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Are the Beneish model and restatement relevant in detecting tax evasion?

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Abstract

Research aims: This study aims to analyze the capability of fraud pentagon theory's factors—including pressure, opportunity, rationalization, competence, and arrogance—in indicating tax evasion.

Design/Methodology/Approach: The data were analyzed by logistic regression, and the samples of basic material entities listed on the Indonesia Stock Exchange for 10 years, from 2012 to 2021, were selected through the purposive sampling method. The dependent variable of tax evasion indication was measured by Beneish M-score and restatement methods

Research findings: The results of this study exhibit that pressure represented by financial stability and financial targets proves to indicate tax evasion, while the opportunity (represented by the nature of the industry and ineffective monitoring), rationalization (represented by audit opinion), competence (represented by change in directors), and arrogance (represented by dualism position) do not prove to indicate tax evasion.

Theoretical contribution/Originality: Providing additional empirical evidence on the application of the Fraud Pentagon Theory for detecting tax evasion through the integration of the Beneish model and restatement methods.

Practitioner/Policy implication: This research can be used by taxpayers, tax officers, tax examiners, and auditors to detect and reduce tax evasion in Indonesia.

Research limitation/Implication: The limitations of this study can be seen in the results of the determination coefficient, which is quite low, so there are still other indicators that cannot be explained through this study.

Keywords: Beneish; Fraud Pentagon Theory; Restatement; Tax Evasion

Introduction

Tax evasion refers to unethical practices in the taxation domain, where individuals or entities seek to reduce their tax liabilities by engaging in activities that breach tax laws, such as underreporting income or exaggerating expenses, which subsequently leads to decreased entity profits (Redaksi DDTCNews, 2020). This issue is closely tied to a reduction in taxpayers' formal compliance rates. According to the Ministry of Finance, the compliance rate for filing the 2021 Annual Tax Return was 77.36% by the third quarter of 2022, compared to 84% for the 2020 Annual Tax Return filed in 2021 (Wildan, 2022). The fact that the compliance rate has not reached 100% indicates that some taxpayers are still not meeting their tax obligations, highlighting ongoing issues like tax evasion.

Numerous cases of tax evasion by Indonesian taxpayers have been reported, including the case of Sazli Firdaus Bin Syahril, the CEO of PT Jasmine Indah, who was convicted of tax evasion. According to court ruling number 167/Pid.Sus/2021/PN KLT, he was found guilty of deliberately submitting incorrect or incomplete tax returns for PT Jasmine Indah's corporate income taxes for the years 2016, 2017, and 2018 by failing to report the full revenue. This case highlights how fraudulent commercial accounting reports can result in tax evasion, as tax liabilities are calculated based on these financial statements. A survey by the Association of Certified Fraud Examiners, a global anti-fraud organization, reveals that in Indonesia, it typically takes up to 12 months to uncover most financial statement fraud. Ideally, detecting fraud more swiftly could prevent losses to various stakeholders, including the government, which loses potential revenue due to taxes that entities should have paid but evaded through deceptive financial reporting.

The fraud pentagon theory can be used as a framework to identify tax evasion through deceptive financial reporting (Puspita et al., 2021). In 2011, Crowe Horwath highlighted five elements that contribute to fraudulent behavior: pressure, opportunity, rationalization, competence, and arrogance. Pressure can push individuals or groups towards fraudulent acts and is often linked to financial stability and targets. An opportunity arises from procedural loopholes that facilitate fraud, often found in the specific traits of an industry or due to inadequate supervision. Rationalization involves the justifications made by management to excuse their fraudulent actions, which can be seen in the audit opinions an entity receives. Competence, or the ability to carry out fraud, may be indicated by changes in entity leadership. Finally, arrogance in top management can lead to a belief in their untouchability, thinking that internal rules do not apply to them, often demonstrated when the chief executive officer (CEO) or president director holds multiple roles.

Numerous studies have explored indicators that can suggest tax evasion activities. Research by Darise et al. (2021) and Sugiharto (2022) found a positive correlation between financial stability and financial statement fraud. Sugiharto (2022) also identified a positive link between financial targets and financial statement fraud, which contrasts with the findings of Maryadi et al. (2020), Darise et al. (2021), and Widyaningsih and Nugroho (2022), who reported a negative relationship between financial targets and financial statement fraud. Studies by Amarakamini and Suryani (2019) and Chuzaini and Cahyaningsih (2019) suggested that the nature of the industry negatively impacts financial statement fraud. According to Darise et al. (2021), ineffective supervision positively influences financial statement fraud, a finding that contradicts Sugiharto (2022), who found a negative impact of ineffective supervision on financial statement fraud. Research by Darise et al. (2021) and Widyaningsih and Nugroho (2022) indicated that auditor opinions negatively affect fraud. Moreover, both Darise et al. (2021) and Sugiharto (2022) showed that changes in the board of directors have a positive effect on financial statement fraud. Furthermore, Widyatama and Setiawan (2020) and Sugiharto (2022) demonstrated that holding multiple positions is positively associated with financial statement fraud.

Detecting signs of tax evasion involves utilizing various measurement models, and previous studies often combine multiple models for better accuracy. For instance, Maryadi et al. (2020) applied both the Beneish M-Score and Altman Z-Score to evaluate corporate fraud, while Puspita et al. (2021) used the Beneish M-Score alongside the Stubben model to identify potential tax evasion.

To address gaps in earlier research, investigators are exploring new combinations of models to detect tax evasion, specifically by integrating the Beneish M-Score with restatement analysis. The Beneish model is widely used to identify fraud across different studies because it evaluates several financial ratios that can signal potential financial statement fraud. Restatement acts as an initial indicator of accounting fraud due to its association with weaknesses in an entity's internal control systems.

Previous research has largely focused on the manufacturing, trade, and banking industries; this study aims to explore a more specific area: entities within the basic materials sector. This focus was inspired by a restatement incident involving PT Timah Tbk. The study examines the years from 2012 to 2021, covering a decade. Its objective is to evaluate how effectively the five elements of the fraud pentagon theory can detect potential tax evasion. This research contributes to the field of tax accounting by providing additional empirical evidence on the application of the fraud pentagon theory in identifying tax evasion. The findings can also aid entities, tax officials, tax examiners, and auditors in recognizing signs of tax evasion, thus helping to prevent and mitigate fraudulent tax practices.

Literature Review and Hypotheses Development

The fraud pentagon theory, introduced by Crowe Horwath in 2011, outlines five factors that can lead to fraudulent behavior within an organization: pressure, opportunity, rationalization, competence, and arrogance. This theory expands upon the earlier fraud triangle theory by Cressey (1953) and the fraud diamond theory by Wolfe and Hermanson (2004), with a particular emphasis on uncovering fraud at the senior management level, where there are more opportunities and a greater likelihood of fraud. It has proven to be an effective tool for identifying tax evasion. Cressey's original subjects for the fraud triangle theory were embezzlers, which makes the theory relevant for detecting tax evasion, as it involves the misappropriation of government funds (Lederman, 2018).

In numerous studies, fraud detection often utilizes the Beneish model or restatement analysis. The Beneish model gained attention when Cornell University students used it to foresee financial statement fraud at Enron Corporation in 1998, a prediction that was validated when the scandal emerged in 2001 (Kenton, 2021). With ongoing research developments, this model is also applicable for identifying tax evasion by categorizing entities as either tax evaders or non-evaders (Coca et al., 2021). Restatement, on the other hand, signifies manipulation and deficiencies in an entity's internal controls (Plumlee & Yohn, 2015). The occurrence of restatements can indicate financial statement fraud. In Indonesia, PT Timah Tbk (TINS) from the basic materials sector faced such a case.

When releasing its 2019 financial statements, the entity restated its 2018 financial data, resulting in a reduction of net profit by Rp399.06 billion. According to Jatmiko (2020), this change in net profit was due to several errors, including the under-recorded cost of revenue, inaccuracies in investment property balances, incorrect revenue recognition methods for building sales, uncollectible prepaid taxes, and intra-group transactions, among other issues. These errors could lead to tax evasion.

Hypothesis Development

Pressure in Detecting Indications of Tax Evasion

Pressure can drive individuals to engage in fraudulent activities, often stemming from concerns about financial stability and targets. Financial stability pertains to the robustness of an entity's financial health. According to SAS number 99, the probability of fraud rises if financial stability is threatened by adverse economic conditions or managerial shortcomings (Sasongko & Wijayantika, 2019). In response, management might manipulate financial statements to present the entity as being in a stable condition to its stakeholders. Additionally, management frequently experiences pressure to reduce the tax burden to uphold the entity's financial stability.

Himawan and Wijanarti (2020) and Darise et al. (2021) suggest that as an entity's financial stability increases, the likelihood of engaging in financial statement fraud to reduce tax liabilities also rises. A growth in assets reflects an entity's ability to effectively manage its resources (Puspita et al., 2021). This perspective contrasts with findings by Septianda et al. (2021) and Angreni et al. (2022), who argue that greater financial stability actually decreases the risk of fraud, as stable entities typically have early warning systems in place to monitor their financial health.

H_{1a}: The influence of pressure, as reflected by financial stability, is hypothesized to positively affect the potential indications of tax evasion.

Financial targets are objectives set for the financial sector that entity management is expected to achieve. Although these targets can incentivize management to perform well, they can also impose significant pressure. This pressure might drive management to resort to various means, including financial statement manipulation, to meet these targets. When financial targets are set high, the risk of an entity engaging in financial statement fraud increases. Operating profit, often assessed using the Return on Assets (ROA) metric, is a typical financial target. As the ROA target rises, management may be more inclined to manipulate earnings, which could lead to tax fraud (Sasongko & Wijayantika, 2019).

This analysis is consistent with the findings of Septianda et al. (2021), who suggest that a higher ROA increases the likelihood of management involvement in financial statement fraud. This contrasts with the study by Maryadi et al. (2020), which indicates that a lower ROA correlates with reduced profits, negatively reflecting on management's

performance. Consequently, this situation may lead to financial statement fraud as management attempts to inflate the ROA to meet their targets.

H_{1b}: Financial target, as an indicator of pressure, has a positive effect on the potential signs of tax evasion.

Opportunity in Detecting Indications of Tax Evasion

Entity gaps can incentivize management to commit tax fraud. The opportunity factor in the fraud pentagon is reflected through two main proxies: industry characteristics and inadequate supervision. Industry characteristics pertain to the optimal conditions an entity maintains within its particular sector, often related to the risks involved in assessing account values, such as inventory (Hamadi et al., 2022). High inventory levels can present fraud opportunities because inventory, as a current asset, plays a crucial role in the entity's balance sheet and income statement (Amarakamini & Suryani, 2019). The inventory value can be manipulated by overstating the estimated worth of obsolete stock, thereby increasing inventory expenses and reducing both the entity's profit and its tax obligations.

This analysis is supported by the findings of Amarakamini and Suryani (2019) and Chuzaini and Cahyaningsih (2019), which suggest that a higher inventory turnover compared to sales reduces the probability of an entity engaging in fraud. A decline in inventory turnover over the years, or a rate below the industry's optimal level, indicates slow movement of inventory accounts, potentially due to outdated or unsold stock (Subramanyam & Wild, 2009:540). Such conditions increase the likelihood of management committing fraud to portray the entity as being in a favorable state. This increased potential for fraud subsequently heightens the risk of tax evasion.

H_{2a}: The nature of the industry, as an indicator of opportunity, has a positive influence on the potential signs of tax evasion.

According to SAS number 99 (AICPA, 2002), ineffective supervision occurs when particular individuals or groups dominate management, there are no limits on compensation, the financial reporting process is not adequately monitored, and internal controls are weak. The board of commissioners, which includes independent and non-independent or appointed members, is typically responsible for overseeing management's performance. When the board fails to supervise effectively, it can create opportunities for misconduct, such as profit manipulation, which may result in tax evasion.

The board of commissioners is expected to strengthen an entity's internal controls (Widyatama & Setiawati, 2020). When there are few independent board members, supervision can become less effective, providing management with opportunities to commit fraud (Puspita et al., 2021). This view is supported by Sugiharto (2022), who suggests that a smaller number of independent commissioners increases the risk of tax

fraud, as weak internal supervision gives management more leeway to engage in earnings management, thereby reducing the entity's tax liabilities. However, this perspective contrasts with the study by Fransiska & Sinaga (2022), which found that the presence of independent commissioners does not necessarily indicate poor supervision. This is because the responsibility for maintaining internal controls lies not only with the board of commissioners but also with managers and all entity employees.

H_{2b}: Ineffective supervision as an indicator of opportunity has a positive effect on the indication of tax evasion.

Rationalization in Detecting Indications of Tax Evasion

Rationalization refers to the reasoning individuals use to justify their improper actions. In the context of the fraud pentagon, rationalization can be linked to audit opinions. The limits of tolerance in forming an audit opinion may serve as justification for management's fraudulent activities. An audit opinion is the auditor's conclusion, provided after completing all audit procedures, collecting adequate evidence, and evaluating the fairness of the financial statements presented by management. One such opinion is an unqualified opinion with an explanatory paragraph, which might be perceived as the auditor's acceptance of the entity's earnings management practices (Darise et al., 2021). This perception can lead management to exploit the auditor's leniency to engage in fraud, believing their actions are permissible because they fall within the auditor's tolerance, as indicated in the explanatory paragraph (Chuzaini & Cahyaningsih, 2019).

This analysis contrasts with the findings of Ariandini and Suryani (2020), Darise et al. (2021), and Widyaningsih and Nugroho (2022), who contend that a more favorable audit opinion reduces the likelihood of financial statement fraud. Entities aim to preserve a positive audit opinion, so they are motivated to avoid financial statement fraud, as such actions could negatively impact the auditor's assessment of their financial statements' accuracy.

H₃: Rationalization has a positive effect on the indication of tax evasion.

Competence in Detecting Indications of Tax Evasion

Tax evasion is unlikely if an individual lacks the requisite skills, which are often held by someone in a specific role within an entity, such as a director. Therefore, changes in the board of directors can signal the competence factor. Directors who are found guilty of misconduct are typically dismissed and replaced, indicating potential fraud. Such changes may also reflect efforts by the entity to conceal and enhance the performance of previous directors considered less competent. Conversely, a change in directors can create a stressful environment, giving management more opportunities to engage in fraudulent activities (Wolfe & Hermanson, 2004; Darise et al., 2021). This scenario might compel

newly appointed directors to use any available means to improve the poor performance of their predecessors, including manipulating profits, which could lead to tax evasion.

This analysis is supported by research conducted by Widyatama and Setiawati (2020) and Darise et al. (2021), which suggests that alterations in the board of directors heighten the probability of an entity engaging in fraudulent activities. However, this finding contrasts with studies by Himawan and Wijanarti (2020) and Septianda et al. (2021), which argue that more frequent changes in the board of directors actually decrease the likelihood of management participating in financial statement fraud. This reduction is attributed to changes often occurring due to the end of a director's term, the passing of a previous director, or the voluntary resignation of a former director.

H₄: Competence has a positive influence on the indication of tax evasion.

Arrogance in Detecting Indications of Tax Evasion

A director's competence can sometimes result in arrogance. This arrogance might lead to dissatisfaction with their current role, prompting them to assume multiple positions, which could detract from their focus on their primary responsibilities. In the context of the fraud pentagon, arrogance is reflected when a director holds dual roles, either within the same entity or across different organizations. Such dual leadership can create issues such as a lack of focus (Chuzaini & Cahyaningsih, 2019). This can lead to a decline in management performance and an increased risk of tax fraud during their tenure. Additionally, holding multiple positions may foster arrogance and a perceived immunity from internal supervision, allowing the individual to feel more at liberty to engage in fraudulent activities within the entity (Sasongko & Wijayantika, 2019).

This analysis is supported by the research of Widyatama and Setiawati (2020) and Angreni et al. (2022), which indicates that holding dual offices can lead to an increased risk of fraudulent activities, such as earnings manipulation. Such dual roles heighten the likelihood of tax evasion, as CEOs might attempt to conceal poor performance resulting from a lack of focus. However, this perspective contrasts with the findings of Hamadi et al. (2022), which suggest that executives with dual roles are typically aware of the implications of such positions. Consequently, they are likely able to manage their focus between roles effectively, ensuring that their performance remains unaffected.

H₅: Arrogance positively affects the indication of tax evasion.

Based on the hypotheses development, this research model is presented in Figure 1.

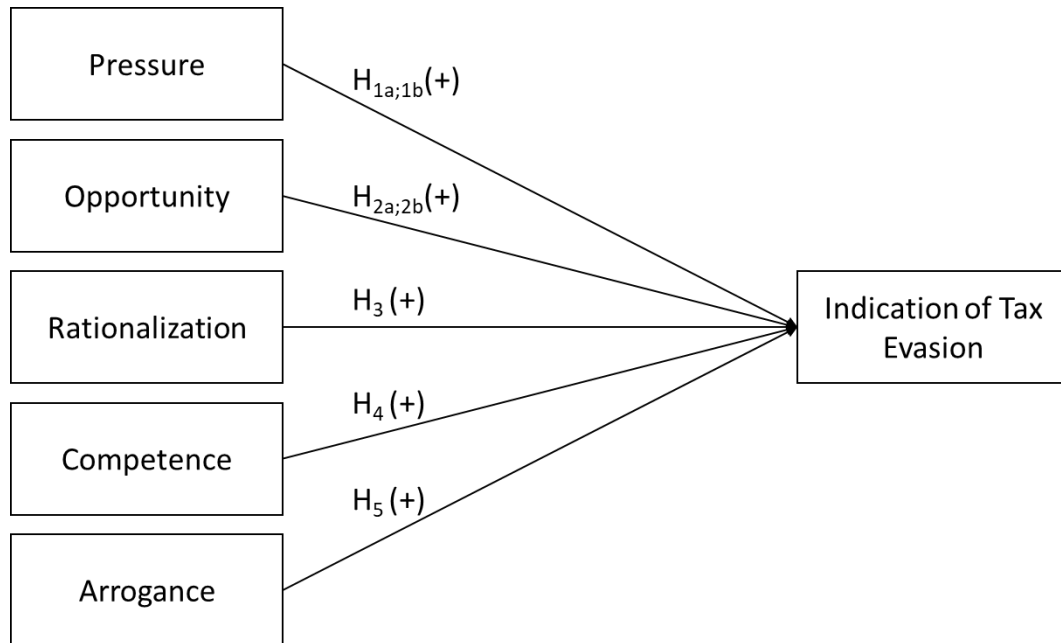


Figure 1 Research Model

Research Method

Research Design

This quantitative study focused on hypothesis testing. It examined all entities in the basic materials sector listed on the Indonesia Stock Exchange (IDX) over a ten-year period from 2012 to 2021. The sampling method applied non-probability sampling, specifically purposive sampling. The sample was determined based on specific criteria set by the researchers: entities must be continuously listed on the IDX from 2012 to 2021, must not have been delisted or suspended during this period, must publish audited annual financial statements and reports in Rupiah, and must have consistently reported profits throughout the period. These criteria resulted in a final sample of nine entities, providing a total of 90 data points over the ten years. The study used secondary data extracted from the audited financial and non-financial reports of these entities, which can be accessed through the official IDX website or the entities' official websites.

Operational Definitions and Measurement of Variables

The dependent variable in this research was the indication of tax evasion, which can be assessed through earnings management practices (Puspita et al., 2021). Earnings management was evaluated using a combination of the Beneish M-Score model and restatement analysis. According to the study by Coca et al. (2021), the Beneish model serves as an initial tool for detecting potential tax evasion within an entity. If the M-Score exceeds -2.22, the entity is classified as a tax evader (assigned a value of 1). Conversely, if

the M-Score is below -2.22, the entity is deemed a non-evader (assigned a value of 0). The M-Score is calculated using the following formula:

$$M\text{-Score} = -4,84 + 0,92 \text{ DSRI} + 0,528 \text{ GMI} + 0,404 \text{ AQI} + 0,892 \text{ SGI} + 0,115 \text{ DEPI} - 0,172 \text{ SGAI} + 4,679 \text{ TATA} - 0,327 \text{ LVGI} \dots (1)$$

Restating financial statements refers to the act of correcting errors or misstatements in an entity's financial reports, which may have been made either intentionally or unintentionally, potentially misleading the users of these reports (Sugiharto, 2022). If a restatement is mandated and results in reduced income, it suggests the correction of deliberate misstatements by the entity. Conversely, if a restatement increases income, it implies the correction of unintentional errors and may also indicate potential tax evasion efforts by the entity. A dummy variable is employed to measure restatement occurrences: a restatement is coded as 1, while no restatement is coded as 0.

The study examined five independent variables: pressure, opportunity, rationalization, competence, and arrogance. The pressure was represented by financial stability and financial targets. Financial stability pertains to the consistent state of an entity's financial health. When an entity holds more assets, it faces greater tax obligations, which can incentivize management to take various steps to reduce its tax liabilities (Mulyana et al., 2020). The change in total assets, symbolized by ACHANGE, was calculated using the following formula.

$$ACHANGE = \frac{\text{Total Assets } t - \text{Total Assets } t-1}{\text{Total Assets } t-1} \dots (2)$$

Financial targets are the objectives established to drive the performance of an entity's management. An increase in the ROA ratio suggests that the entity may be actively working to reduce its tax obligations (Rifai & Atiningsih, 2019). The ROA was calculated using the following formula.

$$ROA = \frac{\text{Net Income}}{\text{Total Asset}} \dots (3)$$

Opportunity is evaluated using two proxies: the nature of the industry and ineffective supervision. The nature of the industry pertains to the optimal conditions in which an entity operates within a specific sector. A high inventory value implies high costs to maintain that inventory, potentially suggesting that an entity is trying to lower its tax liabilities by incurring unnecessary expenses (Nasution & Mulyani, 2020). An increase in inventory value without a corresponding rise in sales may indicate attempts at tax evasion through inflated expenses. The inventory ratio, referred to as INVENTORY, was calculated as follows.

$$INVENTORY = \frac{\text{Inventory } t}{\text{Sales } t} - \frac{\text{Inventory } t-1}{\text{Sales } t-1} \dots (4)$$

Ineffective supervision relates to circumstances that allow management the opportunity to engage in fraudulent activities. This is measured by the proportion of independent

commissioners on the board of commissioners. A greater number of independent commissioners suggests stronger supervision, ensuring adherence to relevant regulations and increasing the likelihood that the entity accurately reports its taxes (Hanim & Fatahurrazak, 2018). The formula for calculating the ratio of independent commissioners denoted as BDOUT, is as follows.

$$\text{BDOUT} = \frac{\text{Number of independent commissioners}}{\text{Number of total commissioners}} \dots (5)$$

Rationalization is evaluated using the audit opinion as a proxy. When an entity receives an unqualified opinion with an explanatory paragraph, it could suggest potential tax evasion, as management might take advantage of the auditor's leniency to engage in tax fraud. Auditors are tasked with providing reasonable assurance about the accuracy and fairness of financial statements, including the reported income tax liabilities (Callista, 2017). In this research, the audit opinion is measured using a dummy variable: an entity receiving an unqualified opinion with an explanatory paragraph is assigned a value of 1. In contrast, any other opinion is assigned a value of 0.

Competence can sometimes facilitate fraudulent activities within an entity. The board of directors, being the most competent group, is a focal point for observing such competence. Changes in the board can indicate efforts to rectify an entity's declining situation, which can be attributed to the previous directors' performance. Outgoing directors might engage in manipulating long-term accruals and increasing depreciation expenses to lower reported profits and thus decrease tax liabilities, ensuring the new directors inherit a better performance record (Rusdama, 2017). In this study, changes in the board of directors (DCHANGE) are assessed using a dummy variable: a change in any board member is coded as 1, while no change in the board's composition from the previous year is coded as 0.

Arrogance in an individual can manifest when a director holds multiple roles within an entity. Dualism position refers to a situation where a person occupies more than one post, potentially leading to a lack of concentration on their responsibilities. This can result in earnings manipulation, which might be used to hide poor performance and engage in tax evasion. According to Kadir (2018), separating the roles between the board of directors and the CEO can decrease the likelihood of earnings manipulation, which is intended to minimize tax liabilities. In this study, the dualism position (DUALISM) is assessed using a dummy variable: if the president director holds multiple roles, the entity is assigned a value of 1, whereas if the president director does not hold multiple positions, the entity is assigned a value of 0.

Data Analysis

Logistic regression analysis was the analytical tool used to test the hypotheses in this study. This tool was chosen because the nature of the dependent variable in this research is a dummy variable, distinguishing between entities that are indicated as tax evaders and those that are not. The independent variable data was a combination of continuous

(metric) and categorical (non-metric) variables. The following was the logistic regression model used in this study.

$$NI = \beta_0 + \beta_1ACHANGE + \beta_2ROA + \beta_3INVENTORY + \beta_4BDOUT + \beta_5OPI + \beta_6DCHANGE + \beta_7DUALISM + \varepsilon \dots(6)$$

Result and Discussion

Descriptive Statistic

According to Table 1, ACHANGE, used as a proxy for the pressure variable, shows a minimum value of -0.13407 or -13.41%, which was reported by PT Indal Aluminium Industry Tbk (INAI) in 2019. The maximum value recorded is 1.15354 or 115.35%, achieved by PT Alkindo Naratama Tbk (ALDO) in 2017. The average value stands at 0.12688, suggesting that entities within the basic materials sector, on average, increased their total assets by 12.69% compared to the previous year. The standard deviation is 0.18207, which is higher than the average, indicating a high degree of variability (heterogeneity) in this pressure variable proxy.

Table 1 Descriptive Statistics of Ratio Data

	Min.	Max.	Mean	Std. Deviation
ACHANGE	-0.13407	1.15354	0.12688	0.18207
ROA	0.00280	0.18536	0.05289	0.04296
INVENTORY	-0.15152	0.15594	0.00127	0.05456
BDOUT	0.25000	0.66667	0.36698	0.07700

Note : ACHANGE = Change in Total Assests; ROA = Return on Assets; INVENTORY = Inventory Ratio; BDOU = Ration of Independent Commisioners

The pressure variable, represented by ROA, has a minimum value of 0.00280 or 0.28%, which was recorded by PT Indal Aluminium Industry Tbk (INAI) in 2021. The maximum value, 0.18536 or 18.54%, is attributed to PT Semen Indonesia (Persero) Tbk (SMGR) in 2012. The average ROA is 0.05289, indicating that entities in the basic materials sector, on average, achieve a profit margin of 5.3%. The standard deviation for this proxy is 0.04296, which is less than the average, suggesting that the financial target proxy within the pressure variable demonstrates low variability (homogeneity) in the data.

INVENTORY, serving as a proxy for the opportunity variable, shows a minimum value of -0.15152 or -15.15%, reported by PT Indal Aluminium Industry Tbk (INAI) in 2015. The maximum value is 0.15594 or 15.59%, also recorded by PT Indal Aluminium Industry Tbk (INAI) in 2020. The average value is 0.00127, indicating that entities in the basic materials sector, on average, increased their inventory by 0.13% compared to the previous year. The standard deviation is 0.05456, which is higher than the average, suggesting that there is a high level of variability (heterogeneity) in the opportunity variable with the nature of the industry proxy.

BDOOUT, acting as a proxy for the opportunity variable, has a minimum value of 0.25000 or 25%, observed in PT Intanwijaya Internasional Tbk (INCI) from 2017 to 2019. The maximum value is 0.66667 or 66.67%, recorded by PT Kedawung Setia Industrial Tbk (KDSI) in 2014. The average proportion of independent commissioners in entities from the basic materials sector is 0.36698 or 36.7%. The standard deviation is 0.077, which is less than the average, indicating that the opportunity variable, when represented by the ineffective supervision proxy, shows low variability (homogeneity) in the data.

According to Table 2, among the basic materials sector entities studied, 31 samples received an unqualified opinion with an explanatory paragraph. This paragraph has been updated to an "emphasis of matter" or "other matters" paragraph under AICPA audit standards (Arens et al., 2015, p. 62). For example, PT Indo Acidatama Tbk (SRSN) and PT Semen Indonesia (Persero) Tbk (SMGR) received an "emphasis of matter" paragraph in their independent auditor's report. Similarly, PT Alkindo Naratama Tbk (ALDO) and PT Trias Sentosa Tbk (TRST) received an unqualified opinion with an "other matters" paragraph. Some entities, like PT Champion Pacific Indonesia Tbk (IGAR) and PT Intanwijaya Internasional Tbk (INCI), received both an "emphasis of matter" and an "other matters" paragraph in a single audit year. Most entities in this sector, totaling 59 samples, received opinions other than unqualified with an explanatory paragraph, such as unqualified or qualified opinions. For instance, PT Indal Aluminium Industry Tbk (INAI), PT Kedawung Setia Industrial Tbk (KDSI), and PT Indo Acidatama Tbk (SRSN) frequently received unqualified opinions between 2012 and 2021, while PT Argha Karya Prima Industry Tbk (AKPI) was given a qualified opinion by the auditor in 2014.

Table 2 Sample Characteristics According to Audit Opinion Category

	Freq.	%
Unqualified opinion with an explanatory paragraph (1)	31.00	34.40
Apart from an unqualified opinion with an explanatory paragraph (0)	59.00	65.60
Total	90.00	100.00

The DCHANGE acts as the proxy for the competence variable. As outlined in Table 3, 28 samples, representing 31.10% of the total basic materials sector entities, experienced changes in their board of directors. These changes were due to various reasons, such as the death of a board member, health-related resignations, and more. PT Semen Indonesia (Persero) Tbk (SMGR) had the most frequent board changes during the study period. Conversely, 62 samples, or 68.9% of the total, maintained the same board of directors, suggesting that most entities in this sector kept their boards intact due to satisfactory performance by the directors. Notably, PT Alkindo Naratama Tbk (ALDO) was the only entity that did not undergo any board changes throughout the research period.

Table 3 Sample Characteristics According to Change in Directors Category

	Freq.	%
There is a change in the board of directors (1)	28.00	31.10
There is no change in the board of directors (0)	62.00	68.90
Total	90	100

In this study, tax evasion is represented by net income (NI). According to Table 4, the Beneish M-Score method reveals that 29 samples, or 33.20% of the total, are suspected of engaging in tax evasion, while the other 61 samples show no such indication. The restatement method provides different findings, suggesting that 22 samples, or 24.40% of the total, are involved in tax evasion, with 68 samples not showing signs of evasion. When combining the results from both the Beneish M-Score and restatement methods, 45 samples, amounting to 50.00% of the total, are indicated to have committed tax fraud. Therefore, it appears that half of the total samples are involved in tax evasion.

Table 4 Sample Characteristics According to Beneish M-Score, Restatement, and NI Category

	Tax-Evaders (1)		Non-Evaders (0)		Total	
	Freq.	%	Freq.	%	Freq.	%
Beneish M-Score	29.00	33.20	61.00	66.80	90.00	100.00
Restatement	22.00	24.40	68.00	75.60	90.00	100.00
NI	45.00	50.00	45.00	50.00	90.00	100.00

Note: NI = Net Income

Logistic Regression Result

According to the logistic regression test results presented in Table 5, the logistic regression model equation derived from this study can be expressed as follows.

$$NI = -3,364 + 5,021 \text{ ACHANGE} + 22,598 \text{ ROA} - 5,744 \text{ INVENTORY} + 5,167 \text{ BDOU} - 1,025 \text{ OPI} - 0,674 \text{ DCHANGE} + 0,437 \text{ DUALISM} + \varepsilon$$

Table 5 Logistic Regression Analysis Results

		B	Sig.	Conclusion
ACHANGE	H _{1a} (+)	5.021	0.006*	Supported
ROA	H _{1b} (+)	22.598	0.004*	Supported
INVENTORY	H _{2a} (+)	-5.744	0.228	Non Supported
BDOU	H _{2b} (+)	5.167	0.131	Non Supported
OPI	H ₃ (+)	-1.025	0.102	Non Supported
DCHANGE	H ₄ (+)	-0.674	0.213	Non Supported
DUALISM	H ₅ (+)	0.437	0.405	Supported

Note : ACHANGE = Change in Total Assests; ROA = Return on Assets; INVENTORY = Inventory Ratio; BDOU = Ration of Independent Commisioners; OPI = Audit Opinion; DCHANGE = Changes in Directors; DUALISM = Dualism Position; *sig. < 0.01

Pressure is a factor that can trigger individuals to commit tax evasion. This pressure can be measured through two main indicators: financial stability and financial targets. In this study, financial stability is measured using the ACHANGE, while financial targets are assessed through ROA. The results reveal a positive correlation between financial stability and indications of tax evasion. This implies that the greater an entity's asset growth, the higher the likelihood of engaging in tax evasion. Such a situation may arise because significant asset growth often comes with pressure to maintain stable financial performance, pushing management to find ways to minimize tax obligations.

Similarly, financial targets also show a positive correlation with tax evasion. High profitability, as reflected by ROA, can motivate management to take actions aimed at reducing tax burdens. The greater the profit earned by an entity, the larger the tax liability, which may encourage management to manipulate financial reporting to lower taxable income. These findings align with previous research by Himawan and Wijanarti (2020), which argued that excessive asset growth might not be beneficial, leading entity management to manipulate their earnings. Such efforts, particularly through asset valuation, aim to minimize large tax liabilities (Darise et al., 2021) and are also in line with the study by Septianda et al. (2021), which indicates that financial targets have a positive impact on financial statement fraud. High profits can provide entity management with more opportunities to engage in tax fraud (Primasari, 2019). These two studies support the notion that both asset growth and financial targets can drive tax evasion. However, these results contradict the studies of Puspita et al. (2021) and Yanti and Riharjo (2021), who found no significant impact of financial stability and targets on corporate fraud, suggesting that other factors may also play a role.

Opportunity, represented by INVENTORY and BDOUT, shows no significant effect on tax evasion. Inventory changes do not directly affect tax evasion, as inventory is easily monitored. Likewise, the presence of independent commissioners does not reliably indicate tax evasion, as all board members share equal oversight responsibilities. These results are consistent with Puspita et al. (2021) but differ from Amarakamini and Suryani (2019), who found a link between industry nature and financial fraud.

Rationalization, using the auditor's opinion as a proxy, shows no influence on tax evasion. An unqualified opinion does not guarantee the absence of fraud, as auditors maintain independence and cannot fully reflect management's intentions. This supports the findings by Supriyanto and Christina (2021), which suggest that the auditor's opinion does not reveal corporate tax fraud. This is because the unqualified opinion provided by the auditor results from a thorough audit process that adheres to established standards, ensuring it is free from fraudulent activities (Aprilia, 2017; Hamadi et al., 2022). However, this analysis contradicts earlier research indicating that the auditor's opinion influences tax fraud. A favorable opinion might reduce management's inclination to commit fraud, as it could tarnish the entity's reputation (Darise et al., 2021).

Competence, measured through DCHANGE, also shows no impact on tax evasion. Board changes often result from routine term completions rather than poor performance. These findings align with Amarakamini and Suryani (2019) which found that changes in the board

of directors do not affect indications of tax fraud. Often, board changes occur because previous directors have retired or passed away, requiring replacements to fill these positions (Puspita et al., 2021). However, this analysis contrasts with the research of Septianda et al. (2021), who found that board changes can impact financial statement fraud, potentially leading to tax evasion. Increased frequency of board changes might reduce tax evasion indications, as new directors are usually competent individuals who have undergone a selection process at the general meeting of shareholders, thereby improving performance and reducing fraudulent activities (Yanti & Riharjo, 2021).

Arrogance, assessed through DUALISM, does not affect tax evasion. Holding multiple positions does not necessarily indicate fraudulent behavior, as it can also reflect management strategies. This agrees with Sasongko and Wijyantika (2019) but opposes Widyatama and Setiawati (2020), who argued that dual roles could increase the risk of fraud due to the concentration of power in fewer individuals.

The lack of influence on the opportunity, rationalization, competence, and arrogance factors in indicating tax evasion cannot be concluded straightforwardly. According to the fraud pentagon theory, multiple factors can contribute to fraudulent behavior, making it necessary to consider a combination of factors rather than a single one. This implies that factors showing no significant impact might be overshadowed by other, more dominant factors driving management to engage in tax evasion. This research can aid taxation professionals, such as tax officials, examiners, and auditors, in more effectively identifying tax evasion. Entities can also leverage these findings to mitigate and prevent tax evasion by fostering a sound organizational structure and culture that accounts for factors that could trigger fraud. Additionally, this study can provide a foundation for future research aimed at developing methods for detecting tax evasion.

Conclusion

This study seeks to evaluate the effectiveness of the fraud pentagon theory's components—pressure, opportunity, rationalization, competence, and arrogance—in indicating tax evasion activities. The findings offer empirical support that the pressure factor can indeed detect signs of tax evasion, while the other factors—opportunity, rationalization, competence, and arrogance—do not show a proven ability to do so. The pressure factor has a positive correlation with indications of tax evasion, as management often strives to meet targets and portray entity stability, potentially resorting to tax fraud. The opportunity factor does not influence tax evasion indications, as inventory accounts within current assets can be monitored for fraudulent activity through their connections with accounts like the cost of goods sold and value-added tax.

The presence of independent commissioners in an entity generally just fulfills the “Otoritas Jasa Keuangan” (OJK) requirements. Rationalization, represented by the auditor's opinion, does not affect tax evasion indications, as auditors issue unqualified opinions following audit procedures compliant with relevant standards, meaning any detected fraud would inherently be an auditor's discovery. Changes in the board of

directors, used as a proxy for competence, also do not impact tax evasion indications. Such changes typically occur due to reasons like a member's death, term completion, or other factors. Lastly, arrogance, indicated by holding multiple positions, does not influence tax evasion indications, as dual roles often involve directorships in subsidiaries for streamlined governance.

Based on the conclusions drawn, the Beneish model and restatement methods are primarily useful for detecting tax evasion related to the pressure factor. This is because the burden of maintaining entity stability and meeting financial targets can exert pressure on management, which may lead to financial statement manipulation and, consequently, tax evasion. It is important for entities to carefully consider financial target settings to ensure they are achievable and realistic. For tax officials, focusing on the pressure factor could be an effective strategy for identifying potential tax evasion, thereby helping to reduce tax fraud in society. However, the factors of opportunity, rationalization, competence, and arrogance have not been shown to detect tax evasion effectively.

The researchers acknowledge certain limitations in this study. One such limitation is that the coefficient of determination is only 28.9%, which is significantly lower than 100%. This suggests that there are additional independent variables that were not accounted for in this research. The researchers recommend that future studies delve deeper into the factors that trigger tax evasion by integrating methods to describe independent factors and exploring other dependent variables that can better illuminate aspects of fraud theory.

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