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The Effect of Cash Holding, Free Cash Flow, Capital Expenditure, and Leverage on Firm Value: The Moderating Role of CEO Tenure in Food and Beverage Companies Listed on the Indonesia Stock Exchange, 2021–2025

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ABSTRACT

The food and beverage subsector is one of the manufacturing subsectors that showed positive growth and made a significant contribution to the Indonesian economy during 2021–2025. However, this growth was not always accompanied by an increase in firm value, as measured by Tobin's Q, which continued to fluctuate throughout the study period. Furthermore, previous research on the effects of cash holding, capital expenditure, and leverage on firm value has shown inconsistent results. This study aims to analyze the effects of cash holding, free cash flow, capital expenditure, and leverage on firm value, with CEO power, proxied by CEO tenure, as a moderating variable, in food and beverage subsector companies listed on the Indonesia Stock Exchange during 2021–2025.

This study employed a quantitative approach using secondary data obtained from companies' financial statements and annual reports. Purposive sampling was used to select 40 companies, yielding 200 observations. The data were analyzed using panel data regression with a Random Effect model estimated with Robust Standard Errors, together with Moderated Regression Analysis (MRA).

The results indicate that cash holding and free cash flow have no effect on firm value, whereas capital expenditure and leverage have a positive effect. Furthermore, CEO power (CEO tenure) moderates the effects of cash holding and leverage on firm value but does not moderate the effects of free cash flow and capital expenditure on firm value.

It can be concluded that the increase in firm value in food and beverage subsector companies is influenced more by investment decisions and corporate financing policies. Furthermore, CEO managerial characteristics, as measured by CEO tenure, play a role in strengthening the influence of certain financial policies on firm value, particularly those related to cash management and the use of debt.

Keywords: *Cash Holding, Free Cash Flow, Capital Expenditure, Leverage, Firm Value, CEO Power, CEO Tenure.*

1. INTRODUCTION

The food and beverage industry is a manufacturing subsector that plays an important role in the Indonesian economy and showed positive growth during 2021–2025 (Prabowo, 2025:1–2). However, this growth has not been fully accompanied by an increase in firm value. Firm value, measured by Tobin's Q, fluctuated and tended to decline in 2022–2024 before rising again in 2025, which shows that industry growth does not always go hand in hand with market appreciation (Chandra & Hermanto, 2024:82–83).

The increase in firm value is related to corporate financial decisions, among them cash holding, free cash flow, capital expenditure, and leverage. Cash holding provides financial flexibility, whereas free cash flow reflects a company's ability to provide cash after meeting its operating and investment needs. Capital expenditure, meanwhile, relates to investment decisions in fixed assets that support capacity and long-term growth, whereas leverage reflects the use of debt to finance a company's assets. During 2021–2025, these four variables showed different dynamics among food and beverage subsector companies, which makes them relevant to examine in relation to firm value (Lee, 2024:437–438; Dewi & Erawati, 2024:2614; Park & Paientko, 2025:1, 3, 10, 17; Lestari et al., 2025:504–508).

Besides financial decisions, the characteristics of top management can influence a company's strategic decisions. CEO power, proxied by CEO tenure, reflects the length of a CEO's term of office, which can be related to experience, firm-specific knowledge, and continuity in decision-making (Brahma & Economou, 2024:1070, 1079; Brochet et al., 2019:5, 22). CEO tenure therefore has the potential to influence the relationship between financial decisions and firm value.

Previous studies have shown inconsistent results. Hapsari et al. (2025:777–778) found that cash holding has a positive effect on firm value, whereas Arifah and Africa (2025:61–62) found that it has no effect. Different results have also been found for leverage and capital expenditure. Islamiyah and Fidiana (2024:13) found a positive effect of capital expenditure on firm value, whereas Rosdiana (2022:998) found no effect. These inconsistencies point to a research gap that needs further examination.

This study integrates cash holding, free cash flow, capital expenditure, and leverage with CEO power, proxied by CEO tenure, as a moderating variable. The study was conducted on food and beverage subsector companies listed on the Indonesia Stock Exchange during 2021–2025. It aims to analyze the effects of these four financial decisions on firm value and to test the ability of CEO tenure to moderate each of these relationships.

2. LITERATURE REVIEW

2.1 Theoretical Foundations

Agency Theory was introduced by Jensen and Meckling (1976) to explain the relationship between the capital owner (the *principal*) and the management (the *agent*) to whom authority to manage the company is delegated. Differences in interests and information between the two parties can give rise to an *agency problem* when management does not fully act in the shareholders' interests. This condition can lead to *agency costs* in the form of monitoring costs, contracting costs, and losses caused by management's opportunistic behavior (Ghozali, 2020:87; Khandelwal et al.,

2023:497). In this study, the theory is relevant for explaining how management decisions on cash management, free cash flow, investment, and financing can affect *firm value*.

Signaling Theory was introduced by Spence (1973) to explain how a party with more information can send signals to other parties under conditions of *information asymmetry*. Such signals can help investors reduce uncertainty when assessing a company's quality and prospects (Spence, 1973:357; Ghozali, 2020:166–167). In this study, *capital expenditure* decisions and other financial decisions can be viewed as signals about a company's condition, prospects, and ability to create value for shareholders.

Pecking Order Theory, developed by Myers and Majluf (1984), explains that companies follow a hierarchy in choosing funding sources because of *asymmetric information* between management and investors. Companies tend to use internal funds first, then debt, and finally equity issuance as an external source of funding (Pane et al., 2025:47; Brealey et al., 2020:496). This theory is relevant for explaining companies' decisions in managing *free cash flow*, cash, and debt financing.

Trade-Off Theory explains that companies determine their use of debt by weighing the benefits of the *tax shield* against the costs arising from *financial distress* and agency costs. Using debt up to a certain level can increase firm value, but excessive use can raise the risk of financial difficulty and reduce firm value (Bui et al., 2023:2; Brealey et al., 2020:483). This theory underlies the explanation of the relationship between *leverage* and *firm value* and the importance of determining an optimal level of financing.

2.2 Variable Definitions

Firm value is a reflection of investors' perception of a company's level of success, as reflected in its share price in the capital market. The higher a company's share price, the higher its firm value, which ultimately indicates an increase in shareholder wealth, the company's primary objective. Firm value is an important indicator because it reflects a company's overall condition in terms of financial performance, growth prospects, and ability to create long-term value for investors (Ningrum, 2021:20–21).

Cash holding refers to the amount of cash and cash equivalents that a company manages and keeps as liquid assets ready to be used to meet operational needs, cope with economic uncertainty, and seize sudden investment opportunities. In the contemporary corporate finance literature, *cash holding* is understood as an important form of liquidity policy that reflects management's decisions on allocating highly liquid resources within the company's asset structure (Susanti & Susanto, 2024:3650).

Free cash flow (FCF) is the cash available to a company after financing all capital expenditure and operating needs and after providing the funds needed to support and carry out business operations in a timely manner. It is an important indicator in investment and fund distribution decisions (Misrah & Sari, 2023:368). Free cash flow increases an organization's ability to generate internal funds that can be used flexibly for various strategic purposes, such as paying dividends, repaying debt, or making new investments (Rengganis et al., 2023:945).

Capital expenditure is spending that a company allocates to acquire, expand, or improve fixed assets that provide long-term economic benefits and are used in the company's operations. This spending is strategic because it relates directly to long-term investment decisions that determine production capacity, operational efficiency, and the company's future growth potential (Harsono, 2018:119). Harsono (2018:120) emphasizes that *capital expenditure* is not intended to meet short-term operating needs but is a form of the company's commitment to creating long-term value through investment in productive assets. *Capital expenditure* is therefore often associated with an investment policy oriented toward improving competitiveness and business sustainability (Harsono, 2018:120).

Leverage is a measure of a company's use of debt in its capital structure to finance operations and investment. Conceptually, *leverage* reflects the extent to which a company uses borrowed funds (*debt financing*) relative to its total

assets to increase business capacity and potential *returns*, while at the same time increasing financial risk because of the obligation to pay interest and repay the principal (Abubakar & Anyonje, 2025:36).

CEO power is a measure of the extent to which a *Chief Executive Officer* has influence over strategic and operational decisions and over the company's overall direction. *CEO power* reflects managerial ability to influence corporate policy without significant constraints from the board of directors or shareholders (Brahma & Economou, 2024:1073). According to Brahma and Economou (2024), *CEO power* can stem from experience, internal legitimacy, organizational structure, and formal control over company policy. In this study, *CEO tenure* is used as the proxy because the longer a CEO serves, the greater the CEO's ability and legitimacy to influence strategic decisions and resource allocation (Rachman et al., 2024:3425). *CEO tenure* reflects expert power, whereby experience and in-depth understanding of the company enable the CEO to make more strategic decisions and to influence company performance and value (Fadilah & Venusita, 2024:227).

2.3 Previous Studies and Research Gap

Research on the effect of *Cash Holding* on *Firm Value* has shown inconsistent results. Hapsari et al. (2025) found that *Cash Holding* affects *Firm Value* in energy-sector companies in Indonesia, which suggests that a company's policy of retaining cash can be one consideration in the market's valuation of the company. In contrast, Arifah and Africa (2025) found that *Cash Holding* has no effect on firm value. These differing results show that the relationship between the amount of cash a company holds and its value still lacks a consistent conclusion across different company characteristics.

Research on the effect of *Free Cash Flow* on *Firm Value* has also shown varied results. Widiastari and Yasa (2018) found that *Free Cash Flow* has no effect on firm value in consumer goods companies listed on the Indonesia Stock Exchange. Different findings were reported by Zurriah (2021), who found that *Free Cash Flow* has a positive and significant effect on firm value in basic industry and chemical companies listed on the Indonesia Stock Exchange. Similar results were found by Suciati et al. (2021), who showed a positive and significant effect on firm value in listed manufacturing companies, and Utami and Astika (2024) also found a positive effect on firm value in listed companies. These differences show that the effect of *Free Cash Flow* on *Firm Value* remains inconsistent and needs to be retested on different research objects.

Regarding the relationship between *Capital Expenditure* and *Firm Value*, Islamiyah and Fidiana (2024) found that *Capital Expenditure* has a positive effect on firm value in telecommunications subsector companies listed on the Indonesia Stock Exchange. This result suggests that a company's investment in fixed assets can signal growth prospects and support an increase in firm value. In contrast, Rosdiana (2022) found that *Capital Expenditure* has no effect on *Firm Value* in mining companies listed on the Indonesia Stock Exchange. These differences show that corporate investment through *Capital Expenditure* has not consistently increased firm value.

Research on the effect of *Leverage* on *Firm Value* has likewise produced different findings. Hapsari et al. (2025) found that *Leverage* has no significant effect on *Firm Value*, whereas Arifah and Africa (2025) found that *Leverage* affects firm value. Sanjaya and Rinjani (2024) also showed that *Leverage* has a positive effect on *Firm Value* in manufacturing companies listed on the Indonesia Stock Exchange during 2021–2023. These differences show that the use of debt as a funding source has not had a uniform effect on the market's valuation of companies.

Besides financial decision variables, previous studies have also shown that *CEO Tenure* is related to *Firm Value*. Amanda et al. (2024) found that *CEO Tenure* affects *Firm Value* in companies included in the KOMPAS100 index listed on the Indonesia Stock Exchange during 2018–2022. Similar results were found by Sanjaya and Rinjani (2024), who showed that *CEO Tenure* has a positive effect on *Firm Value* in manufacturing companies listed on the Indonesia Stock Exchange during 2021–2023. Hamidlal and Harymawan (2021) also found a relationship between *CEO Power* and *Firm*

Value in non-financial companies in Indonesia. These findings show that CEO characteristics and power, including tenure, can be related to a company's ability to create value.

Research on CEO Tenure and financial decisions also provides a basis for using *CEO Tenure* as a moderating variable. Usman et al. (2021) found that *CEO Tenure* is significantly related to *Corporate Cash Holdings*. This finding suggests that the length of a CEO's tenure can be related to a company's policy on the level of cash to retain. As experience and knowledge of the company's condition grow, a CEO can have greater influence in determining financial policy. This result is relevant to the present study because it shows that *CEO Tenure* is related not only to *Firm Value* but also to a company's financial decisions.

Based on this previous research, the results on the effects of *Cash Holding*, *Free Cash Flow*, *Capital Expenditure*, and *Leverage* on *Firm Value* are inconsistent. In addition, previous studies of *CEO Tenure* have mostly tested its direct effect on *Firm Value* or its relationship with financial decisions, whereas studies that position *CEO Tenure* as a moderating variable in the relationship between financial decisions and firm value remain limited. This study therefore extends previous research by testing *Cash Holding*, *Free Cash Flow*, *Capital Expenditure*, and *Leverage* against *Firm Value*, with *CEO Power*, proxied by *CEO Tenure*, as a moderating variable in *Food and Beverage* subsector companies listed on the Indonesia Stock Exchange during 2021–2025.

3. RESEARCH METHOD

This study uses a quantitative approach with a causal research type that aims to test cause-and-effect relationships among variables through hypothesis testing. It follows a hypothetico-deductive approach, that is, testing a theory by formulating hypotheses that are then tested with empirical data. In terms of its benefits, this study is applied research, conducted in a natural setting (non-contrived setting) without researcher intervention, with the company as the organizational unit of analysis, and it uses a longitudinal approach because observations were made over the 2021–2025 period (Sekaran & Bougie, 2016). It tests the effects of *Cash Holding*, *Free Cash Flow*, *Capital Expenditure*, and *Leverage* on *Firm Value*, with *CEO Power*, proxied by *CEO Tenure*, as a moderating variable.

The research population consists of 99 Food and Beverage subsector companies listed on the Indonesia Stock Exchange during 2021–2025. Samples were drawn using nonprobability sampling with the purposive sampling method, that is, selecting samples on the basis of certain criteria aligned with the research objectives (Sekaran & Bougie, 2016). The criteria were: Food and Beverage subsector companies listed on the Indonesia Stock Exchange throughout 2021–2025; companies that published complete annual reports and had the data needed to measure all research variables during the observation period; and companies that consistently had a market capitalization of at least IDR 1 trillion throughout 2021–2025. Based on these criteria, 40 companies were obtained as the research sample. With a five-year observation period, the study produced 200 observations.

Data were collected as secondary data using the documentation method. The data were obtained from the annual reports and financial statements of Food and Beverage subsector companies listed on the Indonesia Stock Exchange during 2021–2025. Secondary data were used because the required information is already available in company documents and can be used to measure the research variables (Sekaran & Bougie, 2016). The data collected include information on cash and cash equivalents, cash flows, fixed assets, total assets, total debt, the companies' market value, and CEO tenure. These data were used to obtain the values of *Cash Holding*, *Free Cash Flow*, *Capital Expenditure*, *Leverage*, *Firm Value*, and *CEO Tenure*.

The data were analyzed using panel data regression with Stata version 17. Panel data regression was used because the study combines cross-sectional data from 40 companies with time-series data for 2021–2025. The analysis proceeded in several stages: descriptive statistics, selection of the panel data regression model, testing of model assumptions, panel data regression analysis, and moderation testing. Descriptive statistics were used to describe the characteristics of the research data through minimum, maximum, mean, and standard deviation values. The regression tests were then used

to analyze the effects of Cash Holding, Free Cash Flow, Capital Expenditure, and Leverage on Firm Value. Moderation testing used *Moderated Regression Analysis* (MRA) to determine the ability of CEO Tenure to strengthen or weaken the effect of each independent variable on Firm Value (Ghozali, 2021).

Based on the final results of the study, the regression model was estimated using the *Random Effects Model* with *Robust Standard Errors*, whereas the role of CEO Tenure was tested using *Moderated Regression Analysis* (MRA). Robust Standard Errors were used to obtain more appropriate standard error estimates when there are problems with the variance structure or correlation in the panel data. The analysis results were then used to test the research hypotheses at a significance level of 5% (0.05).

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1. Descriptive Statistics

Variable	Component	Mean	Std. dev.	Min	Max	Observations
FV	overall	2.130	3.395	0.513	42.655	N = 200
	between		1.808	0.578	9.794	n = 40
	within		2.884	-6.422	34.991	T = 5
CH	overall	0.145	0.132	0.001	0.653	N = 200
	between		0.117	0.002	0.549	n = 40
	within		0.063	-0.042	0.477	T = 5
FCF	overall	0.054	0.093	-0.164	0.477	N = 200
	between		0.065	-0.074	0.314	n = 40
	within		0.067	-0.127	0.314	T = 5
CAPEX	overall	0.320	0.148	0.023	0.774	N = 200
	between		0.144	0.062	0.747	n = 40
	within		0.038	0.152	0.435	T = 5
LEV	overall	0.607	0.877	0.009	7.517	N = 200
	between		0.854	0.012	5.204	n = 40
	within		0.234	-0.546	2.920	T = 5
CEO	overall	9.365	11.099	1	55	N = 200
	between		10.643	1.4	53	n = 40
	within		3.491	-3.035	37.765	T = 5

Source: Stata panel data processing, 2026.

Firm Value. For the *Firm Value* variable (Y), the overall mean is 2.130, with a standard deviation of 3.395, a minimum of 0.513, and a maximum of 42.655. A standard deviation larger than the mean shows that the variation in *Firm Value* is high, which means there are fairly large differences among companies in the *Food and Beverage* subsector. In the *between* component, a standard deviation of 1.808 indicates variation across companies, whereas the *within* value of 2.884 shows that *Firm Value* also fluctuates considerably from year to year within each company.

Cash Holding. For the *Cash Holding* variable (X1), the overall mean is 0.145, with a standard deviation of 0.132, a minimum of 0.001, and a maximum of 0.653. Because the standard deviation is smaller than the mean, the variation in *Cash Holding* is relatively stable. The *between* value of 0.117 indicates differences in *Cash Holding* levels across companies

that are not very large, whereas the *within* value of 0.063 shows that changes in *Cash Holding* within a company from year to year are relatively small or stable.

Free Cash Flow. For the *Free Cash Flow* variable (X2), the overall mean is 0.054, with a standard deviation of 0.093, a minimum of -0.164, and a maximum of 0.477. Because the standard deviation is larger than the mean, the data show a fairly high level of variation. The negative minimum indicates that some companies experienced negative free cash flow. The *between* value of 0.065 indicates differences across companies, whereas the *within* value of 0.067 shows that *Free Cash Flow* also changes from year to year within a company.

Capital Expenditure. For the *Capital Expenditure* variable (X3), the overall mean is 0.320, with a standard deviation of 0.148, a minimum of 0.023, and a maximum of 0.774. Because the standard deviation is smaller than the mean, the data are relatively homogeneous. The *between* value of 0.144 indicates differences in investment policy across companies, whereas the *within* value of 0.038 shows that changes in *Capital Expenditure* within a company from year to year are relatively small or stable.

Leverage. For the *Leverage* variable (X4), the overall mean is 0.607, with a standard deviation of 0.877, a minimum of 0.009, and a maximum of 7.517. Because the standard deviation is far larger than the mean, the *Leverage* data vary widely. The *between* value of 0.854 indicates very large differences in funding structure across companies, whereas the *within* value of 0.234 shows that *Leverage* also changes within a company from year to year, although less than the differences across companies.

CEO Tenure. The *CEO Tenure* variable has a mean of 9.365 years, which indicates that the CEOs of the sample companies generally have fairly long leadership experience. The standard deviation of 11.099 is larger than the mean, which indicates high variation in CEO tenure across companies. The minimum of 1 year and maximum of 55 years show a very wide range of tenures. In addition, the variation across companies (between = 10.643) is larger than the variation within companies (within = 3.491), which shows that differences in CEO tenure occur more across companies than as changes during the research period.

4.2 Panel Data Regression Model Selection (Hausman Test)

Table 2. Hausman (1978) Specification Test

Statistic	Coef.
Chi-square test value	6.475
P-value	0.692

Source: Data processed with Stata SE/MP version 17, 2026.

Based on the Hausman specification test results presented in Table 2, the Chi-square value is 6.475 with a *P-value* of 0.692. Because this *P-value* is greater than the significance level (α) of 0.05, the null hypothesis (H0) is accepted. This implies that the more appropriate, consistent, and efficient model for this study is the *Random Effect Model* (REM).

4.3 Model Assumption Tests

4.3.1 Multicollinearity Test

Table 3. Variance Inflation Factor

Variable	VIF	1/VIF
CH	1.686	0.593
FCF	1.370	0.730
CAPEX	1.224	0.817
LEV	2.651	0.377
CEO	1.350	0.741
CH×CEO	2.464	0.406
FCF×CEO	1.815	0.551
CAPEX×CEO	1.290	0.775
LEV×CEO	2.959	0.338
Mean VIF	1.868	–

Source: Data processed with Stata SE/MP version 17, 2026.

The results in Table 3 show that all research variables are free from multicollinearity. *Cash Holding* (CH) has a VIF of 1.686 and a *tolerance* of 0.593, whereas *Free Cash Flow* (FCF) has a VIF of 1.370 with a *tolerance* of 0.730. *Capital Expenditure* (CAPEX) records the lowest VIF, 1.224, with a *tolerance* of 0.817, which indicates a high level of independence. *Leverage* (LEV) has a VIF of 2.651 and a *tolerance* of 0.377, and the moderating variable CEO has a VIF of 1.350 with a *tolerance* of 0.741.

For the interaction variables, CH×CEO has a VIF of 2.464 with a *tolerance* of 0.406, and FCF×CEO has 1.815 with a *tolerance* of 0.551. The interaction variable CAPEX×CEO has a VIF of 1.290 with a *tolerance* of 0.775, whereas LEV×CEO records the highest VIF, 2.959, with a *tolerance* of 0.338. Because all VIF values for the independent and interaction variables are well below the critical threshold of 10, it can be concluded that the regression model has no multicollinearity problem and is fit for use. In addition, the Mean VIF is 1.868, which shows that, overall, the correlation among the independent variables in the model is relatively low.

4.3.2 Autocorrelation Test

Table 4. Autocorrelation Test

Statistical test	Prob > F	Remarks
Wooldridge test	0.0053	Autocorrelation present

Source: Data processed with Stata SE/MP version 17, 2026.

Based on the *Wooldridge test* results presented in Table 4, the Prob > F value is 0.0053. This value is smaller than 0.05 ($0.0053 < 0.05$), so the null hypothesis of no autocorrelation is rejected. It can therefore be concluded that the panel regression model in this study exhibits autocorrelation.

To address this problem, this study used *robust standard errors* in the panel regression estimation. The purpose of using *robust standard errors* is to produce *standard errors* that are more resistant to violations of classical assumptions, including autocorrelation and *heteroscedasticity*. With this method, the regression coefficients do not change, but the *standard errors*, t-statistics, and significance levels are adjusted so that the hypothesis test results become more reliable and valid.

4.3.3 Heteroscedasticity Test

Table 5. Heteroscedasticity Test

Test method	Significance (Prob > F)	Remarks
Residual-based test	0.9253	No heteroscedasticity

Source: Data processed with Stata SE/MP version 17, 2026.

Based on the results presented in Table 5, the significance value (Prob > F) is 0.9253. This value is greater than the significance level used in this study, 5% (0.05). The null hypothesis that the model has no *heteroscedasticity* therefore cannot be rejected.

4.4 Hypothesis Testing Model

Table 6. Random Effect Model Estimation Results with Robust Standard Errors (Huber-White)

FV	Coefficient	Robust Std. Err.	t-value	p-value	[95% Conf.	Interval]	Sig.
CH	3.579	2.142	1.670	0.095	−0.619	7.777	*
FCF	2.243	2.437	0.920	0.358	−2.535	7.020	
CAPEX	4.263	1.375	3.100	0.002	1.568	6.958	***
LEV	1.709	0.353	4.840	0.000	1.016	2.401	***
CEOTN	0.027	0.024	1.110	0.268	−0.021	0.075	
CH_CEOTN	0.425	0.214	1.990	0.047	0.006	0.844	**
FCF_CEOTN	−0.087	0.139	−0.620	0.535	−0.360	0.187	
CAPEX_CEOTN	−0.081	0.144	−0.560	0.575	−0.362	0.201	
LEV_CEOTN	0.244	0.047	5.170	0.000	0.151	0.337	***
Constant	2.413	0.266	9.070	0.000	1.892	2.934	***

Mean dependent var = 2.130; SD dependent var = 3.395; Overall r-squared = 0.149; Number of obs = 200; Chi-square = 44.655; Prob > chi2 = 0.000; R-squared within = 0.125; R-squared between = 0.214.

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Source: Stata SE/MP version 17 output, 2026.

Hypothesis testing in this study used the *Random Effect* (RE) model with *Robust Standard Errors* (Huber-White). The use of the *Random Effect* model is based on the model selection test, which showed that it is the most appropriate model for this study. In addition, *Robust Standard Errors* were applied to address the autocorrelation found in the classical assumption tests, so that the estimation results are more reliable and the *standard errors* are *robust* to certain violations of assumptions.

Based on the *Random Effect* panel regression estimation with *Robust Standard Errors*, the *Wald Chi-Square* value is 44.655 with a Prob > Chi-Square of 0.000. A probability value smaller than 0.05 indicates that the regression model, taken as a whole, is able to explain the relationship among the independent variables, the moderating variable, and the dependent variable. The research model is therefore declared fit for testing the research hypotheses.

Furthermore, the Overall R-Squared of 0.149 indicates that 14.9% of the variation in the dependent variable can be explained by *Cash Holding* (CH), *Free Cash Flow* (FCF), *Capital Expenditure* (CAPEX), *Leverage* (LEV, proxied by the debt-to-asset ratio, DAR), *CEO Tenure*, and the interaction variables used in the model. The remaining 85.1% is explained by other factors outside the research model that were not included in the analysis.

4.5 Partial Hypothesis Test Results

Table 7. Panel Data Regression Model Results

FV	Coefficient	Robust Std. Err.	t-value	p-value	[95% Conf.	Interval]	Sig.
CH	3.579	2.142	1.670	0.095	−0.619	7.777	*
FCF	2.243	2.437	0.920	0.358	−2.535	7.020	
CAPEX	4.263	1.375	3.100	0.002	1.568	6.958	***
LEV	1.709	0.353	4.840	0.000	1.016	2.401	***
Constant	2.413	0.266	9.070	0.000	1.892	2.934	***

Mean dependent var = 2.130; SD dependent var = 3.395; Overall r-squared = 0.149; Number of obs = 200; Chi-square = 44.655; Prob > chi2 = 0.000; R-squared within = 0.125; R-squared between = 0.214.

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Source: Stata SE/MP version 17 output, 2026.

The panel data regression model in this study is formulated as follows:

$$FV_{it} = 2.413 + 3.579 CH_{it} + 2.243 FCF_{it} + 4.263 CAPEX_{it} + 1.709 LEV_{it} + \varepsilon_{it}$$

Based on the estimated panel data regression model, each independent variable has a coefficient, *t*-statistic, and *p*-value that can be used to test the research hypotheses. The effect of each variable on firm value is explained as follows.

Cash Holding (CH) has a regression coefficient of 3.579, a *t*-statistic of 1.670, and a *p*-value of 0.095. This *p*-value is greater than 0.05, which shows that *Cash Holding* does not have a positive and significant effect on firm value at the 5% significance level.

Free Cash Flow (FCF) has a coefficient of 2.243, a *t*-statistic of 0.920, and a *p*-value of 0.358. This value is greater than 0.05, which shows that *Free Cash Flow* does not have a positive and significant effect on firm value.

Capital Expenditure (CAPEX) has a regression coefficient of 4.263, a *t*-statistic of 3.100, and a *p*-value of 0.002. A probability value smaller than 0.05 shows that CAPEX has a positive and significant effect on firm value.

Leverage (LEV), proxied by the *Debt to Asset Ratio* (DAR), has a coefficient of 1.709, a *t*-statistic of 4.840, and a *p*-value of 0.000. A probability value smaller than 0.05 shows that *Leverage* has a positive and significant effect on firm value.

4.6 Moderation Hypothesis Test Results

Table 8. Moderated Regression Analysis Results

FV	Coefficient	Robust Std. Err.	t-value	p-value	[95% Conf.	Interval]	Sig.
CH	3.579	2.142	1.670	0.095	−0.619	7.777	*
FCF	2.243	2.437	0.920	0.358	−2.535	7.020	
CAPEX	4.263	1.375	3.100	0.002	1.568	6.958	***
LEV	1.709	0.353	4.840	0.000	1.016	2.401	***
CEOTN	0.027	0.024	1.110	0.268	−0.021	0.075	
CH_CEOTN	0.425	0.214	1.990	0.047	0.006	0.844	**
FCF_CEOTN	−0.087	0.139	−0.620	0.535	−0.360	0.187	
CAPEX_CEOTN	−0.081	0.144	−0.560	0.575	−0.362	0.201	
LEV_CEOTN	0.244	0.047	5.170	0.000	0.151	0.337	***
Constant	2.413	0.266	9.070	0.000	1.892	2.934	***

Mean dependent var = 2.130; SD dependent var = 3.395; Overall r-squared = 0.149; Number of obs = 200; Chi-square = 44.655; Prob > chi2 = 0.000; R-squared within = 0.125; R-squared between = 0.214.

Note: *** p < 0.01, ** p < 0.05, * p < 0.10. Source: Stata SE/MP version 17 output, 2026.

The moderated regression model in this study is formulated as follows:

$$FV_{it} = 2.413 + 3.579 CH_{it} + 2.243 FCF_{it} + 4.263 CAPEX_{it} + 1.709 LEV_{it} + 0.027 CEOTN_{it} + 0.425 (CH_{it} \times CEOTN_{it}) - 0.087 (FCF_{it} \times CEOTN_{it}) - 0.081 (CAPEX_{it} \times CEOTN_{it}) + 0.244 (LEV_{it} \times CEOTN_{it}) + \varepsilon_{it}$$

Based on the estimated moderated regression model, testing was carried out to determine whether *CEO Tenure* is able to moderate the relationship between the independent variables and firm value. This moderating ability is shown by the regression coefficient, *t-value*, and *p-value* of each interaction variable. The results are explained as follows.

The interaction variable *CH*×*CEO Tenure* has a coefficient of 0.425 and a p-value of 0.047. This value is smaller than 0.05, which shows that *CEO Tenure* significantly strengthens the effect of *Cash Holding* on firm value.

The interaction variable *FCF*×*CEO Tenure* has a coefficient of −0.087 and a p-value of 0.535. This value is greater than 0.05, which shows that *CEO Tenure* is not able to moderate the effect of *Free Cash Flow* on firm value.

The interaction variable *CAPEX*×*CEO Tenure* has a coefficient of −0.081 and a p-value of 0.575. This value is greater than 0.05, so *CEO Tenure* is not able to moderate the effect of *Capital Expenditure* on firm value.

The interaction variable *LEV*×*CEO Tenure* has a coefficient of 0.244 and a p-value of 0.000. This value is smaller than 0.05, which shows that *CEO Tenure* significantly strengthens the effect of *Leverage* on firm value.

4.7 Discussion

Hypothesis 1: The effect of Cash Holding on Firm Value. The hypothesis test shows that Cash Holding has no significant effect on Firm Value in Food and Beverage subsector companies listed on the Indonesia Stock Exchange during 2021–2025. This is shown by a significance value of 0.095 > 0.05 and a calculated t-value of 1.670 < the t-table value of 1.972. Although the regression coefficient of 3.579 indicates a positive direction, the effect is not statistically significant. The first hypothesis is therefore rejected.

The insignificant effect of Cash Holding shows that the amount of cash a company holds has not become the main factor in increasing firm value. Investors consider not only the amount of cash but also management's ability to allocate cash to operations and investment and to generate profit. High cash provides financial flexibility, but if it is not used

productively it can create opportunity costs and become idle cash that adds no value (Abdullah, 2025; Michalski, 2010). This finding is consistent with Trade-Off Theory, which explains that companies need to determine an optimal level of cash by weighing the benefits of liquidity against the costs of holding excess cash (Myers, 1984; Meliza et al., 2025).

The results are consistent with Meliza et al. (2025), Dinarjito (2025), and Contesa and Theresia (2025), who found that Cash Holding has no significant effect on Firm Value. This indicates that investors tend to give more weight to profitability, growth prospects, and a company's ability to generate profit than to the amount of cash available. In the Food and Beverage subsector, high Cash Holding during the research period was also not consistently followed by an increase in Firm Value, because the market gave more appreciation to companies' ability to convert resources into revenue, profit, and investment opportunities (Badan Pusat Statistik, 2025; Kementerian Perindustrian, 2025).

Hypothesis 2: The effect of Free Cash Flow on Firm Value. The hypothesis test shows that *Free Cash Flow* has no significant effect on *Firm Value* in *Food and Beverage* subsector companies listed on the Indonesia Stock Exchange during 2021–2025. This is shown by a significance value of $0.358 > 0.05$ and a calculated t-value of $0.920 < \text{the t-table value of } 1.972$. The regression coefficient of 2.243 indicates a positive direction, but the effect is not statistically significant. The second hypothesis is therefore rejected.

The insignificant effect of *Free Cash Flow* shows that the amount of free cash flow has not become a main factor that investors consider when valuing a company. Investors pay more attention to management's ability to allocate free cash flow productively in order to improve performance, support growth, and create benefits for shareholders (Marvin & Mendari, 2026). In the *Food and Beverage* subsector, which is highly competitive and requires continuous innovation and expansion, high *Free Cash Flow* does not necessarily increase market appreciation if it is not followed by improvements in profitability and business prospects (Utami & Astika, 2024).

This finding is consistent with *Agency Theory*, which explains that large free cash flow can increase management's discretion in using funds and thus can lead to conflicts of interest and less productive use of funds (Jensen & Meckling, 1976; Jensen, 1986; Al-Faryan, 2024). The results are also consistent with Vanenza et al. (2026) and Perwira et al. (2025), who found that *Free Cash Flow* has no significant effect on *Firm Value*. In contrast, they contradict Tjahjani et al. (2026), who found that *Free Cash Flow* has a positive and significant effect on *Firm Value* because free cash flow gives companies flexibility to finance investment and reduces dependence on external funding.

Thus, *Free Cash Flow* has not been a determining factor in increasing *Firm Value* in subsector *Food and Beverage* companies during 2021–2025. The amount of free cash flow needs to be accompanied by productive management and allocation of funds if it is to create added value and improve company performance.

Hypothesis 3: The effect of Capital Expenditure on Firm Value. The hypothesis test shows that *Capital Expenditure* has a positive and significant effect on *Firm Value* in *Food and Beverage* subsector companies listed on the Indonesia Stock Exchange during 2021–2025. This is shown by a significance value of $0.002 < 0.05$ and a calculated t-value of $3.100 > \text{the t-table value of } 1.972$. The regression coefficient of 4.263 indicates a positive relationship, so an increase in *Capital Expenditure* is followed by an increase in *Firm Value*. The third hypothesis is therefore accepted.

This positive effect shows that corporate investment in fixed and productive assets can increase production capacity, operational efficiency, and competitiveness. Spending on machinery, equipment modernization, and the development of production facilities can support productivity and growth in the long term, and therefore earns a positive response from investors (Suriawinata et al., 2023). This finding is consistent with Spence's (1973) *Signaling Theory*, which explains that investment decisions can signal a company's prospects. An increase in *Capital Expenditure* can be perceived as an indication of management's confidence in growth opportunities and in the company's ability to create economic benefits in the future (Teja et al., 2024).

The results are consistent with Yanto et al. (2026), who found that *Capital Expenditure* can increase *Firm Value* through *financial sustainability*, and with Teja et al. (2024), who showed that *Capital Expenditure* decisions are an important part

of an investment strategy that affects market valuation. In contrast, the results differ from Putri et al. (2025), who found that *Capital Expenditure* has no effect on *Firm Value* because large investments do not necessarily produce economic benefits immediately. These differences show that the effect of *Capital Expenditure* on *Firm Value* can be influenced by the quality of the investment and the company's ability to manage productive assets.

Thus, *Capital Expenditure* is one of the factors that can increase *Firm Value* in *Food and Beverage* subsector companies. Investment in productive assets not only supports operations but also gives investors a positive signal about the company's long-term growth prospects.

Hypothesis 4: The effect of Leverage on Firm Value. The hypothesis test shows that *Leverage* has a positive and significant effect on *Firm Value* in *Food and Beverage* subsector companies listed on the Indonesia Stock Exchange during 2021–2025. This is shown by a significance value of $0.000 < 0.05$ and a calculated t-value of $4.840 >$ the t-table value of 1.972. The regression coefficient of 1.709 indicates a positive relationship, so an increase in *Leverage* is followed by an increase in *Firm Value*. The fourth hypothesis is therefore accepted.

This positive effect shows that the use of debt can provide additional funding to support operations, expansion, and investment in productive assets. When managed optimally, debt can increase a company's capacity to generate profit and support business growth, and therefore earns a positive assessment from investors (Handayani & Werastuti, 2024). This finding is consistent with *Trade-Off Theory*, which explains that debt provides *tax shield* benefits as long as it remains at an optimal level. Well-managed debt can also encourage management discipline in using company resources.

The results are consistent with Niza and Nafiati (2025) and Chang and Wirianata (2025), who found that *Leverage* has a positive and significant effect on *Firm Value*. These findings show that appropriate use of debt can be a funding strategy that supports growth and increases firm value. In contrast, the results differ from Pratama and Masdupi (2026), who found a negative and significant effect because an excessively high level of debt can increase financial risk and reduce the market's perception of the company.

Thus, *Leverage* is one of the factors that can increase *Firm Value* in *Food and Beverage* subsector companies during 2021–2025. This finding shows that the benefits of using debt can be obtained when a company is able to maintain a balance between the benefits of financing and financial risk.

Hypothesis 5: The moderating role of CEO Tenure in the effect of Cash Holding on Firm Value. The hypothesis test shows that *CEO Tenure* is able to moderate the effect of *Cash Holding* on *Firm Value*. The significance value of the interaction is $0.047 < 0.05$ and the calculated t-value is $1.990 >$ the t-table value of 1.972, with a positive interaction coefficient of 0.425. This shows that the longer a CEO's tenure, the stronger the effect of *Cash Holding* on *Firm Value*. The fifth hypothesis is therefore accepted.

The positive interaction coefficient shows that a CEO's experience can increase the effectiveness of cash management. CEOs with longer tenure tend to have a better understanding of the company's condition, liquidity needs, industry characteristics, and investment opportunities, so cash can be allocated more optimally to support operations, investment, and expansion (Lee & Li, 2025; Liu, 2024). This finding is consistent with Hambrick and Mason's (1984) *Upper Echelons Theory*, which explains that the characteristics of top leaders, including experience and tenure, can influence a company's strategic decisions.

The results are supported by Harymawan et al. (2019) and Safitri et al. (2024), who showed that CEO characteristics and experience are related to the effectiveness of strategic decisions and company performance. In contrast, Indrawati and Zarefar (2024) found that an excessively long CEO tenure can reduce performance because of *managerial entrenchment*.

Thus, *CEO Tenure* strengthens the effect of *Cash Holding* on *Firm Value*. This finding shows that the benefits of holding cash are determined not only by the amount of cash but also by the CEO's experience in managing and allocating financial resources productively.

Hypothesis 6: The moderating role of CEO Tenure in the effect of Free Cash Flow on Firm Value. The hypothesis test shows that *CEO Tenure* is not able to moderate the effect of *Free Cash Flow* on *Firm Value*. The significance value of the interaction is $0.535 > 0.05$ and the calculated t-value is $0.621 < \text{the t-table value of } 1.972$, whereas the interaction coefficient of -0.087 indicates a negative direction. This means that the longer a CEO's tenure, the weaker the relationship between *Free Cash Flow* and *Firm Value* tends to be, but the effect is not statistically significant. The sixth hypothesis is therefore rejected.

The insignificant moderation shows that the length of a CEO's tenure has not been a factor that determines how effectively *Free Cash Flow* increases *Firm Value*. The effect of free cash flow is more closely related to a company's ability to generate cash flow, the efficiency of resource use, and the quality of investment decisions. High *Free Cash Flow* also does not necessarily increase firm value if it is not allocated to productive activities (Cao et al., 2021; Chen et al., 2016).

This finding can still be explained by *Upper Echelons Theory*, because CEO characteristics are not always the dominant factor in every company decision. The management of *Free Cash Flow* involves governance mechanisms and financial policies that are collective in nature. The result is supported by Wen (2017) and Mshana and Dendula (2026), who showed that the influence of CEO characteristics on the relationship between *Free Cash Flow* and company performance is contextual.

Thus, *CEO Tenure* is able neither to strengthen nor to weaken the effect of *Free Cash Flow* on *Firm Value*. The effectiveness of free cash flow is determined more by the company's ability to allocate funds productively than by the length of the CEO's tenure.

Hypothesis 7: The moderating role of CEO Tenure in the effect of Capital Expenditure on Firm Value. The hypothesis test shows that *CEO Tenure* is not able to moderate the effect of *Capital Expenditure* on *Firm Value*. The significance value of the interaction is $0.575 > 0.05$ and the calculated t-value is $0.561 < \text{the t-table value of } 1.972$. The interaction coefficient of -0.081 indicates a negative direction, which means that a longer *CEO Tenure* tends to weaken the relationship between *Capital Expenditure* and *Firm Value*, but the effect is not statistically significant. The seventh hypothesis is therefore rejected.

The insignificant moderation shows that the effectiveness of *Capital Expenditure* is determined more by the quality of investment planning, financial condition, governance mechanisms, and successful project implementation than by the length of the CEO's tenure. Investment decisions in productive assets generally involve evaluation and approval processes by various parties, so the CEO's individual influence is more limited (Aktas et al., 2021).

This finding is supported by Lee and Park (2024) and Lahyani et al. (2025), who showed that the influence of *CEO Tenure* on strategic decisions is contextual. In contrast, Weis (2025) found that CEO tenure can influence a company's long-term investment orientation. These differences show that the effectiveness of *CEO Tenure* in influencing investment decisions depends on company characteristics and governance mechanisms.

Thus, *CEO Tenure* is not able to moderate the effect of *Capital Expenditure* on *Firm Value*. The effect of *Capital Expenditure* is determined more by the quality of investment decisions and the company's ability to manage productive assets.

Hypothesis 8: The moderating role of CEO Tenure in the effect of Leverage on Firm Value. The hypothesis test shows that *CEO Tenure* is able to moderate the effect of *Leverage* on *Firm Value*. The significance value of the interaction is $0.000 < 0.05$ and the calculated t-value is $5.170 > \text{the t-table value of } 1.972$. The interaction coefficient of 0.244 indicates a positive direction, so the longer a CEO's tenure, the stronger the effect of *Leverage* on *Firm Value*. The eighth hypothesis is therefore accepted.

This positive direction shows that a CEO's experience can increase the effectiveness of managing the funding structure. CEOs with longer tenure tend to have a better understanding of the risk profile, debt repayment capacity, industry conditions, and the company's funding needs. This understanding enables the company to determine a more optimal

level of debt and to use borrowed funds for productive activities, so the benefit of *Leverage* for *Firm Value* becomes stronger (Staneva, 2024).

This finding is consistent with *Trade-Off Theory* and *Upper Echelons Theory*. *Trade-Off Theory* explains the importance of balancing the benefits of the *tax shield* against the risks of using debt, whereas *Upper Echelons Theory* explains that the experience and characteristics of top leaders can influence a company's strategic decisions (Myers, 1984; Hambrick & Mason, 1984; Brochet et al., 2021). The results are also supported by Mshana and Dendula (2026) and Agustia and Dewi (2025). In contrast, Yuan et al. (2026) found that an excessively long CEO tenure can reduce firm value because of managerial rigidity and low adaptability.

Thus, *CEO Tenure* strengthens the effect of *Leverage* on *Firm Value*. This finding shows that a CEO's experience is a factor that supports the effectiveness of financing decisions, particularly in determining and managing the optimal use of debt to create firm value.

5. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusions

This study aims to analyze the effects of *Cash Holding*, *Free Cash Flow*, *Capital Expenditure*, and *Leverage* on firm value, with *CEO Tenure* as a moderating variable, in *Food and Beverage* subsector companies listed on the Indonesia Stock Exchange during 2021–2025. Based on the panel data regression analysis using the *Random Effect Model* (REM) estimated with *Robust Standard Errors*, the following conclusions are drawn.

- *Cash Holding* has no effect on firm value. This shows that the amount of cash a company holds has not become a factor that investors consider in raising their valuation of the company. Investors tend to pay more attention to a company's ability to manage and use cash productively.
- *Free Cash Flow* has no effect on firm value. The amount of free cash flow a company holds has not been able to increase firm value unless it is accompanied by effective management and use to support company growth.
- *Capital Expenditure* has a positive and significant effect on firm value. The greater a company's investment in productive assets, the greater the opportunity to increase firm value, because such investment reflects future growth prospects.
- *Leverage* has a positive and significant effect on firm value. Debt that is managed optimally can be a funding source that supports both operational activities and company expansion, and thus has a positive impact on firm value.
- *CEO Tenure* strengthens the effect of *Cash Holding* on firm value. A longer CEO tenure gives the CEO more experience and a better understanding of the company's condition, so cash can be managed more effectively to create firm value.
- *CEO Tenure* is not able to moderate the effect of *Free Cash Flow* on firm value. The relationship between free cash flow and firm value is therefore not influenced by the length of the CEO's tenure.
- *CEO Tenure* is not able to moderate the effect of *Capital Expenditure* on firm value. This result shows that a company's investment decisions to increase firm value do not depend on the CEO's tenure but are influenced more by the company's overall investment policy.
- *CEO Tenure* strengthens the effect of *Leverage* on firm value. The longer a CEO serves, the better the CEO's ability to determine appropriate financing policy, so the use of debt can provide greater benefits in increasing firm value.

Overall, the increase in firm value in the Food and Beverage subsector during the research period was influenced more by investment decisions and corporate financing policies. In addition, *CEO Tenure* was shown to play a role in

strengthening the effects of *Cash Holding* and *Leverage* on firm value, but was not yet able to moderate the relationships of *Free Cash Flow* and *Capital Expenditure* with firm value.

5.2 Suggestions

For companies. *Food and Beverage* subsector companies are advised to improve the quality of their investment through *Capital Expenditure*, directing capital spending toward increasing production capacity, operational efficiency, innovation, technology, and distribution, since it has been shown to have a positive effect on *Firm Value*. The use of *Leverage* also needs to be managed optimally, considering the company's ability to meet its obligations and directing debt toward productive activities. Although *Cash Holding* and *Free Cash Flow* have no significant effect, both still need to be managed efficiently to maintain liquidity and support productive investment. Companies also need to consider the CEO's experience in managing cash and debt because *CEO Tenure* has been shown to moderate the relationship of *Cash Holding* and *Leverage* with *Firm Value*. Meanwhile, the management of *Free Cash Flow* and *Capital Expenditure* should continue to be based on investment needs and feasibility rather than solely on the length of the CEO's tenure.

For investors. Investors are advised not to treat *Cash Holding* and *Free Cash Flow* as primary considerations because neither has been shown to have a significant effect on *Firm Value*. Investment decisions should be based on a more comprehensive analysis that considers *Capital Expenditure*, *Leverage*, profitability, growth prospects, operational efficiency, and the company's fundamentals. *CEO Tenure* can also be used as additional information when assessing the quality of cash management and funding structure, given that it has been shown to moderate the relationship of *Cash Holding* and *Leverage* with *Firm Value*.

For future researchers. Future research is advised to broaden the research objects and period so that the results can be more widely generalized. Researchers may also add variables such as profitability, firm size, growth, liquidity, dividend policy, *Good Corporate Governance* (GCG), *Corporate Social Responsibility* (CSR), *Environmental, Social, and Governance* (ESG), and institutional ownership. Other moderating variables, such as managerial ownership, board of commissioners' independence, and audit quality, can also be used to test the mechanisms that influence the relationship between financial policies and *Firm Value*. For research with suitable data characteristics, more robust methods such as the *Generalized Method of Moments* (GMM) or a dynamic panel approach may also be considered to address potential endogeneity.

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