Presentation of a Quantitative Model of Factors Affecting Earnings Management: Focusing on Managers' Opportunistic Manipulations of Discretionary Accruals

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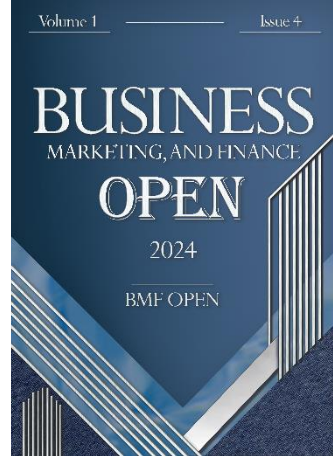

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Abstract: The present study is based on providing a quantitative model of factors influencing earnings management, with a focus on managers' opportunistic manipulations of discretionary accruals. This research follows a mixed-methods approach and is classified as sequential and embedded in nature. Based on the reasoning logic, this study falls under the category of "deductive and inductive" research and has been conducted in two stages. The first stage is fundamental, while the second stage is applied. This study belongs to the category of original (first-hand) research and, from a methodological perspective, is classified as descriptive. Given that data collection in this research was conducted naturally and without intervention in both stages, it falls under non-experimental (descriptive) studies. From a temporal perspective, it is retrospective, and in terms of duration, it is cross-sectional. Based on the findings derived from the quantitative model, weaknesses in the accounting system, issues related to owners and shareholders, managerial incentives (such as knowledge-based and personality-driven motivations), internal organizational conditions, and external environmental factors have been identified as the five primary factors influencing earnings management through discretionary accrual manipulation.

Keywords: Agency theory, opportunistic earnings management, discretionary accruals.

1. Introduction

The quality of financial reports has always been a highly significant and engaging subject for various groups, including regulators, accounting and auditing professionals, and other users. The level of transparency and managerial accountability regarding the financial matters of business entities can be assessed based on the timeliness of information disclosure in financial reports and their compliance with accounting standards [1]. In general, the quality of financial reports depends on their reliability and truthfulness [2]. The quality of the information in financial reports is significantly influenced by the extent to which these reports adhere to accounting standards, and compliance with accounting standards is a fundamental requirement for high-quality financial reporting [3, 4].

However, financial reports prepared by managers do not always meet the necessary quality standards, and the use of so-called fabricated quality reports can lead to misleading conclusions. Managers are aware that their performance directly impacts financial reports, which is why those with poor performance often resort to

manipulating financial reports. Initially, they attempt to exploit loopholes in laws and regulations (accounting standards) to present seemingly appropriate but misleading reports [5-8]. The main issue here is that such manipulations start on a small scale and ultimately escalate into major manipulations, or fraud. In other words, managers begin with earnings management as an initial step toward large-scale manipulations and eventually engage in fraud.

Through the selection of specific accounting policies aimed at wealth transfer from other stakeholders to specific shareholders for personal gain, managers mislead stakeholders about the actual performance of the business entity, a practice referred to as opportunistic earnings management. Research has demonstrated that managers use earnings management to achieve opportunistic goals [9]. Other researchers have also asserted that earnings management is inherently associated with opportunistic behavior, as managers typically communicate information about the company's future performance to shareholders based on their own preferences [10].

Earnings management is generally conducted through two main methods: (1) manipulation of discretionary accruals and (2) manipulation of real activities. However, the present study primarily focuses on opportunistic manipulations of discretionary accruals by managers. Song et al. (2013) emphasized that earnings management affects the quality of financial statements, which serve as a crucial foundation for decision-making. Nevertheless, a key issue concerning earnings management is that it is never considered a significant factor affecting auditors' opinions. Since managers are aware that manipulations within financial statements through earnings management do not influence auditors' opinions, they do not fear the consequences of opportunistic discretionary accrual manipulations [11].

By sending misleading or biased signals about the business entity's performance, managers deceive stakeholders and other interested parties, such as investors. Earnings management fundamentally undermines the relevance and reliability of accounting information, which are essential attributes for useful financial reporting in decision-making [12]. Given that the implementation of earnings management reduces transparency and weakens the reliability of accounting information, this practice is harmful to stakeholders and ultimately causes damage to their interests [13, 14].

The separation of ownership and control plays a key role in shaping agency theory (Alfarian, 2024). Some researchers, such as Linh (2024), have suggested that owners prefer to manage their businesses directly but rely on managers due to their inability to oversee day-to-day operations [15]. Opportunistic managers, leveraging their specialized knowledge, exploit business opportunities to maximize personal benefits. For instance, they intentionally manipulate and conceal accounting figures to present an artificially favorable image of the company's performance to owners [9]. According to Stein and Wang (2016), when managers' incentives diverge from those of shareholders, and information asymmetry exists, managers engage in earnings management to create a false sense of equilibrium among stakeholders. The primary objective of opportunistic earnings management is to maximize personal or group-specific benefits. Although earnings management can have both positive and negative effects, its negative implications far outweigh its benefits [16-18]. Regardless of whether earnings management is efficiency-driven or opportunistic, its fundamental purpose is to obscure the true financial performance of the firm (Amudanohu, 2020). Profitability is a critical financial objective for firms, and managers manipulate earnings-related information by altering accounting methods and making biased judgments [10]. Altman (2013) indicated that when profitability declines, firms struggle with debt repayment, increasing the likelihood of bankruptcy. Firms with poor financial performance attempt to normalize their crisis situation through opportunistic discretionary accrual manipulations [19]. Similarly, Ghazali et al. (2015) identified failure to meet financial obligations as a

primary driver of opportunistic discretionary accrual manipulation [20]. Managers distort financial information to misrepresent the company's true economic performance [21]. Kim and Zhang (2016) argued that low-quality financial reporting by managers is a direct consequence of severe information asymmetry between managers and owners, enabling managers to deceive stakeholders through unequal information distribution [22]. This asymmetry protects managers and external parties from the risks associated with financial misrepresentation, while other stakeholders remain vulnerable [16, 17].

Some researchers, such as Ashtiani and Rahimi (2022), Omeir et al. (2023), and Narulita et al. (2024), noted that discretionary accruals are subject to managerial judgment and estimation, providing managers the opportunity to manipulate earnings, which can ultimately lead to fraudulent financial practices [8, 12, 23]. Other scholars strongly criticized opportunistic discretionary accrual manipulation, stating that managers engage in earnings management to conceal financial fraud. Large-scale manipulations, including fraud, often begin with discretionary accrual manipulations, escalating into more severe accounting irregularities [24, 25]. Managers use sophisticated accounting techniques to execute such frauds, making detection difficult, even for auditors [8]. Michalkova et al. (2024) found that discretionary accrual manipulations vary across countries and business lifecycle stages. Earnings management typically follows an inverse U-shaped pattern, with larger firms tending to understate accounting profits. They emphasized the importance of considering business lifecycle stages when identifying earnings manipulation [7]. Sangkwon and HyeongTae (2024) also examined the impact of discretionary accruals on accounting conservatism, concluding that both income-increasing and income-decreasing discretionary accruals affect conservative reporting [21]. Additionally, Narulita et al. (2024) found that accounting record manipulations, misrepresentation of financial data, and improper application of accounting principles contribute to the extent of earnings manipulation [8]. Toru and Ogoun (2024) determined that managerial ownership has minimal impact on discretionary accrual changes. Granting stock options to managers enhances firm performance, efficiency, and reduces unethical managerial behavior [26]. Sodan (2024) highlighted that an increase in the absolute residuals of the Dechow-Dichev model indicates significant distortions in net income, working capital, and stable assets [27]. Hessian (2024) found that reducing discretionary accrual-based earnings management leads to optimal cash holdings and surplus liquidity [28]. Geerawo (2023) emphasized that discretionary accruals significantly influence financial reporting quality, with changes in accruals distorting financial statements and misleading stakeholders. Key determinants of discretionary accrual variations include firm size, equity ratio, asset turnover, and profitability history, while liquidity has no effect [29]. Tarus and Korir (2023) found that board independence, tenure, and firm size negatively affect real earnings management, while CEO duality has a positive effect. Additionally, CEO narcissism moderates the relationship between CEO duality and earnings management [13]. Dreif and Chouaya (2022) reported that managers favor real earnings management when facing short-term debt increases, believing it is less likely to be detected. However, long-term debt increases lead to simultaneous engagement in real earnings management and opportunistic discretionary accrual manipulations, as long-term obligations reduce lender oversight [30]. Bugshan et al. (2022) identified a significant relationship between oil price volatility and discretionary accrual changes, particularly noting a positive correlation between accrual reversals and oil price fluctuations. Oil companies tend to reduce reported earnings through discretionary accrual manipulation during periods of high oil price volatility [31]. Assenso-Okofo et al. (2021) demonstrated a significant correlation between executive compensation and earnings management, where higher executive bonuses lead to increased earnings manipulation [13]. Similarly, Sa'adati et al. (2023) found that opportunistic earnings management is significantly

associated with the capability and opportunity elements of fraud models, such as the fraud diamond and fraud triangle frameworks [18].

Based on these considerations, the present study aims to investigate the reasons behind opportunistic manipulations of discretionary accruals, which deteriorate financial statement quality. Consequently, the primary research question and objective of this study are to first identify the causes of managers' opportunistic discretionary accrual manipulations and then propose a quantitative model of these influencing factors. Achieving these objectives will facilitate the development of more effective and preventive measures to mitigate the factors that drive managers toward unethical financial practices within organizations.

2. Methodology

Many individuals may wonder about the meaning of research. Research is a systematic approach to finding answers to specific questions. The research methodology can be considered a decision-making process regarding a study, consisting of four interconnected stages: research objective, research strategy, data collection, and data analysis.

The present study employs a mixed-methods approach. Data collection in this approach can be conducted either simultaneously or sequentially, and in this study, a sequential mixed-methods approach was adopted. Initially, data collection was qualitative, followed by quantitative data collection (or vice versa). Furthermore, this study follows an embedded (nested) research design, meaning that qualitative data is incorporated as part of the quantitative study (or vice versa), ultimately leading to the final conclusions.

In another classification, simultaneous and sequential mixed-methods designs are categorized based on reasoning logic into two types: deductive and inductive. In this study, both deductive and inductive reasoning were applied. In essence, the study was conducted in two stages: the first stage was fundamental, while the second stage was applied. Applied research aims to address real-world problems and is decision-oriented.

This study falls under the category of original (first-hand) research and is descriptive in nature. Scientific research, based on how data is obtained, can be classified into descriptive (non-experimental) and experimental categories. Given that data collection in this study was conducted naturally and without manipulation, it is classified as a non-experimental (descriptive) study. From a temporal perspective, the study is retrospective, and in terms of duration, it is cross-sectional.

The data collection methods include library research, interviews (qualitative), and a Likert-scale questionnaire (quantitative). In terms of data analysis, the qualitative phase utilized factor analysis, while the quantitative phase applied statistical methods.

At the initial stage, the researcher conducted a literature review to identify the factors influencing earnings management, particularly focusing on opportunistic manipulations of discretionary accruals by managers. In the second stage, the researcher developed a structured and semi-structured questionnaire based on the identified components. In the third stage, before conducting expert interviews, the qualitative questionnaire was sent to several accounting faculty members to ensure its validity from an expert perspective. After incorporating their feedback, the interview phase commenced.

The target population of the study included specific professional groups:

- University faculty members
- Board members (with accounting or financial qualifications only)
- Financial and administrative managers and deputies

Upon completion of the expert interview phase, the researcher discovered numerous additional components beyond those identified in the literature review. Consequently, an attempt was made to refine and summarize these variables using Delphi methodology and relevant software. However, since software-based screening is not always entirely accurate and may contain errors, the researcher further refined and categorized the variables based on expert opinions from the interviews. The goal of this process was to identify the most precise and significant components affecting opportunistic manipulations of discretionary accruals in earnings management.

Before transitioning to the quantitative phase, the researcher assigned logical and appropriate labels to the validated components and categorized them accordingly. Ultimately, five key factors influencing earnings management (with a focus on opportunistic manipulations of discretionary accruals) were identified.

From a geographical perspective, the study was conducted within Iran, and from a temporal perspective, it spanned approximately 16 months.

To establish an expert panel using the Delphi method, a total of 33 individuals were selected. Among them, 21 experts continued their collaboration until theoretical saturation was achieved.

Main Research Question

What are the primary factors influencing earnings management (with a focus on opportunistic manipulations of discretionary accruals by managers) in Iran?

Sub-questions

- Does weakness in the accounting system (standards) serve as a significant factor influencing earnings management?
- Do issues related to owners and shareholders play a role in earnings management?
- Do managerial characteristics and motivations (personality, knowledge) influence earnings management?
- Does the economic environment (external factors) impact earnings management?
- Do organizational structural characteristics (internal factors) affect earnings management?

Following the qualitative phase, the researcher proceeded to the quantitative phase. A quantitative model for identifying factors influencing earnings management (focusing on opportunistic manipulations of discretionary accruals) was developed using structural equation modeling (SEM). In other words, to transition into the quantitative phase, all exploratory factors from the qualitative phase were incorporated into a Likert-scale questionnaire and distributed to 400 individuals from the study's second target group. A total of 333 responses were received.

According to Morgan's sample size table, the minimum required number of responses was 196; however, 333 completed questionnaires were collected for the quantitative phase, making the sample size statistically reliable and acceptable based on Morgan's table.

3. Findings

Based on the data presented in the above table, a total of 333 valid responses were collected regarding the earnings management variable. The mean scores for the components related to opportunistic manipulation of discretionary accruals in earnings management are as follows: managerial characteristics and motivations (44.51), owner-related issues (22.80), internal organizational factors (77.37), external organizational factors (39.29), and accounting standards (34.34). Furthermore, by calculating the median threshold for each component, it was determined that the mean scores for all components exceeded 3, with a range between 3.80 and 3.95. This result

suggests that all components have an almost equal influence on earnings management through opportunistic manipulation of discretionary accruals.

Table 1. Descriptive Statistics of Factors Influencing Earnings Management

Research Variables	N	Mean	Min	Max	Variance	Range	Standard Deviation
Managerial Characteristics and Motivations (Personality, Knowledge)	333	44.51	31	65	22.54	34	4.74
Owner and Shareholder-Related Issues	333	22.80	12	30	9.41	18	3.06
Organizational Structure (Internal Factors)	333	77.37	53	100	56.02	47	7.48
Economic Environment (External Factors)	333	39.29	20	50	25.11	30	5.01
Weakness in the Accounting System (Standards)	333	34.34	19	45	22.10	26	4.70

Table 2. Descriptive Statistics (Computed Using the Median Threshold)

Research Variables (Computed Using the Median Threshold)	N	Mean	Min	Max	Variance	Range	Standard Deviation
Managerial Characteristics and Motivations (Personality, Knowledge)	333	3.95	2.38	5.00	0.133	2.62	0.365
Owner and Shareholder-Related Issues	333	3.80	2.00	5.00	0.262	3.00	0.511
Organizational Structure (Internal Factors)	333	3.86	2.65	5.00	0.140	2.35	0.374
Economic Environment (External Factors)	333	3.92	2.00	5.00	0.251	3.00	0.501
Weakness in the Accounting System (Standards)	333	3.81	2.11	5.00	0.273	2.86	0.522

According to Fornell and Larcker (1981), reliability in PLS (Partial Least Squares) modeling is assessed using factor loadings, Cronbach's alpha, and composite reliability (CR).

One of the primary reliability indicators in measurement models is internal consistency reliability, traditionally evaluated using Cronbach's alpha. This index is a classical measure for reliability analysis and is widely used in structural equation modeling (SEM) to estimate reliability based on internal correlations. If Cronbach's alpha exceeds 0.70, the construct is considered homogeneous and reliable.

Table 3. Reliability Test

Factors Influencing Earnings Management	Cronbach's Alpha
Overall Model	0.916
Weakness in the Accounting System (Standards)	0.797
Owner and Shareholder-Related Issues	0.798
Managerial Characteristics and Motivations (Personality, Knowledge)	0.784
Economic Environment (External Factors)	0.840
Organizational Structure (Internal Factors)	0.768

The variables included in the study exhibit sufficient internal reliability. As shown in the table above, Cronbach's alpha for all variables in the research model exceeds 0.70, confirming that the constructs meet the necessary reliability criteria.

Table 4. Results of the Research Questions Analysis

Variable	Question	Mean	SD	t	df	Sig.
Weakness in the Accounting System (Standards)	Is weakness in the accounting system (standards) a significant factor in earnings management?	3.68	1.251	9.45	29	0.000
Owner and Shareholder-Related Issues	Are owner and shareholder-related issues significant factors in earnings management?	3.84	1.225	11.90	29	0.000
Managerial Characteristics and Motivations (Personality, Knowledge)	Are managerial characteristics and motivations (personality, knowledge) significant factors in earnings management?	3.66	1.338	8.62	29	0.000

Economic Environment (External Factors)	Is the economic environment (external factors) a significant factor in earnings management?	3.80	1.257	11.05	29	0.000
Organizational Structure (Internal Factors)	Are organizational structure characteristics (internal factors) significant factors in earnings management?	3.70	1.185	10.27	29	0.000

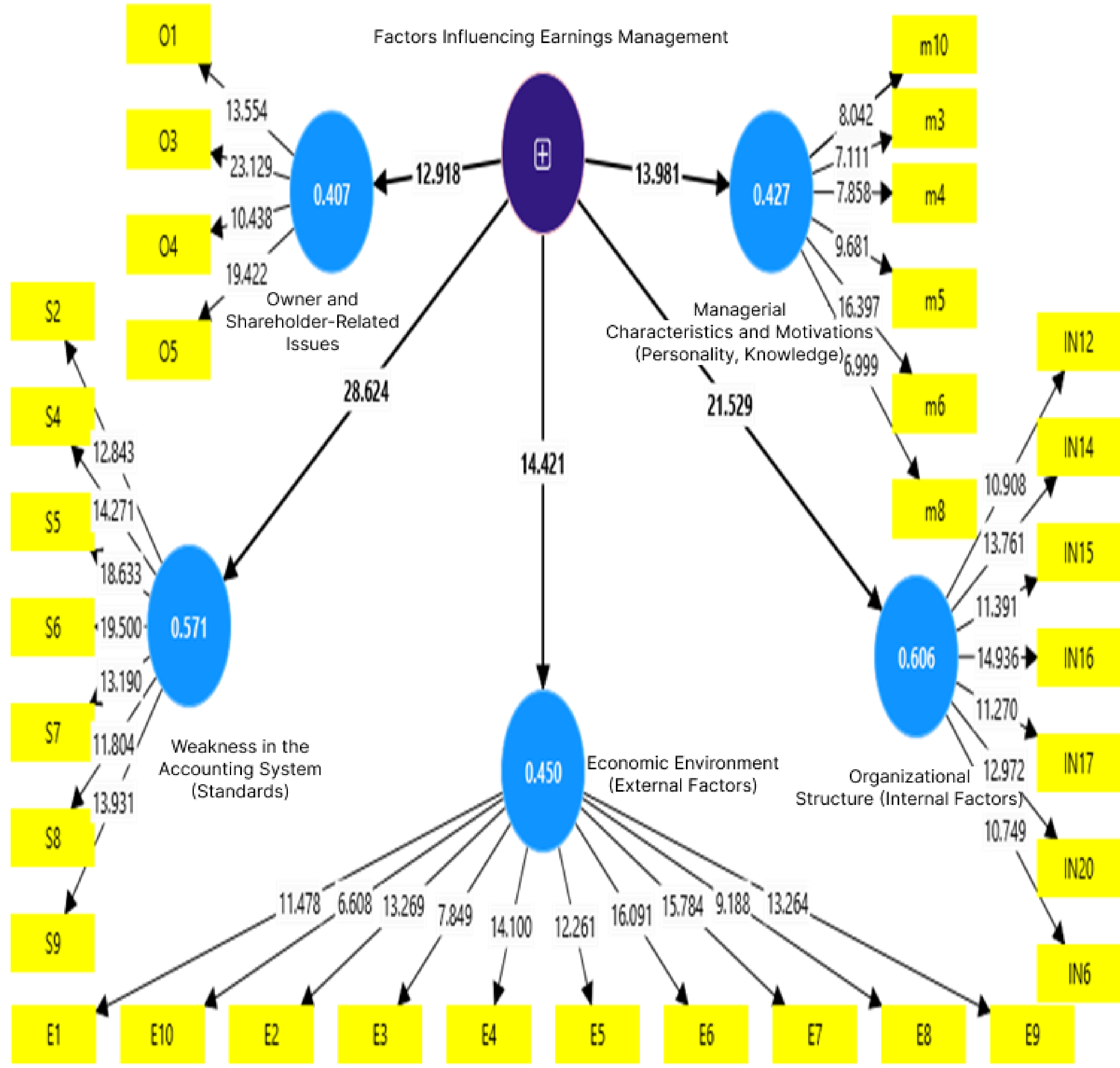

Figure 1. Model with t-values

1. Weakness in the Accounting System (Standards): The t-statistic (9.45) is significant at the 0.01 level. A comparison of the mean (3.68) with the expected threshold (3.00) confirms that experts validate the model's reliability, with 99% confidence.
2. Owner and Shareholder-Related Issues: The t-statistic (11.90) is significant at the 0.01 level. A comparison of the mean (3.84) with the expected threshold (3.00) confirms that experts recognize the model's clarity and validity, with 99% confidence.

3. Managerial Characteristics and Motivations (Personality, Knowledge): The t-statistic (8.62) is significant at the 0.01 level. A comparison of the mean (3.66) with the expected threshold (3.00) confirms that experts consider the model generalizable, with 99% confidence.
4. Economic Environment (External Factors): The t-statistic (11.05) is significant at the 0.01 level. A comparison of the mean (3.80) with the expected threshold (3.00) confirms that experts find the model controllable, with 99% confidence.
5. Organizational Structure (Internal Factors): The t-statistic (10.27) is significant at the 0.01 level. A comparison of the mean (3.70) with the expected threshold (3.00) confirms that experts find the model controllable, with 99% confidence.

4. Discussion and Conclusion

The present study focuses on developing a quantitative model of factors influencing earnings management, with a particular emphasis on opportunistic manipulations of discretionary accruals by managers. Earnings management through opportunistic discretionary accrual manipulation leads to a decline in the quality of financial statements in business entities. The consequences of such opportunistic behavior can negatively impact shareholder and investor trust, ultimately affecting society as a whole.

Risky behaviors by managers of business entities may not have significant negative effects in the short term and may even create a misleadingly positive impact. However, it is important to recognize that the adverse effects of such behaviors manifest in the medium term, leading to severe consequences such as a significant decline in business performance, a drop in stock prices, and, ultimately, bankruptcy-related challenges. Therefore, identifying the factors that contribute to such imprudent managerial behaviors is of great importance and necessity.

Many researchers, such as Narulita et al. (2024), believe that opportunistic discretionary accrual manipulation is often associated with the use of complex methods, making its detection extremely challenging even for auditors. In practice, the integrity of managerial actions may be assessed through the timely disclosure of information to all stakeholders involved in the business entity. However, due to information asymmetry between managers and other business stakeholders, managers selectively disclose only certain favorable information based on their preferences and time these disclosures strategically to signal specific messages. Ultimately, this practice leads to misinformation and deception.

Thus, the central question of this research arises: Why do managers engage in opportunistic discretionary accrual manipulations as a form of earnings management? Based on five key factors identified through field interviews, it was determined that weaknesses in the accounting system, owner and shareholder-related issues, managerial motivations (such as knowledge and personality traits), internal organizational conditions, and external organizational conditions are the primary drivers of such manipulative practices.

It must be emphasized that any form of opportunistic discretionary accrual manipulation—regardless of its underlying factor—diminishes the quality of financial statements, which are the most crucial decision-making tool for all stakeholders, including external parties. This distortion misleads both direct and indirect stakeholders, ultimately eroding public trust. When trust in business entities is compromised, companies face a form of societal sanction, which can be highly detrimental. This is particularly concerning because society plays a pivotal role in the distribution of financial resources among business entities and individuals.

Financing through public trust and community support is often one of the most cost-effective and accessible means of financial sourcing for businesses. However, due to the five factors identified in this study, some business owners, shareholders, and employees fall victim to opportunistic manipulations carried out by managers.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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