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THE EFFECT OF CASH HOLDING, TAX AVOIDANCE, FINANCIAL LEVERAGE, AND PROFITABILITY ON INCOME SMOOTHING IN FOOD AND BEVERAGE SUB-SECTOR MANUFACTURING COMPANIES LISTED ON THE INDONESIA STOCK EXCHANGE FOR THE 2021-2024 PERIOD

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January 2026, pp. 82-94<http://doi.org/10.23960/jak.v31i1.4914>**ABSTRACT**

This study aims to analyze the effect of cash holding, tax avoidance, financial leverage, and profitability on income smoothing. The research employs a quantitative approach, with the population consisting of manufacturing companies in the consumer goods sub-sector (food and beverage) listed on the Indonesia Stock Exchange (IDX) during the 2021-2024 period. The sampling technique used in this study is purposive sampling, resulting in a total sample of 68 companies. The data analysis technique applied is logistic regression, while hypothesis testing is conducted using SPSS software. The results of the hypothesis testing indicate that cash holding has a negative effect on income smoothing, tax avoidance does not have a positive effect on income smoothing, financial leverage does not have a negative effect on income smoothing and profitability does not have a negative effect on income smoothing.

Keywords: Cash Holding, Financial Leverage, Income Smoothing, Profitability, Tax Avoidance

ABSTRAK

Tujuan penelitian ini adalah untuk menganalisis pengaruh cash holding, tax avoidance, financial leverage, dan profitabilitas terhadap income smoothing. Jenis penelitian yang digunakan dalam penelitian adalah kuantitatif dengan populasi yang digunakan adalah perusahaan manufaktur sub-sektor barang konsumsi (food and beverage) yang terdaftar di Bursa Efek Indonesia periode 2021-2024. Teknik pengambilan sampel menggunakan metode purposive sampling sehingga didapatkan sampel sebanyak 68 perusahaan. Teknik analisis data yang digunakan dalam penelitian ini adalah regresi logistik dan pengujian hipotesis menggunakan SPSS. Berdasarkan hasil pengujian hipotesis menunjukkan bahwa cash holding berpengaruh secara negatif terhadap income smoothing, tax avoidance tidak berpengaruh secara positif terhadap income smoothing, financial leverage tidak berpengaruh secara negatif terhadap income smoothing, dan profitabilitas tidak berpengaruh secara negatif terhadap income smoothing

Kata Kunci: Cash Holding, Financial Leverage, Income Smoothing, Profitabilitas, Tax Avoidance

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Email: rhonovan123@gmail.com**A. INTRODUCTION**

The 2021-2024 period represents an important phase in Indonesia's economic recovery following the COVID-19 pandemic. After experiencing an economic contraction of 2.07% in 2020, Indonesia returned to positive economic growth, reaching 5.31% in 2022 and 5.05% in 2023. The recovery was accompanied by the normalization of consumption, investment, and business activities, although companies continued to face pressures arising from global economic conditions, fluctuating commodity prices, and rising operating costs. These conditions created an environment in which companies had to maintain financial performance while adapting to changes in demand and production costs. Within this context, the Food and Beverage (F&B) manufacturing subsector represents an important part of Indonesia's manufacturing industry. The subsector contributed more than 38% to the Gross Domestic Product (GDP) of the non-oil and gas processing industry in 2023. Its relatively resilient demand is supported by the role of food and beverage products as primary household necessities (Ahlina & Simamora, 2021). However, this resilience does not eliminate financial pressures. Companies in the subsector continue to encounter

fluctuations in commodity prices, supply chain constraints, logistical costs, and changes in household purchasing power, which can affect the stability of corporate earnings.

The financial performance of several major F&B companies illustrates this condition. Based on financial statement data obtained from the Indonesia Stock Exchange, the combined Net Profit Margin of PT Indofood Sukses Makmur Tbk, PT Indofood CBP Sukses Makmur Tbk, and PT Mayora Indah Tbk declined from 9.84% in 2021 to 7.85% in 2022 before increasing to 11.02% in 2023. Such fluctuations indicate that economic recovery did not immediately produce stable earnings. For investors and other stakeholders who rely on financial statements in assessing corporate performance, unstable earnings may create incentives for management to present a more consistent performance. One form of earnings management associated with this objective is income smoothing, namely managerial efforts to reduce fluctuations in reported earnings across periods (Oktavinawati & Herawaty, 2022).

Income smoothing is generally viewed as a form of earnings management in which managers use accounting discretion to reduce variations in reported earnings and create the appearance of more stable financial performance (Clarissa & Dewi, 2022). Although such practices may occur within the boundaries of applicable accounting standards, excessive income smoothing can reduce the transparency and relevance of accounting information for economic decision-making. The practice has also been documented among Indonesian public companies. Fatimah, Danial, and Faizal Mulia (2019), for example, found indications of income smoothing in six of ten companies examined, namely CEKA, ICBP, MYOR, SKBM, SKLT, and UL TJ. This evidence indicates that income smoothing remains a relevant issue, particularly in sectors whose earnings are exposed to changing economic and operating conditions.

The occurrence of income smoothing may be associated with several aspects of corporate financial conditions and managerial decisions. Cash holding reflects the company's liquidity reserves and its ability to respond to financial pressures. Tax avoidance represents managerial efforts to reduce tax liabilities through the utilization of applicable tax provisions (Oktaviani, Wahyudi, & Relasari, 2024). Financial leverage reflects the extent to which corporate operations are financed through debt, while profitability describes the company's ability to generate earnings. These four variables therefore represent different dimensions of corporate financial conditions that may influence managerial incentives to stabilize reported earnings. Previous studies have examined these relationships, but their findings remain inconsistent.

Regarding cash holding, Miftah, Oktaviani, and Supriadi (2023) found a positive effect on income smoothing, whereas Nurlaelah and Daniarti (2025) reported a negative effect. Similar inconsistencies are found in financial leverage. Ahmad, Sinulingga, Aminah, Aspuri, and Dalimunthe (2024) found that higher leverage increases the tendency to engage in income smoothing, while Susmitha and Zulaikha (2021) found no significant relationship. Evidence concerning profitability is also divided. Febiyanto and Khoiroh (2024) found that profitability affects managerial incentives to regulate reported earnings, whereas Solichah and Sudarsi (2022) argued that financially stronger companies have less incentive to manipulate earnings. In relation to tax avoidance, the theoretical connection with earnings management is plausible because both involve managerial discretion over reported financial outcomes, yet empirical evidence regarding its relationship with income smoothing remains inconclusive. These divergent findings constitute an empirical gap that warrants further examination.

The post-pandemic period provides a relevant context for addressing this empirical gap because the relationships between corporate financial conditions and income smoothing may differ from those observed during more stable economic periods. During the recovery phase, companies faced simultaneous changes in cash requirements, tax burdens, financing needs, production costs, and profitability. Changes in these conditions may alter managerial incentives to retain cash, manage tax obligations, use debt financing, or stabilize reported earnings. For example, stronger cash reserves may provide greater flexibility to absorb earnings fluctuations, whereas higher leverage may increase pressure to maintain reported performance. Likewise, changes in profitability and tax obligations during economic recovery may alter the extent to which managers exercise reporting discretion. Therefore, the 2021–2024 period is not merely a recent observation window but represents a distinct economic transition in which the relationships among cash holding, tax avoidance, financial leverage, profitability, and income smoothing may develop differently.

Based on this empirical gap and the characteristics of the post-pandemic recovery period, this study examines cash holding, tax avoidance, financial leverage, and profitability as determinants of income smoothing among food and beverage manufacturing companies listed on the Indonesia Stock Exchange during 2021–2024. The novelty of this study lies in examining these four financial and managerial factors simultaneously within the F&B

manufacturing subsector and specifically within the post-pandemic transition period. This combination provides a more contextual assessment of income smoothing by considering liquidity, taxation, financing structure, and earning capacity within an economic environment characterized by recovery and continuing operational pressures.

Accordingly, this study aims to analyze the effect of cash holding, tax avoidance, financial leverage, and profitability on income smoothing among food and beverage manufacturing companies listed on the Indonesia Stock Exchange during the 2021–2024 period. The findings are expected to provide empirical evidence regarding the factors associated with income smoothing in the post-pandemic period and contribute to a better understanding of managerial reporting behavior in the F&B manufacturing subsector.

B. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Agency Theory

Agency theory explains the contractual relationship between resource-supplying capital owners and managers who are entrusted with managing the company. This framework conceptualizes a division of corporate responsibilities in which principals delegate strategic, financial, and administrative authority to managerial agents (Sutisna, Nirwansyah, Ningrum, & Anwar, 2024). Because managers are directly involved in the company's daily operations, they possess more detailed information regarding the firm's actual financial condition than outside shareholders, creating information asymmetry between principals and agents (Lesmono & Siregar, 2021). This information asymmetry may provide managers with greater discretion in making financial and accounting decisions, while differences in interests between managers and shareholders may encourage managers to prioritize personal or managerial objectives. To reduce these conflicts, agency theory emphasizes contractual arrangements, monitoring mechanisms, and good corporate governance to align managerial actions with shareholder interests (Sari, 2025).

Viewed through this perspective, agency theory provides a relevant foundation for explaining managerial discretion in accounting choices and financial reporting. Managers are expected to maximize firm value and maintain shareholder interests, but they may also face pressure to meet performance targets, maintain investor confidence, fulfil contractual obligations, and demonstrate stable financial performance. Such conditions may encourage managers to utilize accounting flexibility to influence reported earnings. In this context, income smoothing can be understood as one form of managerial behavior arising from agency conflicts, as managers attempt to reduce fluctuations in reported earnings and present a more stable image of corporate performance. This agency perspective also provides a basis for explaining how the company's cash holding, tax avoidance, financial leverage, and profitability may create managerial incentives that influence income smoothing practices.

Income Smoothing

The concept of income smoothing was formally discussed by Gonedes (1972) through his work entitled income-smoothing behavior under selected stochastic processes, which emphasized the managerial tendency to reduce fluctuations in reported earnings in order to maintain stable perceptions of company performance. This perspective became a foundation for subsequent studies, including the empirical study by Trisanti (2014), which demonstrated that income smoothing may occur through discretionary accounting policies used to adjust reported earnings so that they appear relatively stable over time. Income smoothing can therefore be viewed as a managerial strategy for managing market expectations and reducing excessive earnings volatility. Furthermore, Mushtaq, Sultan, and Ijaz (2016) demonstrated that similar practices also occur among Sharia-compliant companies, indicating that the motivation to stabilize reported earnings is not limited to a particular economic system.

Income smoothing may be carried out by management through accounting policies or real activities, such as delaying revenue recognition and accelerating expenses, with the objective of creating the appearance of stable performance and lower financial risk. The resulting earnings stability may increase investor confidence, strengthen corporate reputation, and influence the economic decisions of external parties. Income smoothing serves to normalize financial statements so that a company appears financially sound and less risky, such practices are not necessarily negative as long as they remain within applicable accounting principles. However, when conducted excessively, income smoothing may reduce earnings quality and mislead financial statement users. Previous studies also indicate that financial characteristics, including profitability, financial leverage, and cash holding, may influence management's incentive to stabilize reported earnings (Muliati & Yanti, 2023).

Cash Holding

The conceptual evolution of corporate cash holding whose transaction and precautionary motives explain how firms maintain readily available funds to support routine business activities and respond to uncertain conditions. Opler, Pinkowitz, Stulz, and Williamson (1999) conceptualized corporate cash balances as a result of the benefits of liquidity compared with the costs of holding cash, demonstrating that managers maintain cash reserves to support operational needs and respond to business uncertainty. In contemporary corporate practice, Akbar, Sundarta, and Syukur (2025) characterizes cash holding as cash and cash equivalents maintained by companies to support operational activities and financial flexibility. Therefore, adequate cash holding provides managers with flexibility to meet short-term obligations, finance operational activities, and respond to investment opportunities without relying excessively on external financing.

From an agency perspective, substantial cash resources may increase managerial discretion because managers have greater control over funds that are not immediately committed to external financing obligations. Yesy (2025) emphasizes that cash holding provides financial flexibility and helps companies avoid under-investment problems, while excessive cash holdings may create opportunity costs because idle funds reduce the efficiency of asset utilization. Purba, Saerang, and Untu (2024) similarly explains that cash holding can be used to support operational activities, investment in productive assets, and returns to investors. Companies with high levels of cash tend to make accrual adjustments to maintain positive perceptions of financial performance, indicating that excess cash may provide managers with greater flexibility to manage earnings, particularly during periods of economic uncertainty. Thus, higher cash holding may strengthen managerial discretion and create greater incentives for management to smooth reported earnings in order to maintain stable perceptions of company performance.

H₁: Cash holding has a positive effect on income smoothing

Tax Avoidance

The theoretical underpinning of tax avoidance was systematically advanced by Stiglitz (1985), who viewed tax avoidance as a deliberate economic strategy through which taxpayers minimize their tax liabilities by utilizing available provisions, incentives, and permissible gaps within the tax system without directly violating applicable laws. Rather than engaging in unlawful tax evasion, companies may design tax planning strategies to reduce their effective tax burden, thereby conserving cash resources and improving financial efficiency. Reinforcing this strategic perspective, Whyne, Evilia, Felicia, Vioneta, and Bwarleling (2025) characterizes tax avoidance as an active corporate effort to optimize tax obligations by utilizing available statutory allowances and regulatory mechanisms. Effective tax management can improve financial efficiency and increase internal cash flow generation; tax minimization policies may preserve corporate liquidity and financial flexibility.

From an agency perspective, tax avoidance may provide managers with greater discretion in managing corporate resources and reported financial performance. The resources retained through lower tax payments may strengthen corporate liquidity, while managerial discretion in tax planning may also be accompanied by accounting decisions intended to maintain stable reported earnings. Earnings stabilization practices are related to corporate tax tendencies, indicating an interaction between reporting behavior and tax management. In this study, tax avoidance is measured using the Cash Effective Tax Rate (CETR), in which a lower CETR generally indicates a higher level of tax avoidance. Therefore, the expected positive relationship between tax avoidance and income smoothing means that higher tax avoidance is expected to encourage greater income smoothing, while the inverse nature of CETR must be considered when interpreting the regression coefficient.

H₂: Tax avoidance has a positive effect on income smoothing

Financial Leverage

The foundational doctrine governing capital structure and corporate leverage traces back to the pioneering paradigm established by Modigliani and Miller (1958), the cost of capital, corporation finance and the theory of investment. Under idealized market conditions, they proposed that the mix of debt and equity does not affect firm value. However, when corporate taxation, financial distress, and agency costs are considered, debt financing may provide tax benefits while simultaneously increasing financial risk. These considerations contributed to the development of the trade-off theory of capital structure. Ferdous (2019) further explains that leverage may provide benefits through tax deductions, but excessive debt increases the risk of financial distress and default. Moniaga and Tanusdjaja (2025) similarly underline that financial leverage can support corporate activities when debt is used productively, whereas excessive leverage increases financial risk.

In relation to income smoothing, financial leverage creates contractual and financial pressure because companies with higher debt levels are required to meet interest payments and other obligations. Asraruddin, Zhang, and Ayu (2023) documented that excessive debt exposure may negatively affect operational profitability because of the burden of interest obligations, while Anita, Abdillah, and Suseno (2023) established that capital structure decisions can influence firm performance and value. From an agency perspective, high financial leverage may increase monitoring from creditors and create pressure on managers to demonstrate stable financial performance. Managers of highly leveraged companies may therefore have stronger incentives to reduce fluctuations in reported earnings in order to maintain creditor confidence, meet debt-related requirements, and reduce the perceived risk of financial distress. This argument is supported by Istikasari and Wahidahwati (2022), who found a positive association between leverage and income smoothing.

H₃: Financial leverage has a positive effect on income smoothing

Profitability

Within modern financial accounting, profitability reflects the company's ability to generate earnings through the effective utilization of its resources and functions as an important indicator of operational performance and financial condition. Profitability may be measured through financial ratios such as Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM), which describe the company's ability to generate returns from assets, shareholders' equity, and sales. Profitability provides an indication of the company's ability to generate economic returns from the resources under its management. Higher profitability generally indicates stronger financial performance and more effective resource utilization, while declining profitability may indicate weaker operational performance and resource management.

From an agency perspective, profitability is closely related to managerial incentives and financial reporting decisions. High profitability may increase expectations from shareholders and other external parties regarding the company's ability to maintain strong performance. Managers may therefore face pressure to maintain favorable earnings and avoid substantial fluctuations in reported profitability, creating incentives to use accounting discretion to present earnings that appear stable over time. Profitability indicators such as ROA and NPM are associated with company performance and market valuation, importance of profitability in reflecting corporate performance and financial condition. More directly, profitability can motivate management to stabilize reported income, and profitability is related to income smoothing practices in the Indonesian corporate context. Accordingly, higher profitability is expected to increase managerial incentives to engage in income smoothing.

H₄: Profitability has a positive effect on income smoothing.

C. RESEARCH METHODOLOGY

This study employs a quantitative research approach with an associative design to empirically examine the relationship between corporate financial characteristics and income smoothing. The associative design is used to analyze the influence of cash holding, tax avoidance, financial leverage, and profitability on income smoothing. Rather than treating these financial indicators as isolated accounting measures, the study examines their relationship with managerial decisions reflected in income smoothing practices. The empirical data are obtained from secondary sources, specifically audited annual reports and financial statements published by companies and available through the official disclosure repository of the Indonesia Stock Exchange (www.idx.co.id).

The population of this study consists of manufacturing companies in the food and beverage subsector listed on the Indonesia Stock Exchange during the 2021–2024 observation period. Based on data compiled by Nadia (2025) from idxchannel.com, there were initially 83 companies identified in the food and beverage subsector. A non-probability purposive sampling technique was then applied based on predetermined criteria. The sampling process was conducted by excluding companies that were not registered on the Indonesia Stock Exchange and companies that did not provide complete annual reports throughout the observation period. Based on this screening process, 68 companies met the sampling criteria. With four years of observation, the study generated 272 firm-year observations.

Table 1. Sampling Criteria

No	Sampling Criteria	Companies
1	Companies identified in the food and beverage subsector during the 2021–2024 observation period	83
2	Companies not registered on the Indonesia Stock Exchange	-2
3	Companies that did not publish complete annual reports during the observation period	-13

4	Companies meeting the sampling criteria	68
	Observation period	4 years
Total firm-year observations (68 companies × 4 years)		272

Table 2. Operational Definitions and Measurement of Variables

Variables	Proksi	Formula	Source
Cash Holding	Cash Holding Ratio	$\frac{\text{Cash and Cash Equivalents}}{\text{Total Assets} - \text{Cash and Cash Equivalents}}$	Purba et al. (2024)
Tax Avoidance	Cash Effective Tax Rate (CETR)	$\frac{\text{Cash Tax Paid}}{\text{Earning Before Tax}}$	Hanlon and Heitzman (2010)
Financial Leverage	Debt to Equity Ratio (DER)	$\frac{\text{Total Debt}}{\text{Total Equity}}$	Modigliani and Miller (1958)
Profitability	Net Profit Margin (NPM)	$\frac{\text{Net Income}}{\text{Net Sales}}$	Munawir (2007)
Income Smoothing	Eckel Index	$\frac{CV\Delta I}{CV\Delta S}$	Trisanti (2014)

Source: Data output from IBM SPSS 26

Data processing and empirical analysis were conducted using IBM SPSS Statistics 26 through several analytical stages. The first stage involved descriptive statistical analysis to present the minimum, maximum, mean, and standard deviation of each research variable. This analysis was used to describe the characteristics and distribution of the observations before conducting the hypothesis testing. Income smoothing was measured using the Eckel Index. The index compares the coefficient of variation of changes in income with the coefficient of variation of changes in sales. The calculation is used to identify whether the variation in income is relatively lower than the variation in sales, which indicates the possibility of income smoothing (Trisanti, 2014). The Eckel Index is calculated as follows:

$$\text{Eckel Index} = \frac{CV\Delta I}{CV\Delta S} \quad (1)$$

Where:

CVΔI : coefficient of variation of changes in income

CVΔS : coefficient of variation of changes in sales

The results of the Eckel Index calculation were used to classify companies into income smoothing and non-income smoothing categories. Companies with an Eckel Index value of less than 1 (<1) were classified as companies that indicated income smoothing, whereas companies with an Eckel Index value of equal to or greater than 1 (≥1) were classified as companies that did not indicate income smoothing. The classification was subsequently converted into a binary dummy variable, coded 1 for companies indicating income smoothing and 0 for companies not indicating income smoothing.

In calculating the Eckel Index, the values of changes in income and changes in sales were retained according to the reported financial data. Negative income values were not automatically excluded because they may reflect actual losses reported by the company. However, observations in which the calculation of the coefficient of variation could not be performed because the relevant denominator was zero or otherwise resulted in an undefined value were subject to data screening before the classification of the Eckel Index. [Adjust this sentence according to the actual treatment applied in the dataset.

For the explanatory variables, cash holding was measured using the Cash Holding Ratio based on Purba et al. (2024). Tax avoidance was measured using the Cash Effective Tax Rate (CETR), following Hanlon and Heitzman (2010). A lower CETR generally indicates a higher level of tax avoidance because it represents a relatively lower proportion of cash taxes paid compared with income before tax. Financial leverage was measured using the Debt-to-Equity Ratio (DER), while profitability was measured using the Net Profit Margin (NPM).

The study retained the original values of CETR, DER, and NPM in the analysis. No winsorization, deletion, or replacement of extreme observations was performed. The extreme values were maintained because they represent the actual financial conditions reported by the respective companies. Negative or very high CETR values may arise

from the relationship between cash taxes paid and income before tax, particularly when income before tax is negative or relatively small. Negative DER values may occur when a company's equity is negative, while negative NPM values indicate that the company incurred a net loss during the observation period. Therefore, these values were retained as long as they originated from valid financial statements and were not caused by data-entry or calculation errors.

The 272 observations in this study represent firm-year observations obtained from 68 companies observed over four years. Therefore, the same company may appear in more than one observation across the observation period. The analysis uses binary logistic regression because the dependent variable, income smoothing, is dichotomous and is coded as 1 and 0. The firm-year structure was retained to utilize the annual financial information available during the observation period. Accordingly, the interpretation of the regression results is made at the firm-year observation level, while recognizing that observations originating from the same company across different years may not be completely independent.

Before hypothesis testing, multicollinearity diagnostics were conducted among the independent variables. Multicollinearity was evaluated using the Tolerance and Variance Inflation Factor (VIF) values. A model is considered free from serious multicollinearity when the Tolerance value is greater than 0.10 and the VIF value is less than 10. These diagnostics were conducted to ensure that the independent variables did not exhibit excessive linear relationships that could distort the estimation of the logistic regression coefficients.

For the main inferential analysis, binary logistic regression was employed because the dependent variable is categorical and consists of two possible outcomes. Logistic regression estimates the probability that a company belongs to the income smoothing category based on cash holding, tax avoidance, financial leverage, and profitability. Unlike ordinary linear regression, logistic regression is appropriate for a binary dependent variable and does not require the dependent variable to satisfy the normality and homoscedasticity assumptions required in ordinary least squares regression. The binary logistic regression model used in this study is formulated as follows:

$$g(x) = \ln \frac{P(IS)}{1 - P(IS)} = \alpha + \beta_1 CH + \beta_2 TA + \beta_3 FL + \beta_4 PROF + \varepsilon \quad (2)$$

Where:

- IS : Income Smoothing
- P(IS) : probability of a company engaging in income smoothing
- α : constant
- $\beta_1 - \beta_4$: regression coefficients
- CH : Cash Holding
- TA : Tax Avoidance
- FL : Financial Leverage
- PROF : Profitability
- ε : error term

The adequacy of the logistic regression model was evaluated using several indicators. The overall model fit was assessed through the -2 Log Likelihood (-2LL) by comparing the value of the initial model containing only the constant (Block Number = 0) with the final model containing the independent variables (Block Number = 1). A reduction in -2LL indicates an improvement in model fit after the independent variables are included. The omnibus test of model coefficients was also used to determine whether the independent variables collectively contributed to the model.

The goodness of fit of the logistic regression model was evaluated using the Hosmer and Lemeshow Goodness of Fit Test. A significance value greater than 0.05 indicates that there is no statistically significant difference between the observed and predicted values, suggesting that there is no evidence of poor model fit. The explanatory ability of the model was evaluated using Nagelkerke R-Square, while the classification table was used to assess the model's predictive accuracy in classifying companies into income smoothing and non-income smoothing categories.

Hypothesis testing was conducted using the Wald statistic at a 5% significance level ($\alpha=0.05$). A hypothesis is considered statistically supported when the significance value is less than 0.05. Conversely, a significance value equal to or greater than 0.05 indicates that the proposed hypothesis is not statistically supported. In addition to the significance value, the regression coefficient and Exp(B) were considered when interpreting the direction and

magnitude of the relationship between each independent variable and the probability of income smoothing.

D. RESULT AND DISCUSSION

Descriptive Statistical Analysis

Table 3. Results of Descriptive Statistical Analysis

Variables	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Cash Holding	272	0.000	0.653	27.528	0.10121	0.114339
Tax Avoidance	272	-4.897	19.280	82.174	0.30211	1.607405
Financial Leverage	272	-23.618	29.317	329.879	1.21279	3.009350
Profitability	272	-2.395	1.212	7.963	0.02928	0.305692
Income Smoothing	272	0.000	1.000	104.000	0.38235	0.486858

Source: Data output from IBM SPSS 26

A detailed examination of the descriptive statistical results shows that the standard deviation values of tax avoidance, financial leverage, and profitability are higher than their respective mean values, indicating considerable variation among the firm-year observations. In contrast, the standard deviation of cash holding is slightly higher than its mean, while income smoothing has a standard deviation of 0.486858 due to its binary measurement. These results indicate that the sampled food and beverage companies had varying financial characteristics during the 2021–2024 observation period.

Cash holding has a minimum value of 0.000 and a maximum value of 0.653, with a mean of 0.10121 and a standard deviation of 0.114339. This indicates variation in the proportion of cash and cash equivalents held by the companies. Tax avoidance ranges from -4.897 to 19.280, with a mean of 0.30211 and a standard deviation of 1.607405. The relatively wide range indicates substantial variation in the CETR values among the observations.

Financial leverage has a minimum value of -23.618 and a maximum value of 29.317, with a mean of 1.21279 and a standard deviation of 3.009350. The negative minimum value may occur when a company reports negative equity, resulting in a negative DER. Profitability ranges from -2.395 to 1.212, with a mean of 0.02928 and a standard deviation of 0.305692. The negative profitability values indicate that some companies experienced net losses during the observation period. These relatively extreme values in tax avoidance, Financial leverage, and profitability were retained in the analysis because they were derived from valid financial statement data. The study did not apply winsorization, deletion, or replacement of extreme observations. Therefore, the reported minimum and maximum values represent the original observations used in the analysis.

Income smoothing has a minimum value of 0 and a maximum value of 1, with a mean of 0.38235 and a standard deviation of 0.486858. Because Income Smoothing is measured using a binary dummy variable based on the Eckel Index, the value of 1 represents companies classified as indicating income smoothing, while the value of 0 represents companies classified as not indicating income smoothing. Based on the mean value, 38.24% of the 272 firm-year observations were classified as income smoothing, while 61.76% were classified as non-income smoothing. Overall, the descriptive statistical results indicate that the observations have considerable variation in Cash Holding, Tax Avoidance, Financial Leverage, and Profitability. The presence of extreme values is also reflected in the minimum and maximum values of several variables. Since these observations were retained without data modification, the subsequent regression analysis was conducted using the original values reported in the financial statements.

Multicollinearity Test

Table 4. Collinearity Statistics

Variables	Tolerance	VIF
Cash Holding	0.906	1.104
Tax Avoidance	0.996	1.004
Financial Leverage	0.982	1.019
Profitabilitas	0.921	1.085

Source: Data output from IBM SPSS 26

Based on Table 4, all independent variables have Tolerance values greater than 0.10 and VIF values below 10. The Tolerance values range from 0.906 to 0.996, while the VIF values range from 1.004 to 1.104. Therefore, the independent variables do not indicate multicollinearity problems in the regression model. These results indicate that the relationships among the independent variables are not sufficiently strong to interfere with the estimation of the logistic regression coefficients.

Research Model Testing

Overall Model Fit Testing

Table 5. Results of the Overall Model Fit Test (-2 Log Likelihood)

Model	-2 Log Likelihood
Initial (Block 0)	361.871
Final (Block 1)	341.447

Source: Data output from IBM SPSS 26

Based on Table 5, the -2 Log Likelihood value for the initial model (Block 0) was 361.871, while the final model (Block 1) had a value of 341.447. Thus, the -2 Log Likelihood decreased by 20.424 after cash holding, tax avoidance, financial leverage, and profitability were included in the model. This decrease indicates that the model containing the independent variables has a better model fit than the initial model containing only the constant. However, the decrease in -2 Log Likelihood alone does not indicate that the model has a strong or robust fit. The contribution of the independent variables as a group is further evaluated through the Omnibus Test of Model Coefficients.

Table 6. Results of the Overall Model Fit Test (Omnibus)

		Chi-square	df	Sig.
Step 1	Step	20.424	4	0.000
	Block	20.424	4	0.000
	Model	20.424	4	0.000

Source: Data output from IBM SPSS 26

The Omnibus Tests of Model Coefficients show a chi-square value of 20.424 with 4 degrees of freedom and a significance value of 0.000. Since the significance value is below the 0.05 threshold, the null hypothesis that the independent variables do not collectively improve the model is rejected. This result indicates that Cash Holding, Tax Avoidance, Financial Leverage, and Profitability collectively contribute to the logistic regression model and improve the model compared with the baseline model containing only the constant. Therefore, the regression model is statistically significant when the independent variables are considered simultaneously. This result supports the subsequent analysis of the individual effects of each independent variable.

Goodness-of-Fit Test (Hosmer-Lemeshow)

Table 7. Results of the Goodness-of-Fit Test (Hosmer-Lemeshow)

Step	Chi-square	df	Sig.
1	3.749	8	0.879

Source: Data output from IBM SPSS 26

Based on Table 5, the Hosmer-Lemeshow Goodness-of-Fit Test produces a chi-square value of 3.749 with 8 degrees of freedom and a significance value of 0.879. Since the significance value is greater than 0.05, the null hypothesis is not rejected. This indicates that there is no statistically significant difference between the observed and predicted classifications. Therefore, based on the Hosmer-Lemeshow test, there is no evidence of poor model fit, indicating that the logistic regression model provides an adequate fit to the observed data.

Coefficient of Determination Test (Nagelkerke R²)

Table 8. Results of the Coefficient of Determination Test (Nagelkerke R²)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	341.447 ^a	0.072	0,098

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Source: Data output from IBM SPSS 26

Based on Table 6, the Nagelkerke R Square value is 0.098. This indicates that the combination of Cash Holding, Tax Avoidance, Financial Leverage, and Profitability provides a limited explanatory contribution to the variation in income smoothing, with a Nagelkerke R Square value of 9.8%. The remaining 90.2% is not explained by the variables included in the model and may be associated with other factors outside the scope of this study. Therefore, the Nagelkerke R Square result indicates that the independent variables included in the model have limited explanatory power for income smoothing.

Classification Table

Table 9. Classification Results of the Binary Logistic Regression Model

Observed			Predicted	
			Income Smoothing	Percentage Correct
			.000	1.000
Step 1	Income Smoothing	.000	162	6
		1.000	93	11
Overall Percentage				96.4
				10.6
				63.6

a. The cut value is .500

Source: Data output from IBM SPSS 26

Based on Table 9, the binary logistic regression model correctly classified 162 of 168 observations categorized as non-income smoothing, resulting in a classification accuracy of 96.4%. Meanwhile, the model correctly classified 11 of 104 observations categorized as income smoothing, with a classification accuracy of 10.6%. Overall, the model correctly classified 63.6% of the 272 firm-year observations. These results show that the model correctly classifies non-income smoothing observations at a higher rate than income smoothing observations.

Logistic Regression Model Testing and Hypothesis Testing

Table 7. Logistic Regression Model Test Results

Variables		B	Wald	Sig.	Exp(B)
Step 1 ^a	Cash Holding	-5.849	12.691	0.000	0.003
	Tax Avoidance	0.126	1.229	0.268	1.134
	Financial Leverage	-0.020	0.228	0.633	0.980
	Profitability	-0.025	0.003	0.953	0.976
	Constant	0.034	0.031	0.861	1.035

a. Variable(s) entered on step 1: Cash Holding, Tax Avoidance, Financial Leverage, Profitability.

Source: Data output from IBM SPSS 26

Based on the results of the logistic regression analysis presented in the Variables in the Equation table, the following results and interpretations were obtained.

$$g(x) = \ln \frac{P(\text{IS})}{1 - P(\text{IS})} = 0,034 + (-5,849\text{CH}) + 0,126\text{TA} + (-0,020\text{FL}) + (-0,025\text{PROF}) + \varepsilon \quad (3)$$

Based on the results of the logistic regression analysis presented in Table 7, the individual effects of cash holding, tax avoidance, financial leverage, and profitability on income smoothing can be interpreted through the regression coefficients, Wald statistics, significance values, and odds ratios. Cash holding has a regression coefficient of -5.849 with a significance value of 0.000 (<0.05), indicating a significant negative effect on income smoothing. The Exp(B) value of 0.003 indicates that an increase in cash holding is associated with lower odds of income smoothing, holding the other variables constant. Therefore, H_1 , which proposes a positive effect of cash holding on income smoothing, is not supported. This finding is consistent with Inayah and Izzaty (2021) and Rahma and Nurcholisah (2026), who found that higher cash holding is associated with a lower tendency to engage in income smoothing. Adequate cash availability provides greater liquidity and financial flexibility, allowing companies to meet operational needs and anticipate cash flow uncertainty without relying on adjustments to reported earnings. This condition may reduce managerial pressure to maintain a particular perception of financial performance through income smoothing. From the perspective of agency theory, sufficient financial resources may reduce the pressure arising from information asymmetry and differences in interests between management and shareholders, thereby reducing the need for opportunistic reporting behavior. This finding differs from Ahmad et al. (2024), who found no significant effect of cash holding on income smoothing. The difference may be related to differences in research objects, observation periods, and economic conditions. In the context of the 2021–2024 post-pandemic recovery, adequate cash reserves may have provided food and beverage companies with greater flexibility in managing changes in operating conditions, liquidity requirements, and financing needs.

Tax avoidance has a regression coefficient of 0.126 with a significance value of 0.268 (>0.05), indicating that it does not have a significant effect on income smoothing. The positive coefficient indicates that higher CETR is associated with higher odds of Income Smoothing, while the Exp(B) value of 1.134 indicates an increase in the odds of income smoothing for a one-unit increase in CETR, holding the other variables constant. However, this

relationship is not statistically significant. Therefore, H_2 , which proposes a positive effect of tax avoidance on income smoothing, is not supported. This finding is consistent with Angeline & Christina (2023) and Amelia & Amirya (2026), who found that tax avoidance does not significantly affect income smoothing. Tax avoidance is primarily related to the company's strategy for managing tax liabilities, whereas Income Smoothing concerns the management of reported earnings to maintain earnings stability across periods. These different objectives may explain why tax-related decisions do not necessarily lead to income smoothing practices. From the perspective of agency theory, although information asymmetry may provide managers with discretion in financial decision-making, not every managerial decision becomes an instrument for influencing reported earnings. In the 2021–2024 period, companies also faced the need to manage tax obligations alongside changing operational and financial conditions during economic recovery. Thus, tax avoidance did not appear to be a determining factor in income smoothing in the observed companies.

Financial leverage has a regression coefficient of -0.020 with a significance value of 0.633 (>0.05), indicating that it does not have a significant effect on income smoothing. The negative coefficient indicates an inverse tendency, while the Exp(B) value of 0.980 indicates that an increase in financial leverage is associated with lower odds of income smoothing, holding the other variables constant. However, this relationship is not statistically significant. Therefore, H_3 , which proposes a positive effect of financial leverage on income smoothing, is not supported. This result is consistent with Ikhsandi et al. (2025) and Arisandy & Ardhani (2024), who found that financial leverage does not significantly affect income smoothing. The finding indicates that the level of debt financing is not sufficient to explain managerial decisions regarding income smoothing. Financial leverage primarily reflects the company's financing structure and financial risk, while income smoothing involves managerial decisions concerning the presentation of earnings. From the perspective of agency theory, although debt financing can create relationships between management, shareholders, and creditors with different interests, a higher level of leverage does not automatically encourage managers to engage in opportunistic reporting. Companies may instead focus on managing their financial obligations and maintaining their financial condition. This result differs from Istikasari and Wahidahwati (2022), who found a positive effect of financial leverage on income smoothing, indicating that the relationship may vary according to the characteristics of companies, financing structures, and observation periods.

Profitability has a regression coefficient of -0.025 with a significance value of 0.953 (>0.05), indicating that it does not have a significant effect on income smoothing. The negative coefficient indicates an inverse tendency, while the Exp(B) value of 0.976 indicates that an increase in Profitability is associated with lower odds of Income Smoothing, holding the other variables constant. However, the relationship is not statistically significant. Therefore, H_4 , which proposes a positive effect of profitability on income smoothing, is not supported. This finding is consistent with Widiastuti, Endiana, and Dewi (2025), who found that profitability does not significantly affect income smoothing. Profitability primarily reflects the company's ability to generate earnings from its operations, whereas Income Smoothing relates to managerial decisions to maintain the appearance of earnings stability. Therefore, differences in profitability do not necessarily result in differences in the tendency to conduct income smoothing. From the perspective of agency theory, profitability alone does not automatically encourage managers to engage in opportunistic reporting because managerial decisions may also be influenced by monitoring mechanisms, corporate governance, and external expectations. This finding differs from Febiyanto and Khoiroh (2024) and Solichah and Sudarsi (2022), which reported a relationship between Profitability and earnings management behavior. In the context of the 2021–2024 period, changes in operating conditions and profitability during economic recovery did not appear to make Profitability a significant determinant of Income Smoothing among the observed food and beverage manufacturing companies.

E. CONCLUSION AND SUGGESTION

Based on the results of the analysis, this study finds that cash holding is statistically significantly associated with income smoothing in a negative direction among food and beverage manufacturing companies listed on the Indonesia Stock Exchange during the 2021–2024 period. This result indicates that, within the observed sample, higher levels of cash holding are associated with a lower likelihood of income smoothing. The finding is consistent with the view that adequate liquidity may provide greater financial flexibility and reduce pressures that could be associated with income smoothing. However, the result should be interpreted as a statistical association within the sample and should not be interpreted as evidence of a causal relationship. In contrast, tax avoidance, financial leverage, and profitability do not show statistically significant associations with income smoothing. Although tax avoidance has a positive coefficient, while financial leverage and profitability have negative coefficients, none of

these relationships is statistically significant. Accordingly, H_1 , H_2 , H_3 , and H_4 are not supported in the positive direction proposed in this study. Overall, the findings indicate that among the variables examined, only cash holding shows a statistically significant association with income smoothing, while the explanatory contribution of the overall model remains limited.

This study has several limitations. First, the research focuses only on companies in the food and beverage manufacturing subsector listed on the Indonesia Stock Exchange, limiting the generalizability of the findings to other industrial sectors. Second, the observation period covers four years, from 2021 to 2024, which may not fully capture changes in corporate behavior across longer economic cycles. Third, the study examines only four independent variables, while the relatively low explanatory power of the model indicates that a substantial proportion of the variation in income smoothing remains unexplained by the variables included in the analysis. In addition, the analysis uses firm-year observations from the same companies across the observation period, which may limit the assumption of complete independence among observations.

Future research is therefore encouraged to extend the observation period and include companies from other industrial sectors to improve the generalizability of the findings. Considering the limited explanatory power of the present model, subsequent studies may also incorporate additional explanatory variables, such as corporate governance, firm size, institutional ownership, and external audit quality. Future research may further consider methodological approaches that explicitly account for repeated observations of the same firms over time, so that the statistical associations between financial characteristics and income smoothing can be examined more robustly.

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