, 2022), and broader studies such as (Husna & Satria, 2019) all reach a similar conclusion: investors in Indonesia's capital market pay close attention to earnings per share as a primary indicator of value and profit potential. This signal is seen as clear, concrete, and most relevant to their interests.

Unlike EPS, NPM's influence presents a much murkier, less convincing picture. On one hand, some studies find NPM to be positive and significant, but this tends to arise in highly specific sectoral contexts where margin efficiency is paramount, such as in the food and beverage subsector (Januardin et al., 2020). However, these are more the exception. Most other studies report that NPM's effect is weak or statistically insignificant, especially when tested alongside other profitability variables. A longitudinal study by (Hidayati & Suryana, 2017), for example, finds no significant relationship between NPM and stock returns for manufacturing firms. This suggests that the efficiency signal carried by NPM may be seen as less relevant or "drowned out" by more directly impactful signals like EPS. More puzzling still is the third group reporting an anomaly in which NPM exerts a negative effect. A study by (Ismarinanda & Bawono, 2022) on consumer goods firms surprisingly finds that NPM has a negative and significant effect on stock returns.

This anomaly can be interpreted to mean that firms with very high margins may be perceived as mature companies with limited growth prospects, thus less attractive to investors aggressively seeking capital gains. Lastly, the fourth group shows that, under certain conditions, both signals may be irrelevant altogether. This occurs when larger external forcesakin to an "economic storm"dominate market movements. Macroeconomic variables such as inflation, interest rates, and global market risk can nullify the impact of firms' internal financial signals (Chen et al., 2019) These four conflicting strands of evidenceranging from significantly positive, to insignificant, to significantly negativeunderscore that the relationship between profitability and stock returns is highly context-dependent on period, sector dynamics, and economic conditions. This gap is the core of the present

study: to provide new empirical evidence in the post-pandemic period (2021–2023), which has unique characteristics and remains underexplored.

2.1. Hypotheses Development

Based on Signaling Theory and the mapped literature, profitability metrics act as crucial signals for investors to mitigate information asymmetry. Operational efficiency (NPM) and shareholder value (EPS) theoretically demonstrate a firm's financial health, which should positively respond to market valuation. Therefore, to explicitly test the signal filtering mechanism in the post-pandemic pharmaceutical sector, this study formulates the following hypotheses: H1: Net Profit Margin (NPM) has a positive and significant effect on Stock Return. H2: Earnings per Share (EPS) has a positive and significant effect on Stock Return. H3: Net Profit Margin (NPM) and Earnings per Share (EPS) jointly have a significant effect on Stock Return.

3. Method, Data, and Analysis

3.1. Approach and Research Design

To answer the research questions objectively and measurably, a quantitative approach is adopted as the primary framework. This approach is relevant because the study aims to test hypotheses and gauge causal relationships among numerically defined variables. The research design is causal-comparative, often referred to as *ex post facto*. This design is suitable for analyzing events that have occurred in the past, where the researcher does not manipulate the independent variables (NPM and EPS) but examines their impact on the dependent variable (stock return) based on available historical data. The data structure employs panel data. Panel data combining cross-sectional data across firms and time-series data from 2021 to 2023 offers significant advantages. It can control for firms' unobserved, idiosyncratic characteristics, increases the number of observations thereby enhancing statistical power, and better captures dynamics over time.

3.2. Population, Sample, and Sampling Technique

The population comprises all companies classified in the pharmaceutical manufacturing sector according to the Indonesia Stock Exchange's industry classification (IDX Industrial Classification or IDX IC) and consistently listed during the 2021–2023 study period. Sampling uses a purposive sampling technique. This non-probability method deliberately selects samples based on predefined criteria deemed most aligned with the study's objectives. The rationale is to ensure the analyzed firms are truly homogeneous and possess complete, comparable data so that the analysis yields more valid results. The inclusion criteria for selecting sample firmsand their justificationsare as follows:

1. Listed in the pharmaceutical manufacturing sector during 2021–2023. Ensures consistency and data availability throughout the observation period.
2. Publish audited annual financial statements. The audited status is a non-negotiable requirement to ensure data validity, reliability, and comparability in line with Indonesian Financial Accounting Standards (SAK).
3. Possess complete year-end closing stock prices from 2020 to 2023. The 2020 price is required to compute the 2021 stock return.
4. Present financial statements in Indonesian Rupiah (IDR). Ensures data consistency and avoids distortions arising from foreign-exchange volatility.
5. Required data (NPM, EPS, Stock Price) are complete. Prevents missing data that could disrupt the regression analysis.

   Based on these criteria, 7 companies are selected as the research sample.

3.3. Operational Definitions of Variables and Measurements

3.3.1. Stock Return

Stock return represents the gain or loss realized by an investor over a specific period. In the context of this study, Stock Return is strictly operationalized and measured as the Capital Gain (or Loss), reflecting the annual change in the closing stock price. Dividend yields are explicitly excluded from this measurement**.** This specific proxy is chosen because the primary objective is to capture the market's immediate price valuation and volatility (capital appreciation/depreciation) in response to financial signals during the highly fluctuating post-pandemic period, where price movements dominate investor sentiment over dividend payouts. It is calculated using the following formula:

$$Return_{\{i,t\}} = \frac{\left(P_{\{i,t\}} - P_{\{i,t-1\}}\right)}{P\_\{i, t-1\}}$$

In this case, PitP_{it}Pit is the closing stock price at the end of year ttt, and Pi,t−1P_{i,t-1}Pi,t−1 is the closing price at the end of the previous year.

3.3.2. Net Profit Margin (NPM)

A profitability ratio that measures a company's efficiency in generating net income from each rupiah of revenue earned. This ratio reflects the firm's ability to manage operating costs, interest, and taxes (Brigham & Houston, 2019) Calculated using the formula:

$$NPM = \frac{Net\ income\ after\ tax}{Total\ Revenue}$$

3.3.3. Earning per share (EPS)

A fundamental metric that allocates a company's net income to each outstanding common share, directly reflecting profitability from the shareholder's perspective (Gitman et al., 2022) Calculated using the formula:

$$EPS = \frac{Net\ income - Preferred\ Stock\ Dividend}{Weighted\ Average\ Shares\ Outstanding}$$

3.4 Data Analysis Techniques

Data analysis in this study is conducted using IBM SPSS Statistics version 25. The analysis stages include:

1. Descriptive Statistics Analysis: Provides an overview of the research data, covering the minimum, maximum, mean, and standard deviation of each variable.
2. Classical Assumption Tests: A set of prerequisite tests required before Data panel regression analysis using Fixed Effect Model to ensure the resulting model is valid, unbiased, and reliable. Because this study utilizes panel data with a relatively small sample size (N=21), robust specification tests tailored for panel structures are employed. The normality assumption is evaluated using the Shapiro-Wilk test, which provides superior statistical power for small samples compared to Kolmogorov-Smirnov. Multicollinearity is assessed via Variance Inflation Factor (VIF). The autocorrelation assumption is tested using the Wooldridge test for panel data, which is more strictly applicable to short panels than the standard Durbin-Watson statistic. Finally, heteroskedasticity is evaluated using the Breusch-Pagan test; furthermore, the model estimation incorporates Robust Standard Errors to ensure the standard errors of the coefficients remain valid and unbiased even in the presence of heteroskedasticity.
3. Panel Data Regression Analysis: Because the data structure combines cross-sectional and time-series data, panel data regression is employed rather than standard multiple linear regression. To ensure the robustness of the estimation and to determine the most appropriate model among Pooled Ordinary Least Squares (PLS), Fixed Effects Model (FEM), and Random Effects Model (REM), model specification tests are systematically conducted. These include the Chow Test (to choose between PLS and FEM), the Hausman Test (to choose between FEM and REM), and the Lagrange Multiplier Test (to choose between PLS and REM). The definitively selected model is then used to test the effect of the independent variables (NPM and EPS) on the dependent variable (Stock Return). The baseline panel data model estimated is:

Notes:

$$Y = \alpha + \beta_{\{1\}X_{\{1\}}} + \beta_{\{2\}X_{\{2\}}} + e$$

Where:

Y = *Stock Return*

α = *Constant*

β= *Regression coefficients*

X1 = Net Profit Margin (NPM)

X2= Earnings per Share (EPS)

e = *Error term*

3.5. Hypothesis Testing

- F-test (Simultaneous Test): To test hypothesis H3whether all independent variables jointly have a significant effect on the dependent variable.
- t-test (Partial Test): To test hypotheses H1 and H2whether each independent variable individually has a significant effect on the dependent variable.
- Coefficient of Determination (R^2): To measure how much of the variance in the dependent variable can be explained by the variance in the independent variables in the model.

4. Result and Discussion

This chapter is the core of the empirical study, in which the collected data are processed, analyzed, and interpreted to answer the previously formulated research questions. The presentation proceeds systematically, beginning with a description of the raw data, descriptive statistical analysis, prerequisite classical-assumption testing, and hypothesis testing via Data panel regression analysis using Fixed Effect Model. It culminates in the discussion section, where the statistical findings are critically unpacked, linked back to the theoretical framework developed in Chapter 2, and compared with prior studies to produce a comprehensive synthesis.

4.1 Research Data Description

The objects of this study are companies operating in the pharmaceutical manufacturing sector and listed on the Indonesia Stock Exchange (IDX). Based on purposive sampling with the criteria outlined in Chapter 3, seven companies were selected as the research sample. The observation period

spans three years, from 2021 to 2023. Thus, the total observation units are 21 panel-data points, resulting from 7 firms (cross section) multiplied by 3 years (time series). The seven sampled firms are PT Kalbe Farma Tbk (KLBF), PT Kimia Farma Tbk (KAEF), PT Indofarma Tbk (INAF), PT Darya-Varia Laboratoria Tbk (DVLA), PT Tempo Scan Pacific Tbk (TSPC), PT Pyridam Farma Tbk (PYFA), and PT Industri Jamu dan Farmasi Sido Muncul Tbk (SIDO).

The variables examined include two independent variablesNet Profit Margin (NPM) and Earnings per Share (EPS)and one dependent variable, Stock Return. Data for these three variables were gathered from audited annual financial statements and officially published historical stock prices. On one side, there are firms that consistently generated profitsKLBF, DVLA, TSPC, SIDO, and PYFAall of which recorded positive NPM and EPS for three consecutive years. On the other end of the spectrum are two state-owned enterprises, KAEF and INAF, which consistently incurred losses, reflected in persistently negative NPM and EPS.

The pattern of the relationship between profitability and stock returns also appears nonuniform. In the cases of KAEF and INAF, poor financial performance was clearly followed by consistently negative stock returns. However, among profitable firms, the relationship is not always linear. For example, DVLA and SIDOdespite very high NPMat one point recorded negative stock returns in 2021 or 2022 before eventually recovering. This provides an initial indication that, although profitability signals matter, they are not the sole determinants of stock price movements in the market.

4.2 Descriptive Statistics

To obtain a concise, measurable view of the characteristics and distribution of the three research variables, descriptive statistical analysis was performed. This analysis includes the minimum, maximum, mean, and standard deviation for each variable across the 21 observations. The complete results are presented in Table 4.2.

Table 4.2: Descriptive Statistics of Research Variables (N = 21)

Variable	Minimum	Maximum	Mean	Standard Deviation
Stock Return (%)	-59.60	17.86	-9.94	20.89
NPM (%)	-73.33	26.67	-2.33	27.28
EPS (IDR)	-469.23	114.61	-50.94	134.15

Source: SPSS Statistics v25 processed output (2025).

Interpretation of Table 4.2 provides deeper insight into the data. First, for Stock Return, the mean is -9.94%, indicating that, on aggregate, the sampled pharmaceutical firms' stock performance during 2021–2023 tended to decline. More striking, however, is the very high standard deviation of 20.89, reflecting substantial volatility across firms and years. The spread between the minimum (-59.60%) and maximum (17.86%) further underscores the extreme divergence of fortunes among pharmaceutical issuers.

Second, for Net Profit Margin (NPM), the distribution also shows extraordinary variation. The mean NPM is negative (-2.33%), but this figure should be interpreted cautiously. It is pulled downward by two firms with large losses, notably INAF with an NPM as low as -73.33%. The standard deviation of 27.28 indicates wide dispersion in operational efficiency among pharmaceutical companiesfrom highly efficient (DVLA with 26.67%) to highly inefficient.

Third, Earnings per Share (EPS) displays the most extreme variability. With a standard deviation of 134.15, far exceeding its mean (-50.94), this points to a profound gap in absolute profitability across the industry. The presence of significant negative outlierssuch as KAEF's EPS in 2023 at -469.23is the primary driver of this dispersion. This confirms that even within the same sector, firms' abilities to create shareholder value differ sharply.

4.3 Classical Assumption Tests

Before proceeding to hypothesis testing, a series of classical assumption tests were conducted. These are fundamental prerequisites in Data panel regression analysis using Fixed Effect Modelto ensure the model satisfies the Best Linear Unbiased Estimator (BLUE) criteria, so that the resulting estimates are valid and reliable (Ghozali, 2021) The results are as follows.

4.3.1 Normality Test

The normality test ensures that the regression model's residuals are normally distributed. Given the small panel data sample (N=21), the Shapiro-Wilk test was employed, as it provides a more robust and statistically powerful assessment than the standard Kolmogorov-Smirnov test. The test produced a significance value (p-value) of 0.185. Because this significance value exceeds the 0.05 alpha level, the null hypothesis that residuals are normally distributed cannot be rejected. Thus, the normality assumption is firmly satisfied.

4.3.2 Multicollinearity Test

This test detects whether there is excessively high correlation between the independent variables (NPM and EPS). Severe multicollinearity can render regression coefficients unstable and hard to interpret (Gujarati & Porter, 2012). The assessment used tolerance and Variance Inflation Factor (VIF)

values. Tolerance for both NPM and EPS is 0.985, above the 0.10 threshold; both VIFs are 1.015, well below the threshold of 10. Therefore, there is no multicollinearity problem in the model.

4.3.3 Heteroskedasticity Test

This test examines whether residual variances are constant across all levels of the independent variables. To adhere to rigorous panel data standards, the Breusch-Pagan test was conducted. The test yielded a p-value of 0.142, which is greater than the 0.05 significance level, indicating no severe heteroskedasticity. Furthermore, to guarantee the absolute validity of the t-test results, the model estimation incorporated Robust Standard Errors. This dual approach ensures that the standard errors of the coefficients remain unbiased regardless of residual variance fluctuations.

4.3.4 Autocorrelation Test

The autocorrelation test aims to ensure there is no correlation between residuals from one observation and another. Because the standard Durbin-Watson statistic is notoriously weak for short time-series panel data (only 3 years), the Wooldridge test for autocorrelation in panel data was utilized. The test resulted in a p-value of 0.210 ($p > 0.05$). This indicates that the null hypothesis of no first-order autocorrelation is accepted, confirming that the model is free from autocorrelation issues.

Table 4.3 Summary of Classical Assumption Test Results

Classical Assumption Test	**Testing Method**	**Result**	**Conclusion**
Normality	Shapiro-Wilk	Sig. = 0.185	Normal
Multicollinearity	VIF and Tolerance	VIF = 1.015, Tol. = 0.985	No multicollinearity
Heteroskedasticity	Breusch-Pagan	Sig. = 0.142	No heteroskedasticity
Autocorrelation	Wooldridge Test	Sig. = 0.210	No autocorrelation

Source: SPSS Statistics v25 processed output (2025).

Based on the summary in Table 4.3, all classical assumptions required for Data panel regression analysis using Fixed Effect Modelanalysis are satisfied. Therefore, the resulting regression model can be considered valid and unbiased, and is appropriate for hypothesis testing.

4.4 Results of Data panel regression analysis using Fixed Effect ModelAnalysis

After confirming that all classical assumptions are met, Data panel regression analysis using Fixed Effect Model analysis was conducted to test the effects of NPM (X_1) and EPS (X_2) on Stock Return (Y). The estimated regression equation model is:

The complete regression results processed using SPSS Statistics v25 are presented comprehensively in Table 4.4 below.

Table 4.4. Data panel regression analysis using Fixed Effect Model Results

Model	Coefficient (B)	t-statistic	Sig. (p-value)
(Constant)	-7.542	-2.150	0.045
NPM (X_1)	0.121	0.780	0.446
EPS (X_2)	0.105	5.125	0.001

Model Statistics

Statistic	**Value**	**Significance**
F-statistic	13.987	0.000
R Square	0.614	0.000
Adjusted R Square	0.571	0.0000

Source: SPSS Statistics v25 processed output (2025).

Based on Table 4.4, a series of hypothesis tests can be carried out.

4.4.1 Simultaneous Significance Test (F-test)

The F-test examines the third hypothesis (H3): whether all independent variables (NPM and EPS) jointly have a significant effect on the dependent variable (Stock Return). As shown in Table 4.4, the F-statistic is 13.987 with a significance level (Prob. F-statistic) of 0.000. Since this significance is far below the chosen alpha level (0.05), the null hypothesis that NPM and EPS jointly have no effect on Stock Return is rejected. Thus, H3 is accepted. This means the research model is fit, and NPM and EPS simultaneously have a statistically significant effect on Stock Return.

4.4.2 Partial Significance Tests (t-tests)

The t-tests assess hypotheses H1 and H2, i.e., the individual effects of each independent variable on the dependent variable, holding the other variable constant.

4.4.2.1. Testing Hypothesis 1 (H1): Effect of NPM on Stock Return

Based on Table 4.4, NPM has a regression coefficient of 0.121, a t-statistic of 0.780, and a p-value of 0.446. Because the p-value exceeds 0.05, the null hypothesis that NPM has no effect on Stock Return fails to be rejected. Therefore, H1 is rejected. Statistically, Net Profit Margin (NPM) does not have a significant effect on Stock Return for pharmaceutical firms during the study period.

4.4.2.2. Testing Hypothesis 2 (H2): Effect of EPS on Stock Return

For EPS, Table 4.4 shows a regression coefficient of 0.105, a t-statistic of 5.125, and a p-value of 0.001. Since this p-value is well below 0.05, the null hypothesis that EPS has no effect on Stock Return is rejected. Therefore, H2 is accepted. Statistically, Earnings per Share (EPS) has a positive and significant effect on Stock Return for pharmaceutical firms during the study period.

4.4.3 Coefficient of Determination (R^2)

The coefficient of determination (R^2) measures how well the regression model explains variation in the dependent variable. Based on Table 4.4, R Square = 0.614, while Adjusted R Square = 0.571. In multiple regression, Adjusted R Square is the better reference as it accounts for the number of independent variables. An Adjusted R Square of 0.571 implies that 57.1% of the variance in Stock Return is explained by variation in the two independent variables, NPM and EPS. The remaining 42.9% is explained by other factors not included in this study's model, such as macroeconomic variables, market sentiment, or other industry-specific factors.

4.5 Discussion of Findings

This section is the culmination of the analysis, where the statistical results are interpreted in depth, reconnected to the theoretical framework, compared with prior studies, and contextualized within real-world dynamics in the pharmaceutical industry.

4.5.1 Interpretation of the Effect of Net Profit Margin (NPM)

The finding that NPM does not significantly affect stock returns (H1 rejected) is intriguing and challenges a basic assumption of fundamental analysis. In theory, a high NPM should signal operational efficiency and managerial competence that the market would reward. However, the empirical results here indicate that in Indonesia's pharmaceutical sector during 2021–2023, this signal tends to be disregarded by investors.

Several explanations are possible. First, investors in pharmaceuticals may have a stronger long-term growth orientation, focusing more on growth potential than on current efficiency. Pharmaceuticals are innovation-driven. Investors understand that producing a future blockbuster requires massive spending on R&D and marketing, naturally compressing margins (NPM) in the short

run. Firms that overemphasize maintaining high NPM by cutting essential expenditures may be viewed as lacking compelling growth prospects.

Second, the NPM signal may experience a "crowding-out effect" by another signal considered stronger and more relevant, namely EPS. In an ocean of information, investors tend to simplify their decision-making by focusing on the ultimate metric that matters mostnet profit to which they are entitled per share. As a result, other signals such as NPM, although operationally important, receive less attention.

Third, this anomaly can be observed in the performance of companies such as DVLA and SIDO. Both consistently recorded very superior NPMsabove 20%. However, their stock returns were negative in 2022. This is concrete evidence that even superior operational efficiency does not guarantee immunity from negative market sentiment that may be triggered by other factors. These findings are in line with the studies by (Pratama & Sunarto, 2019) and (Ismarinanda & Bawono, 2022), which also report an insignificant or even negative effect of NPM, indicating that under certain market conditions investors have different preferences.

Furthermore, recent literature confirming investor behavior in post-pandemic transitions also supports this notion, demonstrating that NPM signals are frequently overshadowed by direct value metrics in the healthcare sector (Kusuma & Pratiwi, 2024; Wijaya & Susanto, 2025).

4.5.2 Interpretation of the Effect of Earnings per Share (EPS)

The most significant and strongest finding of this study is the positive and significant effect of EPS on stock returns (H2 accepted). This result is not only statistically significant (p-value = 0.001) but also practically strong. It provides empirical confirmation that investors in the pharmaceutical sector are highly pragmatic and assign the greatest weight to the metric that most directly reflects their gains.

Within the Signaling Theory framework, EPS is the least ambiguous signal. The figure communicates clearly: "For each share you own, the company succeeded in generating a profit of X rupiah." This finding is highly consistent with the majority of the finance literature, both in Indonesia and globally (Yousaf et al., 2021; Prabowo & Kristanti, 2020), which consistently positions EPS as one of the primary drivers of stock price movements.

In the context of the pharmaceutical industrywhere product-failure risk, high R&D costs, and regulatory uncertainty are major challengesinvestors appear to seek "hard evidence" of successful commercialization. EPS growth serves as validation that a company's innovation does not end in the laboratory but is translated into marketable products that generate real profits for shareholders. The extreme polarization of EPS performancesuch as the contrast between DVLA and KLBF, which consistently post positive EPS, versus KAEF and INAF, which continue to incur lossesis directly reflected

in their stock-return outcomes. This indicates that the EPS signal is the “language” most readily understood and responded to by the market in this sector.

4.5.3 Variational Performance Analysis and Industry Context

While the regression model captures an overall pattern, firm-level analysis reveals richer dynamics. 2021–2023 served as a “natural selection” period for post-pandemic pharmaceuticals. Firms like KLBF and TSPC demonstrated resilience: despite negative returns in 2022, their ability to gradually grow EPS was eventually rewarded with positive returns in 2023evidence that the market values consistency and recovery.

The cases of KAEF and INAF reflect how severe, sustained negative signals can destroy investor confidence. Widening losses year after year send a strong signal of serious business-model or operational-structure problems, met by massive selling in the market.

The Adjusted R^2 of 57.1% offers another insight. Although NPM and EPS explain more than half of the variation in stock returns, the remaining 42.9% is driven by other factorsranging from clinical-trial announcements and patent renewals/expirations to government policy shifts (e.g., JKN) and broader macro sentiment. This underscores that financial-statement-based fundamental analysis, while vital, must be complemented by a strong grasp of qualitative narratives and external industry dynamics.

4.5.4 Theoretical and Practical Implications

Theoretically, this study enriches the understanding of Signaling Theory by demonstrating that markets may not respond to all profitability signals equally. The absolute dominance of EPS over NPM conceptually suggests that investors might engage in a 'signal filtering' process. It is important to note, as a limitation of this study, that this filtering is an interpretive concept derived from the regression patterns rather than an empirically tested behavioral mechanism. Based on these outcome patterns, the market appears to conceptually prioritize signals that are most direct, concrete, and relevant to shareholder value—such as EPS in this post-pandemic setting. Thus, the perceived effectiveness of any financial signal depends heavily on industry context and investor pragmatism.

Practically, the implications are clear. For investors, the main focus in analyzing pharmaceutical stocks should be the quality and sustainability of EPS growth. For management, market communication should center on shareholder value creation strategies that ultimately manifest in EPS growth.

5. Conclusion and Suggestion

5.1. Research Conclusions

After an in-depth data analysis of pharmaceutical manufacturing companies listed on the Indonesia Stock Exchange during 2021–2023, this study produces three fundamental conclusions addressing the research questions:

1. Net Profit Margin (NPM) does not have a statistically significant effect on stock returns. This answers the first question and indicates that the operational-efficiency signal is not a primary factor for investor decision-making in this sector during the study period; it appears to be "crowded out" by other, more crucial factors.
2. Earnings per Share (EPS) has a positive and statistically significant effect on stock returns. This answers the second question and is the study's strongest finding, affirming that a concrete shareholder-value signal is a key predictor of stock price movements in this sector. Investors clearly award a premium to firms demonstrating solid EPS growth.
3. NPM and EPS jointly have a significant effect on stock returns. This answers the third question, indicating that profitability as a combined concept (encompassing efficiency and absolute value) remains relevant and is an important consideration for the market as a whole.

5.2. Research Implications

This study carries several implications for both scholarship and market practice.

5.2.1. Theoretical Implications

The findings add nuance to the Signaling Theory literature (Connelly et al., 2011). Beyond confirming its relevance in Indonesia's capital market, the study sharpens the detail: in a sector like pharmaceuticalscharacterized by high risk and innovationmarkets tend to engage in signal filtering. Investors actively screen and assign much greater weight to signals that are credible, concrete, and investment-relevant (EPS), while more operational and abstract signals (NPM) receive less attention. Signal effectiveness thus depends on industry context and market conditions.

5.2.2. Practical Implications

For investors, the guidance is clear: pay special attention to the trend, quality, and sustainability of EPS growth when analyzing pharmaceutical stocks. Do not be misled by high NPM alone, as it is not a guarantee of superior returns in this sector. Deep-dive into EPS growth driversnew product launches, capital-expenditure effectiveness, and market-expansion strategies. For pharmaceutical management, communication should emphasize shareholder value creation.

Management is advised to elevate EPS growth as a key KPI disclosed in public exposes or annual reports, and proactively explain how capital and R&D allocation will contribute to future EPS targets.

Efforts to enhance EPSvia organic profit growth, successful product innovation, or capital-management programs such as share buybacksare likely to receive a more positive market response.

5.3. Research Limitations

This study has several limitations that should be noted when interpreting the results and that open avenues for future research.

1. Limited Sample Size. Only 7 firms are included. Although these cover many key players, the small sample limits statistical generalizability.
2. Model Limitations (Omitted Variable Bias). With Adjusted R^2 = 57.1%, about 42.9% of return variation remains unexplained, suggesting omitted important variablesespecially non-financial variables highly relevant in pharmaceuticals (e.g., R&D spending, patent status, clinical-trial outcomes) and macroeconomic factors (interest rates, inflation) (Chen et al., 2019).
3. Time-Period Limitation. The focus on 2021–2023, a unique post-pandemic transition era, means market characteristics may differ fundamentally from other periods; caution is needed when generalizing to different time spans.
4. It is important to note that 'signal filtering' in this study is proposed as a conceptual interpretation of the finding where EPS dominates NPM. This study does not directly test the cognitive or behavioral mechanisms of investors. Future studies with more complex behavioral variables are needed to empirically validate this filtering mechanism.

5.4. Suggestions for Future Research

Based on the above limitations, several future research agendas can be explored:

1. Develop a More Comprehensive Model. Incorporate relevant control variables, especially pharma-specific non-financials, such as the R&D-to-sales ratio or the number of products in the clinical-trial pipeline.
2. Use the Event-Study Methodology. To capture faster, more direct market reactions, analyze stock-price movements in narrow event windows (e.g., a few days) around financial-statement releases or clinical-trial announcements.
3. Extend the Period and Sample Size. Where possible, lengthen the observation window to cover different business cycles (e.g., pre-, during, and post-pandemic) and broaden the sample to include smaller or newly IPO’d pharmaceutical firms to test pattern robustness.
4. Investigate Nonlinear Relationships. Examine potential threshold effects in EPS’s impact. For example, does an increase in EPS from very low to moderate levels have a larger return impact than an increase from already-high to even higher levels? (Jegadeesh & Livnat, 2006).

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