



Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

Sella Marselia^{1*}, Deri Firmansyah²

Department of Accounting STIE Pasim Sukabumi, Indonesia¹

Department of Management STIE Pasim Sukabumi, Indonesia²

Corresponding Email: marseliasela333@gmail.com*

Received: 16-07-2025

Reviewed: 18-08-2025

Accepted: 30-09-2025

Abstract

This study aims to explore the predictive relationship between operating cash flows (OCF) and Net Profit (NP) with stock returns (SR). Quantitative research design adopts the ex-post facto model. Secondary data is used as the main source of data obtained from financial statements from four manufacturing companies from food and beverages listed in the Indonesia Stock Exchange (IDX) for the 2016-2023 period, analyzed in 32 quarters of the financial statements chosen with purposive sample techniques. Data analysis from the panel data regression model approach was adopted, which is estimated to use EViews v.12. Research findings, the Common Effects Model (CEM) approach was chosen as the best data panel regression model through the Chow test, Hausman test, and LM test. The findings conclude that OCF has no positive effect on SR. NP does not have a significant positive effect on SR. This finding also confirmed that OCF and NP simultaneously do not have a significant positive effect on SR. This illustrates the variant of the relationship between OCF and NP simultaneously has a low prediction power in explaining the total SR variant. This finding can fill the existing gap, and practically the relevant data panel regression model is used to predict the return of cash flow-based shares from business operations and periodic income in several companies. But the findings of this research emphasize that many other financial performance measures are more dominant than OCF and NP, as a determinant of SR in the capital market.

Keywords: Operating cash flow, net profit, stock returns, panel data regression models, CEM

Introduction

Food and beverage companies are a type of business involved in production, processing, distribution, and sales of various daily consumption products. This sub -sector has a strategic role in supporting national economic growth and meeting the basic needs of the community. As the development of an increasingly modern and faster era, the demand for food and beverage products that are practical, hygienic, and innovative have increased significantly.

The contribution of the food and beverage sub-sector to the Gross Domestic Product (GDP) and high employment of this sector makes this sector one of the main drivers of the economy. In addition to its economic role, this subsector also plays a role in supporting national food security and increasing the value of processed product exports. Therefore, food and beverage sub-sectors are increasingly important not only in terms of economic, but also the social style and lifestyle of modern society. The rapid development of this sub-sector also affects capital market activity, especially in the financial performance and shares of the company involved in it. Return of shares as the main indicator in investment decision making, which reflects the market response to the company's fundamental conditions.

Based on data returns in the 2016-2023 food and beverage sub-sector, in the Indonesian context, there is significant fluctuations. For example, PT Indofood Sukses Makmur Tbk (INDF) recorded the highest return of shares in 2016, which reflects a positive market response to company performance. Another company, PT Mayora Indah Tbk (MYOR) noted the return of shares that tend to fall in the same year. However, in public companies such as Myor and CPIN showed a changing return pattern but still leads to a stable condition, while INDF and ICBP tend to be more stable. Many factors in investment horizons, potential risk techniques and controls that can influence investment decisions for investors (Foerster et al., 2017). Including information from operating cash flows (Norouzi et al., 2022), and achievement of net income can provide the strength of the level of prediction of stock returns to influence investor income (Foerster et al., 2017; Bayrakdaroglu et al., 2017), is also quite informative in forecasting stock movements (Suzuki et al., 2020).

Interestingly, some literature shows conflicting findings. For example, Sitorus et al., (2023), revealed that the return of shares was not influenced by the operating cash flow; (Wiranti et al., 2021) all components of cash flows have no effect on stock returns. Operating cash flow is less relevant to be used as a measure of company performance and basis for consideration of stock levels (Abbas & Nainggolan, 2023). Meanwhile, Anderson et al., (2021) found that net profit margins had no positive effect on stock returns. Gharaibeh et al., (2022); Budi & Davianti (2022); and Kolář (2017) found net profit and stock results did not have a positive relationship. Karim (2023); and Fatmawatie (2023) the results of her research concluded that the cash flow from operations and net income did not have a positive effect on stock returns. However, other researchers revealed that the findings of business operating cash flow growth affect the trust and comfort of investors to the level of stock returns (e.g., Nguyen & Van Nguyen, 2020; Febriana & Rahmah, 2024). The operating cash flow has a positive effect on stock returns (Rosyafah, 2021). Meanwhile, the research findings of Bayrakdaroglu et al., (2017) revealed the net profit margins that affect stock returns. Ramdani & Utama (2025) also found that net profit has a positive effect on stock returns.

Therefore, this study explores the predictive relationship between operating cash flows (OCF) and Net Profit (NP) with stock returns (SR). The novelty and originality of this study announced the estimated OCF, NP and SR parameters that adopted regression models using panel data from four food and beverage manufacturing companies registered in 2016 to 2023 Indonesia Stock Exchange (IDX) analyzed in the quarter. The existing literature is still limited in implementing the panel data regression model, especially to predict the return of cash flow

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

from regular business operations and net profit obtained for a certain period. It is recognized that the part and time allows the heterogeneity of the achievement of each company, the consumer center, variations in the view and estimates of investors in the development of related companies can occur, so that the time horizon in data can be a difference that has the potential to affect the value of shares. The contribution of this research enriches the literature on capital markets, financial ratio analysis in financial and portfolio management which is closely related to the field of accounting for investment decisions, which can provide practical benefits for principals, agents, investors to the public and other stakeholders, who appreciate the validity of stakeholder theory, signal theory, agency theory and the importance of symmetric information, between parties involved in the capital market.

Literature Review

Signal Theory

Signalling theory originated from Spence's (1972) research publication, which explained that a signal can provide a signal from the sender or owner of information. The owner of the information (sender) wants to try to provide relevant information that can be used by the recipient of the information, after which the receiving side aligns its behavior based on its understanding of the signal. Susetyo et al., (2023) mentioned that signaling theory talks about management actions and the flow of information for investors. Symmetrical or asymmetrical information under certain conditions may occur and reach investors (Firmansyah et al., 2020; Susetyo, 2023; Tobibah & Firmansyah, 2024).

Brigham & Houston (2013) in Wahyudi & Deitiana (2019), signalling theory or signal theory which is an action taken by the management of a company provides clues to investors about how management assesses the company's prospects. Companies with very bright prospects prefer not to fund through new stock offerings, while companies with poor prospects do favor funding with outside equity (Nurkamila & Firmansyah, 2024). The information contained in the financial statements is a signal of the company to stakeholders that can influence decision-making. The better the company's performance, which is reflected in the financial ratio, causes investors to be more interested in investing in their shares (Wahyudi & Deitiana, 2019; H.A.G & Firmansyah, 2024; Suwarni & Susetyo, 2024).

According to Brigham & Houston (2013), the company's encouragement in providing information about the information asymmetry between the company and external parties is because the company knows more about the company and its upcoming prospects than investors and creditors. On the other hand, companies that have high profitability can show good prospective signals of companies in the future (Khotimah et al., 2020; Tobibah & Firmansyah, 2024). Signal theory explains how a company provides incentives to provide information to users of financial statements (H.A.G & Firmansyah, 2024; Suwarni & Susetyo, 2024; Hanipah & Firmansyah, 2024).

Meanwhile, according to Gitman & Zutter (2015:p.586), that signals are financial actions that management takes because they believe that they can describe the company's value.

Funding with debt is said to be a positive signal that management believes that stocks will be undervalued and the issuance of shares is seen as a negative signal because management considers stocks to be overvalued (H.A.G & Firmansyah, 2024; Masrivah & Rijanto, 2024).

Agency Theory

According to Jensen & Meckling (2019), agency theory is a theory that explains the relationship between the agent as the party who manages the company and the principal as the owner of the two bound in a contract. The owner or principal is the party that evaluates the information, and the agent is the party who conducts management activities and makes decisions. There are two parties who have interests in a company, namely management (agent) and shareholders (principal). Both parties need internal information to make decisions. The information received by the management as the company's manager is not necessarily received by the shareholders, this is called asymmetric information (H.A.G & Firmansyah, 2024)

Asymmetric Information

Symmetric or asymmetrical information under certain conditions may occur and reach investors (Firmansyah et al., 2020; Susetyo, 2023). Asymmetric information is related to the difference in information received by each party involved in a business transaction (Desi, 2020:32; Tobibah & Firmansyah, 2024). Asymmetric information refers to a situation in which the manager has access to information about the company that has no external stakeholders because the manager and the investor are considered the relationship between the two parties referred to as the agency relationship, with the manager acting as the party with greater knowledge of the information (H.A.G & Firmansyah, 2024; Suwarni & Susetyo, 2024; Masrivah & Rijanto, 2024), who mutually require similar, relevant, adequate, and understandable information by various interested parties in the capital market.

Capital Markets

H.A.G & Firmansyah (2024), basically, the capital market is a complex network of individuals, institutions, and markets that arise as an effort to bring together those who have money (funds) to exchange securities and securities. Securities and securities instruments traded in the capital market include stocks, bonds, and various other derivative products such as options, warrants, rights, and mutual funds.

The capital market is one of the sources of economic progress because it can be a source and alternative for companies besides banks. The capital market is an alternative financing to obtain capital at a relatively low cost and also a place for short-term and long-term investments (H.A.G & Firmansyah, 2024).

According to “Undang-Undang Republik Indonesia, Nomor 8 Tahun 1995 Tentang Pasar Modal”, the capital market is an activity related to public offerings and securities trading, public companies related to the securities it issues, as well as institutions and professions related to securities.

According to Brigham & Houston (2013), capital market is a market for medium- and long-term debt and company shares (H.A.G & Firmansyah, 2024). Tandelilin (2017) stated that

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

the capital market is a meeting between parties who have excess funds and those who need funds by trading securities. Thus, the capital market can also be interpreted as a market for trading securities that generally have a maturity of more than one year, such as stocks and bonds.

Basically, the capital market, like most traditional markets, is a place where sellers and buyers meet with a bargaining process in it. The difference between the two is that the goods are traded, when the traditional market sells real products, while the capital market sells abstract products. Abstract products that are touted are in the form of abstract funds. Meanwhile, in concrete form, the product is in the form of securities on the stock exchange. In the capital market, capital market participants will interact by buying and selling instruments that are traded. This buying and selling occurs due to excess funds or capital from investors with the desire to get added value from the process. Instruments sold in the capital market are in the form of stocks, bonds and mutual funds (H.A.G & Firmansyah, 2024).

Operating Cash Flow

According to Hery (2020), A cash flow statement is a report that describes the cash inflows and cash outflows in detail from each activity, namely operating, investing and financing activities, during a certain time period. This report shows the net increase or decrease in cash from all activities during the period as well as the cash balance the company had at the end of the period. Cash from operating activities is the most important cash flow from a company related to operating activities.

Operating cash flow is the main source of income for a company and is used to maintain the company's operations, pay off loans, pay dividends, and others, so it is considered more calculated than investment cash flow or funding cash flow. Cashflow from operating activities is cash flow derived from the company's main income. Sulindawati et al., (2019), stated that operating cash flows usually arise from transactions that affect the company's financial results. A cash operation can be formulated as follows:

$$\text{Operating Cash Flow} = \text{Operating Cash in Flow} - \text{Operating Cash Out Flow} \quad \dots (1)$$

Net Profit

According to Susetyo et al., (2021), the profit is the profit from the income tax (Chairunisa & Susetyo, 2024). Meanwhile, net profit is profit before income tax minus income tax (Hery, 2020).

Kasmir (2021), defines net profit as profit minus expenses incurred by a company during a specific period, including taxes. Net profit indicators include gross profit, operating expenses, and tax expenses (Konita & Rijanto, 2024). In general, net profit shows one measure of a company's financial performance and serves as a basis for internal and external decision making. The formulation for calculating net profit is as follows:

$$\text{Net Profit} = \text{Profit before income tax} - \text{Income Tax} \quad \dots (2)$$

Stock Returns

Stock returns are an important indicator in the investment world that is used to measure the level of profit that investors obtain from their capital investment in the form of shares.

Jogiyanto (2017:p.283), stated that stock returns are the results obtained from investment. It can be in the form of a realized return or an expected return, which is expected to occur in the future. Returns reflect the return on investment and are the primary basis for investors in determining the success of their investment strategy (Kasmir, 2021). The formula for calculating stock returns is as follows:

$$\text{Return on Shares} = \frac{P_t - P_{t-1}}{P_{t-1}} \quad \dots (3)$$

Hypothesis Statement

The capital market involves various financial roles and interests, the welfare of company owners and capital owners, and economic growth in general. Company owners/principals, agents, investors and other stakeholders are involved in it (Firmansyah et al., 2020). The capital market is one of the sources of economic progress because it can be a source and alternative for companies besides banks. The capital market is an alternative financing to obtain capital at a relatively low cost and also a place for short-term and long-term investments (H.A.G & Firmansyah, 2024).

Therefore, every company involved in it is required to publish financial statements every year because financial statements are a very important tool to provide information regarding financial positions, performance, and changes in financial positions (H.A.G & Firmansyah, 2024). Various indicators that can be used to measure a company's good performance, including the level of smoothness and balance of operating cash flow, and its ability to generate high profits, thereby contributing to the level of stock return and its success in improving the welfare of shareholders or investors.

Research findings by Rosyafah (2021); Bayrakdaroglu et al., (2017), revealed that operating cash flow positively influences stock returns. Nguyen & Van Nguyen (2020); Febriana & Rahmah (2024), found that operating cash flow influences investor confidence and comfort, which impacts stock returns. Net profit has a positive effect on stock returns (Ramdani & Utama, 2025).

The construction of the proposed research hypothesis is as follows:

- H1. Operating cash flow has a positive effect on stock returns
- H2. Net profit has a positive effect on stock returns
- H3. Operating cash flow and net profit have a positive effect on stock returns

A summary of the research hypotheses proposed in this study is illustrated by the modeling in Figure 1.

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

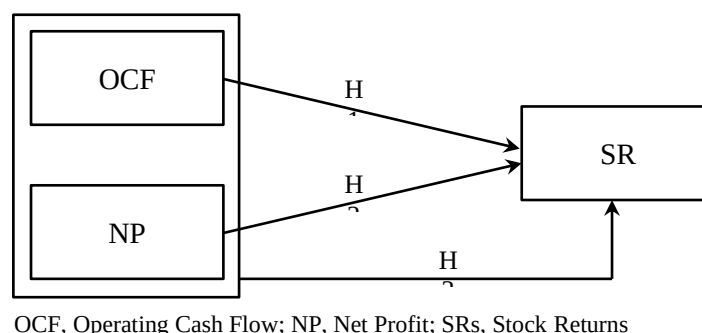


Figure 1. Conceptual Framework of the Proposed Model

Research Method

Research Design and Sample Size

This study was developed quantitatively, using an adjusted ex-post facto model. The objective was to test the predictive relationship between OCF, NP, and SR. The research data source was secondary data, taken from the annual financial reports of four food and beverage sub-sector manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the period 2016-2023, namely for eight periods of annual financial reports, verification in quarterly reports, namely 32 financial reports selected by applying a purposive sampling technique approach. Criteria for suitability with the objectives and the basis for selecting this technique were still considered (Sharma, 2017).

Data Analysis

The data analysis method used a regression model developed based on the data source, time dimension, and characteristics of the research data. Data analysis was carried out by formulating a panel data regression model applied based on data sources from four companies, which were estimated using EViews v.12. The regression equation developed based on the panel data regression model in this study can be formulated as follows:

$$\ln SR = a + b_1 \ln OCF + b_2 \ln NP + e \quad \dots (4)$$

Model Selection and Parameter Evaluation of Panel Data Regression Models

The process of selecting a panel data regression model generally involves several steps. First, the data parameters of the regression model are estimated using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) approaches. Second, the best panel data regression model is selected and verified using the Chow test, the Hausman test, and the Lagrange Multiplier (LM) test. Referring to the selected model, the classical assumption criteria are still applied to ensure the suitability of the data relationships in the model.

Furthermore, the evaluation of the suitability of the panel data regression model parameters with the selected model was also examined using the R^2 criterion, which ranges between 0.25, 0.50, and 0.75, indicating low, moderate, and strong R^2 values, respectively. The

predictive relationship between independent variables is assessed at an r value <0.8 (Firmansyah et al., 2022). In the hypothesis testing stage, a t -statistic value greater than the critical value of 1.96 is used, and a p -value of 0.05 is used in the significance analysis.

Result and Findings

Panel Data Regression Model Selection Approach

The model selection approach in this study was conducted through a series of tests, as is customary in panel data regression model selection. Referring to the results of the Chow test, the Hausman test, and the need to conduct an LM test, in the end the panel data regression model chose the CEM model as the best model compared to FEM and REM, in accordance with the stages of selecting the panel data regression model presented in the following section.

Chow Test

At this stage, the decision leads to the choice of a model comparing between CEM and FEM based on the Prob. Cross-section F at $p < 0.05$ allows FEM to be selected, or $p > 0.05$ the decision to choose CEM, see Table 1.

Table 1. Chow Test Results

Redundant Fixed Effects Tests			
Test cross-section fixed effects			Equation: Untitled
Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.229867	(3,26)	0.8747
Cross-section Chi-square	0.837679	3	0.8404

Note: Prob. on Cross-section F, as the basis for selecting CEM or FEM.

The results of the Chow test in Table 1 show that the Cross-section has a Prob. value of 0.8747 which is greater than 0.05, which means that CEM is the selected model at $\text{Prob} > 0.05$; $p > 0.05$.

Hausman Test

Comparison of FEM and REM in the Hausman test through the ‘Correlated Random Effects-Hausman Test’ option, in Fixed Randomized Testing, refers to Prob. Random cross-section at $p < 0.05$ then FEM is selected, or $p > 0.05$ ensures that REM will be selected, see Table 2.

Table 2. Hausman Test Results

Correlated Random Effects - Hausman Test			
Test cross-section random effects			Equation: Untitled
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.655877	2	0.7204

Note: estimated cross-section random effects variance is zero.

Referring to the Hausman test in Table 2, the estimation results confirm that REM is the selected model with a random cross-section at $\text{Prob} > 0.05$ ($p > 0.05$). The next step, the LM test, is necessary.

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

Lagrange Multiplier (LM) Test

At this stage, the LM test is needed to determine whether CEM, FEM, or REM is the best model selected in this study's panel data regression model. The results of the LM test are presented in Table 3.

Table 3. Lagrange Multiplier (LM) Test Results

Lagrange multiplier (LM) test for panel data			
Sample: 2016 2023			
Probability in ()	Total panel observations: 32		
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	1.539395	1.490694	3.030089
	(0.2147)	(0.2221)	(0.0817)

Note: CEM or REM is selected based on the Prob. Breusch-Pagan <0.05 or >0.05.

The results of the Lagrange Multiplier test (Table 3) using the Breusch-Pagan approach show a cross-section probability value of 0.2147, exceeding the significance limit of 0.05 ($p > 0.05$). Therefore, no significant individual effects were found. Therefore, CEM is more suitable than REM.

Classical Assumption Assessment with Multicollinearity Test between OCF and NP

Table 4 presents the results of the multicollinearity estimation between OCF and NP using a correlation stringency limit of $r < 0.80$.

Table 4. Results of the Multicollinearity Test between OCF and NP

Independent Variables	OCF	NP
OCF	1.000000	-0.033511
NP	-0.033511	1.000000

Note: no multicollinearity occurs at the $r < 0.8$ criterion.

The correlation between OCF and NP is at $r = -0.033511$, which is less than 0.8, indicating that multicollinearity in the classical assumption test can be met in this research's regression model. However, the relationship between OCF and NP is very low and certainly not unidirectional.

R² Criterion Assessment for Panel Data Regression Model Fit – CEM

The R^2 assessment refers to the panel data regression model selected using the CEM approach. At this stage, the model's predictive power criteria are evaluated.

The evaluation results of the R^2 criteria (see Table 5) show an R^2 value of 0.024773 ($R^2 = 2.48\%$) or lower than the R^2 criterion of 0.25, which means the predictive power of the panel data regression model is at a low criterion. Interestingly, this illustrates that the combined relationship between OCF and NP in explaining the total variance of SR has low predictive power in the selected panel data regression model.

Table 5. R² for Panel Data Regression Model – CEM

Dependent Variable: SR		Sample: 2016 2023	
Method: Panel Least Squares		Periods included: 8	
Total panel (balanced) observations: 32		Cross-sections included: 4	
R-squared	0.024773	Mean dependent var	0.095094
Adjusted R-squared	-0.042484	S.D. dependent var	0.298846
S.E. of regression	0.305128	Akaike info criterion	0.552892
SUM squared resid	2.699998	Schwarz criterion	0.690305
Log likelihood	-5.846274	Hannan-Quinn criter	0.598441
F-statistic	0.368337	Durbin-Watson stat	2.516887
Prob (F-statistic)	0.695074		

Note: R² is evaluated in the range of R² = 0.25; or R² = 0.50; and R² = 0.75.

Panel Data Regression Model Analysis – CEM

A panel data regression model analysis (PDRM) based on the CEM approach was conducted to determine the probability of changes in SR as the latent dependent variable with each change in OCF and NP as the latent independent variable, by referring to the magnitude of the constant (C) and the direction of the current regression coefficient (bi) based on the parameters and data quantities estimated in the model (Table 6), as well as the significance of the causal relationships in the regression model.

Table 6. Panel Data Regression Model Test Results – CEM

Dependent Variable: SR		Sample: 2016 2023		
Method: Panel Least Squares		Periods included: 8		
Total panel (balanced) observations: 32		Cross-sections included: 4		
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.080848	0.158189	0.511083	0.6132
OCF	-0.020429	0.111830	-0.182681	0.8563
NP	0.352671	0.423863	0.832038	0.4122

Note: SR, share return; OCF, operating cash flow; NP, net profit.

The panel data regression model equation with the CEM approach based on the data in Table 6 can be formulated in the following order:

$$\ln SR = 0.080848 - 0.020429 \ln OCF + 0.352671 \ln NP \quad \dots (5)$$

The regression model equation above can be explained that SR is at a constant value (C) of 0.080848, meaning that if OCF and NP are assumed to be zero, then the current constant value (0.080848) is also the same. The OCF regression coefficient of -0.020429 illustrates that if OCF increases by IDR.1,- or 1%, assuming NP is constant, it can result in a decrease in SR of 0.020429. This finding confirms that between OCF and SR in a causal relationship in the regression model shows that the direction of change in both can occur in opposite directions. Meanwhile, the NP regression coefficient of 0.352671 can be interpreted that if NP increases by IDR.1,- or 1%, assuming OCF does not change, it can result in an increase in SR of 0.352671. This condition indicates a unidirectional relationship between NP and SR, the relationship between the two is confirmed to be positive although not significant.

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

Hypothesis Testing

At this stage, the proposed hypotheses (H1, H2, and H3) can be proven based on the parameter estimation results of the panel data regression model using the CEM approach as the selected model. The significance test of the effects was analyzed using the criteria of t-statistics and F-statistics greater than 1.96 at a p-value of 0.05.

Significance Test of Individual Effects – t-Statistic

The significance test of individual effects, also known as the partial effect significance test, was conducted to prove H1 and H2, as presented in Table 7. The analysis was conducted using the criteria of t-statistics greater than the critical t-value of 1.96 at a p-value of 0.05 to support the hypotheses developed in this study.

Table 7. Results of the Significance Test of Individual Effects – t-Statistic

Hyphotesis	PDRM-CEM	β	S.E	t-Statistic	Prob.	Results
H1	OCF $\rightarrow$ SR	-0.020429	0.111830	-0.182681	0.8563	Rejected
H2	NP $\rightarrow$ SR	0.352671	0.423863	0.832038	0.4122	Rejected

Note: PDRM, data panel regression model; CEM, common effects model; β , koefisien B; S.E, standar error.

The results of the individual effect significance test in Table 7 indicate that OCF has no effect on SR, with a β coefficient of -0.020429 and a t-statistic of -0.182681 < 1.96, at a p-value > 0.05 (Prob; $\alpha = 0.8563 > 0.05$), thus rejecting H1. Similarly, these results confirm that NP has no significant positive effect on SR, with a β coefficient of 0.352671 and a t-statistic of 0.832038 < 1.96, at a p-value > 0.05 (Prob; $\alpha = 0.4122 > 0.05$), thus rejecting H2.

Simultaneous Effects Significance Test – F-Statistic

A combined effects significance test, also known as the simultaneous effects significance test, was conducted in this study to verify H3. The test parameters were analyzed using the F statistical criterion which was greater than the critical value of 1.96 at a p value of 0.05 to support the proposed hypothesis (see Table 8).

Table 8. Results of the Simultaneous Effect Significance Test – F-Statistic

Hyphotesis	PDRM-CEM	R ²	S.E	F-Statistic	Prob.	Results
H3	OCF, NP $\rightarrow$ SR	0.024773	0.305128	0.368337	0.695074	Rejected

Note: R², is the summary statistic for simultaneous explanatory power in the predictive relationship model.

The analysis results in Table 8 show that OCF and NP in the predictive relationship variance can simultaneously explain the total variance of SR, but their predictive power is in the low category, namely in the R² range of 0.024773 (2.48%). The implication, dominantly more than 90% (namely 97.52%) indicates that SR is very likely explained by other factors outside the panel data regression model with the CEM approach in this study. More interestingly, the findings from the joint influence significance test results confirm that OCF and NP simultaneously do not have a significant positive effect on SR, with F-Statistic = 0.368337 < 1.96 at p-value > 0.05 (Prob; $\alpha = 0.695074 > 0.05$), so the test results do not support the hypothesis and H3 is rejected.

Discussion

CEM, as the best panel data regression model in this study, was selected through the Chow test, the Hausman test, and the LM test. However, the model's predictive power was low. Findings from the analysis of the causal relationship between operating cash flow (OCF) and stock returns (SR) in the panel data regression model indicate that the direction of the relationship can reverse with each change. However, the unidirectional relationship between net income (NP) and stock returns (SR) was confirmed; both were positive, although not significant.

OCF is a company's primary source of revenue, used to maintain operations, repay loans, pay dividends, and generate stock returns (SR). Over time, OCF can reflect short-term operational effectiveness, which remains relevant as a consideration supporting investment strategies for investors, ensuring stable returns that meet their expectations, thus achieving shareholder welfare. Interestingly, the study findings indicate that OCF has no positive effect on SR. This finding aligns with previous research, such as Sitorus et al., (2023); Abbas & Nainggolan (2023); Wiranti et al., (2021). However, it contradicts and refutes the findings of Febriana & Rahmah (2024); Rosyafah (2021); and Nguyen & Van Nguyen (2020). These findings confirm that, from a time-period perspective, operating cash flow is less relevant as a primary consideration in determining stock returns in companies listed on the IDX. This is based on data from four manufacturing companies in the food and beverage subsector. Operationally, cash flow from operating activities typically derives from the company's cash inflows and outflows during the period in question. This reflects the company's short-term cash inflows and outflows, which may not significantly impact investor investment returns.

Despite its insignificant impact, operating cash flow can still be an important source of information for investors, influencing their investment decisions in the stock market, including net profit as an indicator. However, the findings of this study provide sufficient evidence that NP does not have a significant positive effect on SR. This finding contradicts the results of previous studies conducted by Ramdani & Utama (2025); Bayrakdaroglu et al., (2017). This certainly recognizes many factors as parameters that can be considered more relevant measures of a company's financial performance in predicting stock returns based on company characteristics, financial reporting periods, and the financial analysis tools adopted. Strengthening the findings of this study, for example, Gharaibeh et al., (2022); Budi & Davianti (2022); Anderson et al., (2021); and Kolář (2017) concluded that net profit and stock returns have an insignificant predictive relationship. This finding can be interpreted as meaning that, from the perspective of general investment decision considerations, measuring a company's net profit achievement is still necessary for investors even though it cannot fully guarantee the accuracy of estimating above-normal or abnormal investment returns. How adequate is the information content on the company's net profit achievement in guaranteeing a profitable level of investment returns for investors, at least it can still provide an overview of the prospects for the stability of the company's income in the future which has the potential to make a positive contribution to the smooth payment of dividends and stock returns based on the existence of information symmetry that occurs between various parties who have direct or indirect interests in the capital market.

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

Interestingly, the findings of this study confirm that the variance of the predictive relationship between OCF and NP can simultaneously explain the total variance of SR, with low predictive power in the panel data regression model with the CEM approach. Referring to the summary statistic value based on R^2 , the SR level is most likely explained by other factors outside the model. Strengthening this finding, the results of the joint influence analysis prove that OCF and NP simultaneously do not have a significant positive effect on SR. This finding provides a practical illustration that the SR level of the four food and beverage subsector manufacturing companies listed on the IDX in the context of this study is not entirely relevant to be measured by OCF and NP. The implication is that investors and potential investors, as well as other parties interested in capital market development, undoubtedly need to use parameters from other types of financial performance indicators to predict adequate levels of investment returns to meet the criteria for stock returns within normal limits. This means that OCF and NP information are not completely useless in investment feasibility analysis, but they need to be integrated comprehensively and a combination of financial performance parameters included in the analysis according to the investment horizon, potential risks, and control techniques so that investment decisions can provide profitable results for investors (Foerster et al., 2017; Suzuki et al., 2020).

Ultimately, the findings of this study confirm that OCF and NP do not have a significant positive effect on SR, either partially or simultaneously, in a panel data regression model with the CEM approach based on financial data from four companies listed on the Indonesia Stock Exchange for the period 2016-2023. This finding cannot rule out the role of other factors as determinants of SR in a capital market with complex operations and various company sizes. Furthermore, this is also inseparable from the cross-section and time frame that allow for heterogeneity in each company's performance, the complexity of company operations, consumer sentiment, prospect signals and information adequacy, and variations in investor views and expectations regarding company development. Consequently, the accuracy and predictive power of various specific financial performance parameters used, such as OCF and NP, or others, may produce different results in explaining and predicting stock returns. Therefore, this study can fill the existing gap and explain a relevant panel data regression model used to predict stock returns based on cash flow growth from business operations and periodic net income in various companies based on financial data over a certain period.

Conclusion

The smoothness and balance of a company's operating cash flow are crucial for strengthening its ability to generate profits, thereby increasing investment returns and shareholder welfare in the capital market. However, in this study, OCF and NP are less relevant as measures of company performance and a basis for considering the level of SR in four food and beverage subsector manufacturing companies listed on the Indonesia Stock Exchange (IDX), which were analyzed using a panel data regression model with the CEM approach. The study findings conclude that OCF has no positive effect on SR. NP has no significant positive effect on SR. This finding also confirms that OCF and NP simultaneously do not have a

significant positive effect on SR. In fact, the variance of the relationship between OCF and NP simultaneously has low predictive power in explaining the total variance of SR. This finding can fill the existing gap, and practically, the panel data regression model is relevant for use in predicting stock returns based on cash flow growth from business operations and periodic net income across companies. However, this study's findings emphasize that many other financial performance measures are more dominant than OCF and SR, which are determinants of SR in the capital market. The operational and financial reporting aspects across sectors and time horizons of various companies also allow for heterogeneity in the achievements of each company, consumer sentiment, prospect signals, and adequacy of information, as well as variations in investor views and estimates of the development of related companies, so that the accuracy and predictive power of various specific financial performance parameters used, such as OCF and NP, or others, can provide different results in explaining and predicting the value of stock returns.

This research contribution enriches the literature on capital markets, financial ratio analysis in financial and portfolio management that is closely related to the field of accounting to investment decisions. Managerially, this contribution can provide practical benefits for principals, agents, investors to the public and other stakeholders who are directly or indirectly related to the capital market, especially in understanding the importance and completeness of conducting careful analysis with various investment instruments to predict returns in the normal and adequate category based on variations in the most relevant company financial performance measures as predictive tools in its forecasting. Research limitations, analysis of the predictive relationship between operating cash flow, net income and stock returns in the panel data regression model in this study with a sample size limited to financial report data from four food and beverage subsector companies listed on the IDX for eight quarterly estimated financial reporting periods, allows for statistical bias for generalization at a broader level. In the perspective of the modern era based on a time horizon, prediction of investment returns certainly needs to consider the relevance of other objects that meet the criteria for financial performance measures that have the potential to be strongly correlated with stock returns with an expanded sample size, and not limited only to the parameters of operating cash flow and net income. All the limitations of this study can be relevant considerations for the direction of future research agendas.

References

- Abbas, Y., & Nainggolan, Y. A. (2023). Profit, cash flow, and leverage: the case of ASEAN stock market performance during the COVID-19 pandemic. *Journal of Accounting in Emerging Economies*, 13(5), 898–921. <https://doi.org/10.1108/JAEE-09-2021-0294>
- Anderson, J., Giordani, S. A., Kangnata, S., & Francisca, D. (2021). The effect of current ratio (CR), debt to equity ratio (DER), and net profit margin (NPM) on stock returns in manufacturing companies in the trade, services, and investment sector on the Indonesia Stock Exchange in the 2017-2020 period. *Enrichment: Journal of Management*, 12(1), 697–704. <https://doi.org/10.35335/enrichment.v12i1.293>
- Bayrakdaroglu, A., Mirgen, C., & Kuyu, E. (2017). Relationship between profitability ratios

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

- and stock prices: an empirical analysis on BIST-100. *PressAcademia Procedia*, 6(1), 1–10. <https://doi.org/10.17261/Pressacademia.2017.737>
- Brigham, E. F., & Houston, J. F. (2013). *Dasar-dasar Manajemen Keuangan. Buku Dua* (11th ed.). Jakarta: Salemba Empat.
- Budi, H. S. M., & Davianti, A. (2022). Firms' Profitability and Stock Returns: Does it Always Affect Positively? *International Journal of Social Science and Business*, 6(1), 103–109. <https://doi.org/10.23887/ijssb.v6i1.41927>
- Chairunisa, R. T., & Susetyo, D. P. (2024). Correlation analysis of production costs with sales volume and its impact on net profit. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(03), 455–464. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/139>
- Fatmawatie, N. (2023). Influence of Cash Flow and Net Profit on Stock Price. *Al-Muhasib: Journal of Islamic Accounting and Finance*, 3(1), 39–54. <https://doi.org/10.30762/almuhasib.v3i1.197>
- Febriana, F., & Rahmah, N. A. (2024). The Effect of Net Income, Operating Cash Flow, Investment Cash Flow, and Funding Cash Flow on Stock Returns (Case Study of Enterprises Registered in the LQ45 Index on the Indonesia Stock Exchange 2018-2022). *International Journal of Accounting, Management, Economics and Social Sciences (IJAMESC)*, 2(5), 1789–1801. <https://doi.org/10.61990/ijamesc.v2i5.297>
- Firmansyah, D., Saepuloh, D., & Susetyo, D. P. (2020). *AKuntansi Manajemen ; Informasi dan Alternatif Untuk Pengambilan Keputusan*. Tangerang. Banten: PT. Bidara Cendekia Ilmi Nusantara.
- Firmansyah, D., Susetyo, D. P., Suryana, A., & Saepuloh, D. (2022). Volume Penjualan: Analisis Pendekatan Regresi Data Panel. *Asian Journal of Management Analytics*, 1(2), 109–124. <https://doi.org/10.55927/ajma.v1i2.1479>
- Foerster, S., Tsagarelis, J., & Wang, G. (2017). Are Cash Flows Better Stock Return Predictors Than Profits? *Financial Analysts Journal*, 73(1), 73–99. <https://doi.org/10.2469/faj.v73.n1.2>
- Gharaibeh, A. T., Saleh, M. H., Jawabreh, O., & Ali, B. J. A. (2022). An empirical study of the relationship between earnings per share, net income, and stock price. *Appl. Math*, 16(5), 673–679. <https://doi.org/10.18576/amis/160502>
- Gitman, L. J., & Zutter, C. J. (2015). *Principles of Managerial Finance* (Fourteenth). United States of America: Pearson Education.
- H.A.G, A. D. A., & Firmansyah, D. (2024). Profit growth: the impact of total asset turnover and firm size. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(04), 531–544. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/151>
- Hanipah, S. S., & Firmansyah, D. (2024). Determinants of return on equity: Predictors of total asset turnover and debt to equity ratio–Panel data regression statistics. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(04), 593–608. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/133>
- Hery, S. M. (2020). *Analisis Laporan Keuangan, Integrated and Comprehensive Edition*. Jakarta: PT Grasindo.
- Jensen, M. C., & Meckling, W. H. (2019). Theory of the firm: Managerial behavior, agency

- costs and ownership structure. In *Corporate governance* (1st ed., pp. 77–132). Gower. <https://doi.org/10.4324/9781315191157-9>
- Jogiyanto, H. (2017). *Teori Portofolio dan Analisis Investasi* (12th ed.). Yogyakarta: BPFE.
- Karim, A. (2023). the Effect of Operating Cash Flow and Net Profit on Share Return, 2022-2022. *International Journal of Economics and Management Research*, 2(1), 153–162. <https://doi.org/10.55606/ijemr.v2i1.74>
- Kasmir. (2021). *Analisis laporan keuangan* (13th ed.). Depok : Rajawali Pers.
- Khotimah, S. N., Mustikowati, R. I., & Sari, A. R. (2020). Pengaruh ukuran perusahaan dan leverage terhadap nilai perusahaan dengan profitabilitas sebagai variabel moderasi. *Jurnal Riset Mahasiswa Akuntansi*, 8(2). <https://doi.org/10.21067/jrma.v8i2.5232>
- Kolář, M. (2017). Relationship between Stock Returns and Net Income: Evidence from US Market. *Digital Respoitory*. <http://hdl.handle.net/20.500.11956/86504>
- Konita, N., & Rijanto, R. (2024). The effect of sales and inventory forecasting on net profit: Forecasting method with the exponential smoothing model approach. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(04), 569–580. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/154>
- Masrivah, R. F. S., & Rijanto, R. (2024). Return on assets: the effect of corporate social responsibility and return on equity. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(04), 645–656. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/160>
- Nguyen, D. D., & Van Nguyen, C. (2020). The impact of operating cash flow in decision-making of individual investors in Vietnam's stock market. *The Journal of Asian Finance, Economics and Business*, 7(5), 19–29.
- Norouzi, M., Ghodrati Zoeram, A., Najari, A., & Teymoorpour, S. (2022). Impact of operating cash flow on stock returns and earnings stability. *Journal of Accounting and Management Vision*, 5(60), 84–94.
- Nurkamila, M., & Firmansyah, D. (2024). The effect of total asset turn over and debt to equity ratio on return on asset. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(03), 415–426. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/146>
- Ramdani, I. M., & Utama, A. A. G. S. (2025). Impact of Cash Flow Components, Net Profit, on Stock Returns. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 8(2), 4388–4404. <https://doi.org/10.31538/ijse.v8i2.6056>
- Rosyafah, S. (2021). Profit, Cash Flow, Dividend and Stock Return. *Kaav International Journal of Arts, Humanities & Social Science: A Refereed Peer Review Quarterly Journa*, 4, 27–32.
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749–752.
- Sitorus, S. O. B., Njotoprajitno, R. S., & Hadiano, B. (2023). Information on cash flow statements and stock return. *Economics and Business Quarterly Reviews*, 6(1). Available online at <https://ssrn.com/abstract=4365883>
- Sulindawati, N. L. G., Purnamawati, A. I. G., & Yuniarta, A. G. (2019). *Manajemen Keuangan: Sebagai Dasar Pengambilan Keputusan Bisnis*. Depok: PT Raja Grafindo Persada.

Panel Data Regression Analysis Approach: Predict the Effect of Operating Cash Flows and Net Profit on Stock Returns

- Susetyo, D. P. (2023). The Effect of Return on Assets and Firm Size on Capital Structure. *JURNAL EMA*, 1(01), 25–32. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/27>
- Susetyo, D. P., Firmansyah, D., & Aisah, A. S. (2021). Perubahan Biaya Operasional Dan Jumlah Penjualan Terhadap Laba Bersih Sebelum Dan Pada Masa Pandemic Covid-19 (Studi Pada PT. Nuansa Ilham Prima Sukabumi). *Jurnal SEKURITAS (Saham, Ekonomi, Keuangan Dan Investasi)*, 4(3), 208–219. <https://doi.org/10.32493/skt.v4i3.8544>
- Susetyo, D. P., Frankus, A. G., & Firmansyah, D. (2023). The Effect of Profitability and Liquidity on Dividend Policy. *International Journal of Management and Business Intelligence*, 1(2), 143–158. <https://doi.org/10.59890/ijmbi.v1i2.245>
- Suwarni, S., & Susetyo, D. P. (2024). Determinants of stock prices: a re-exploration of earnings per share and debt to equity ratio as predictors. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(04), 545–556. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/152>
- Suzuki, M., Sakaji, H., Izumi, K., Matsushima, H., & Ishikawa, Y. (2020). Forecasting net income estimate and stock price using text mining from economic reports. *Information*, 11(6), 292. <https://doi.org/10.3390/info11060292>
- Tandelilin, E. (2017). *Pasar Modal “Manajemen Portofolio dan Investasi”*. Yogyakarta: PT. Kanisius.
- Tobibah, L., & Firmansyah, D. (2024). The effect of receivables turnover and firm size on profitability. *Jurnal Ekonomi, Manajemen Dan Akuntansi*, 2(2), 277–288. Retrieved from <https://ip2i.org/jip/index.php/ema/article/view/103>
- Undang-Undang Republik, Nomor 8 Tahun 1995. Tentang Pasar Modal.
- Wahyudi, M., & Deitiana, T. (2019). Pengaruh Current Ratio, Debt To Equity Ratio, Return on Equity, Total Asset Turnover, Dividen Payout Ratio Terhadap Return Saham Pada Perusahaan Otomotif. *Media Bisnis*, 11(2), 155–162. <https://doi.org/10.34208/mb.v11i2.940>
- Wiranti, M. E., Sohib, S., & Bakti, M. H. S. (2021). Impact of cash flow components, net income and company size on stock return. *Assets: Jurnal Ilmiah Ilmu Akuntansi, Keuangan Dan Pajak*, 5(1), 17–23. <https://doi.org/10.30741/assets.v5i1.678>