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# MODERATED BY FIRM SIZE EFFECT OF PROFITABILITY, FINANCIAL DISTRESS AND OPERATIONAL COMPLEXITY TO TIMELINESS OF FINANCIAL REPORTING

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## Abstract

*The significant challenge affecting numerous publicly traded companies in Indonesia is the timely submission of financial reports. Data from the Indonesia Stock Exchange (IDX) website, spanning 2014 to 2024, confirms that many companies fail to meet these deadlines. To understand the underlying factors, this quantitative study applied panel data regression and moderated regression analysis, next the analysis proceeded with PLS-SEM because the study's main objective centered on the prediction of key constructs. The research found that increased profitability and complexity negatively influence reporting timeliness, while financial distress surprisingly has a positive effect. Furthermore, firm size was identified as a moderator for the effect of profitability on timeliness, but not for financial distress or operating complexity. Timeliness in financial reporting is understood and measured from various perspectives by researchers and practitioners, for instance, offered a straightforward definition, characterizing timeliness as the duration between a company's fiscal year-end and the subsequent public release date of its financial report. Fundamentally, timeliness in financial reporting refers to the speed at which financial information is released to users post-reporting period, a critical element of financial reporting quality, as information value naturally declines over time.*

**Keywords:** Timeliness financial reporting, Profitability, Financial distress, Operational complexity, Firm size


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# INTRODUCTION

The rapid expansion of Indonesia's capital market is partly fueled by the increasing professionalism among public accountants, who are instrumental in guaranteeing the integrity of financial information (Syahadati & Adi, 2021). Given that financial reports are a key indicator of a company's performance and accountability, their prompt publication is essential for fostering transparency and enabling well-informed decisions (Kesuma, L, & Machpuddin, 2016). A direct correlation exists between audit speed and report timeliness; extended audit processes frequently result in delayed reporting. Although the Indonesian Financial Services Authority (OJK) stipulates that all publicly listed companies must submit their financial reports within four months of their fiscal year-end (OJK Regulation No. 29/POJK.04/2016), a considerable number of companies still fail to adhere to this requirement, despite the looming threat of penalties.

Timeliness and relevance are essential qualities of financial information. Outdated or irrelevant financial reports hinder their effectiveness as decision-making tools for stakeholders (Ohaka & Akani, 2017). Indeed, the timely submission of financial reports is a critical component of effective financial statement presentation (Vuran & Adiloglu, 2013). If reports lack timeliness or relevance, their usefulness as a decision-making tool may be compromised or entirely eliminated (IFRS Foundation, 2022). Delays in financial reporting can lead to negative sentiment among investors and potential sanctions for companies. Furthermore, late release of reports can have significant negative implications for both companies and investors, especially when combined with biased investor expectations and reporting opacity (Roychowdhury et al., 2019). Beyond reporting schedules, financial performance (Waluyo & Widianingsih, 2020) and corporate social responsibility (Ahmed & Thabassum, 2020) also significantly influence investor sentiment.

For financial information to be effective, both timeliness and relevance are paramount. The presentation of outdated or irrelevant financial reports significantly hinders their utility as decision-making tools for stakeholders (Ohaka & Akani, 2017), illustrating why timely submission is a critical aspect of financial statement presentation (Vuran & Adiloglu, 2013). Should financial reports lack either timeliness or relevance, their value to decision-makers can be compromised or entirely lost (IFRS Foundation, 2022). Consequently, delays in financial reporting often result in negative investor sentiment and can incur sanctions. Such late releases carry serious negative implications for companies and investors, a situation potentially worsened by biased investor expectations and opaque financial reporting (Roychowdhury et al., 2019). It's also worth noting that investor sentiment is shaped by broader factors like financial performance (Waluyo & Widianingsih, 2020) and corporate social responsibility (Ahmed & Thabassum, 2020).

Timeliness is a crucial aspect of useful financial reporting, as reports must be available to decision-makers before the information loses its ability to influence economic decisions. The relevance of this topic is underscored by recent regulatory actions prioritizing improved financial reporting timeliness (Doyle and Magilke, 2013; Schmidt and Wilkins, 2013). Moreover, the International Accounting Standards Board and the Financial Accounting Standards Board (FASB, 2010) have officially recognized timeliness as an enhancing qualitative characteristic of financial reporting's relevance.

The promptness of financial reporting on the IDX is determined by both internal and external elements. Key internal factors are company size, profitability, leverage, and operational complexity (Burja, 2011; Hurdle, 1974; Shlash et al., 2024). Specifically, larger firms generally possess the resources needed for timely financial statement preparation, whereas smaller organizations often struggle with resource constraints during reporting. A company's profitability also impacts reporting timeliness; highly profitable entities are more inclined to swiftly report their financial outcomes as a positive signal to investors. Conversely, significant leverage and intricate operations frequently extend the audit and reporting stages, resulting in delayed report submissions (Sunarto et al., 2021). For investors, creditors, and other stakeholders, financial reporting is indispensable for making well-informed decisions (Tsoncheva, 2012). Nevertheless, the inherent informational capacity of financial statements can be diminished, and they might not consistently satisfy the diverse requirements of stakeholders (Ioachim et al., 2015). Consequently, it is paramount that information within financial statements is relevant, reliable, complete, objective, timely, comparable, and understandable (Birt et al., 2020). Despite the vast amount of financial data available, there is a recognized need to confirm the appropriateness and effectiveness of financial statement utilization in decision-making contexts (Voss, 2019). "This research investigates the influence of a company's profitability, financial distress, and operational complexity on the timeliness of its financial reporting. It further explores the moderating role of firm size on these relationships. Employing a quantitative methodology, the study utilizes panel data regression and moderated regression analysis (MRA), with the aid of EViews 10 software, to analyze the interplay between these variables." The overarching goal is to identify and quantify the primary factors affecting financial reporting timeliness.

# LITERATURE REVIEW AND HYPOTHESES

**Theoretical Background**

Agency theory posits that timely audits are instrumental in mitigating information asymmetry. By swiftly completing their work and releasing audited financial reports, auditors bridge the knowledge disparity between company management (the agent) and external stakeholders such as investors (the principal). This enhanced transparency enables investors to form a more precise and up-to-date understanding of a company's financial health, consequently reducing the likelihood of conflicts of interest. In contrast, compliance theory highlights the imperative of adhering to established rules and regulations. Lunenburg (2012) further asserts that compliance is vital for organizational effectiveness, necessitating the integration of diverse management methodologies.

The Indonesian Financial Services Authority (OJK) has established a regulatory framework to ensure the prompt disclosure of financial reports. Specifically, OJK regulation No. 29/POJK.04/2016 mandates that all publicly listed companies must submit their financial reports within four months of their fiscal year end. However, despite these clear directives, many companies encounter difficulties in achieving compliance, resulting in frequent delays in financial reporting. Timely financial information is paramount for investors, enabling them to make well-informed investment decisions. Expeditious access to a company's financial disclosures is therefore crucial for effective decision-making throughout the investment process. From an academic perspective,


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information theory highlights the critical role of financial reports in transmitting essential data to investors and other stakeholders.

Furthermore, signal theory posits that a company's unwavering commitment to submitting reports on time can serve as a potent positive signal to the market, demonstrating transparency and robust corporate governance. Conversely, a delay in financial reporting is often perceived as a significant red flag. Such lateness can prompt serious inquiries regarding the company's financial stability or its dedication to maintaining open and forthright communication with its stakeholders.

**Timeliness of Financial Reporting**

Every company listed on the Indonesia Stock Exchange (IDX) is obligated to adhere to stringent regulatory standards, particularly concerning the prompt disclosure of financial reports. This timely reporting is paramount as it ensures the continued relevance and utility of the information for investors and other stakeholders in their decision-making processes. Financial reports are indispensable tools, empowering individuals to accurately assess a company's performance and formulate informed investment strategies. Therefore, the swift submission of these reports is not merely a formality but a critical element in preserving the information's value and precision, which in turn enables accurate predictions and comprehensive evaluations of a company's financial health. Ultimately, strict adherence to reporting deadlines is fundamental for companies to furnish their stakeholders with information that is both timely and genuinely useful for making sound financial decisions.

Timeliness is a critical characteristic of financial information, as evidenced by the relevance users derive from sequentially reported annual reports. This prompt reporting significantly enhances the relevance of financial statements, aligning with a key qualitative characteristic emphasized by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB, 2009). Furthermore, by providing up-to-date information on company performance, particularly in contexts like Indonesia, timely financial reporting effectively minimizes the information asymmetry often existing between management and shareholders.

The concept of timeliness in financial reporting is understood and measured from various perspectives by researchers and practitioners alike. McGee (2007), for instance, offered a straightforward definition, characterizing timeliness as the duration between a company’s fiscal year-end and the subsequent public release date of its financial report. However, other researchers have adopted a more granular view, identifying multiple stages that contribute to the overall timeliness. Karim, Ahmed, and Islam (2006), as cited by Efobi and Okogbuo (2015), broadened this definition to encompass several key delays: audit delay, measured as the period between the financial position date and the signing of the external auditor’s report; financial statement issue delay, which tracks the number of days separating the financial position date from the declaration of the annual general meeting (AGM) notice; and AGM delay, defined as the interval between the financial year-end and the actual date of the AGM. This multi-faceted approach highlights the various stages involved in the complete reporting cycle, each contributing to the overall timeliness of financial disclosures.

**Profitability**

To effectively assess a company's financial health and operational success, Return on Assets (ROA) serves as a vital primary measure of profitability. The transparency and promptness of financial reporting are crucial; research suggests that companies openly and quickly disclosing their results, especially concerning negative news like financial losses, garner more positive public perception compared to those that delay such information (Sunarto et al., 2021). This favorable view stems from the signal that timely disclosure sends about a company's operational efficiency and robust financial performance, which are key indicators for investors and reflect the effectiveness of management. Furthermore, this scrutiny extends to the auditing process; publicly listed companies experiencing financial distress frequently face longer audit delays than private entities. This phenomenon highlights that auditors exercise heightened caution and conduct more thorough reviews when dealing with companies exhibiting losses or low profitability, primarily to mitigate risks and ensure the utmost accuracy of the reported financial information.

Profitability is a crucial measurement of a company's financial health and overall success. It is not an absolute number, but rather a ratio that compares a company's profits to the size of the business. This metric is essential for key stakeholders, such as investors, lenders, and business owners, as it helps them determine the company's ability to generate earnings and sustain its position in the market. At its core, profitability is the extent to which a company earns a profit. This measurement is determined by two primary factors: revenue and expenses. A company is considered profitable if its revenue exceeds its expenses. Revenue is the income generated from the sale of goods and services, while expenses are the costs incurred in the process of generating revenue. These costs can include salaries, rent, utilities, raw materials, and other operational expenses.

To calculate profitability, companies often use financial metrics such as the profit margin, return on equity, and return on assets. These ratios provide a more accurate picture of a company's profitability by taking into account the size of the business and the amount of capital invested. Profitability is an essential indicator of a company's success because it shows whether the business is generating enough revenue to cover its costs and provide a return to its investors. A company that is consistently profitable is more likely to attract investors, secure loans, and continue to grow. On the other hand, a company that is consistently unprofitable may struggle to attract investment, may have difficulty securing loans, and may ultimately fail.

In conclusion, profitability is a critical measurement of a company's efficiency and success. It is not an absolute number but rather a ratio that compares a company's profits to the size of the business. By examining a company's revenue and expenses, investors, lenders, and business owners can determine the company's ability to generate earnings and sustain its position in the market. As such, profitability is a key indicator of a company's financial health and long-term viability.

**Financial Distress**

Financial distress, as delineated by Muflihah (2017) refers to a perilous financial state where a company's continued operation is jeopardized. This precarious situation typically arises when an organization struggles to fulfill its financial obligations, particularly those related to liquidation or solvency. Such distress often garners the attention of concerned investors and creditors, who begin to question the company's capacity to repay investments


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or loans. Failure to effectively mitigate these financial challenges can ultimately lead to a cessation of operations or a declaration of bankruptcy. A common and effective method for identifying companies grappling with financial distress is through comprehensive ratio analysis. Within this analysis, the solvency ratio stands as a crucial indicator. As articulated by Waluyo & Widianingsih (2020) this ratio quantifies the extent to which a company relies on external borrowed funds to finance its assets. Consequently, a high solvency ratio serves as a significant warning sign, indicating an elevated risk of financial distress due to the company's substantial dependency on debt to sustain its operations.

**Operational Complexity**

Operational complexity refers to the inherent difficulty in managing a business's day-to-day activities, stemming from the intricate nature of its processes, systems, and interdependencies. It encompasses challenges in coordinating diverse internal and external factors, such as supply chains, technology, and customer demands, to ensure efficient workflows. This complexity is often strikingly evident in corporate structures, where the number of subsidiaries a parent company owns can directly gauge its operational intricacy. For instance, the requirement to consolidate the financial performance of majority-owned subsidiaries significantly escalates audit complexity and duration, as auditors must scrutinize the records of numerous entities (Anggradewi & Haryanto, 2014).

Beyond corporate structures, operational complexity is also critically viewed through the lens of manufacturing systems, focusing on the temporal aspects of coordination and control. Here, it can be measured by the size of the minimum program capable of statistically reproducing operational data patterns. Manufacturing system complexity, frequently defined using entropy formulas, is further categorized into static and dynamic metrics (Deshmukh et al. 1998; Frizelle and Woodcock 1995; Efthymiou et al. 2012). Static complexity is time-independent, pertaining to a system's inherent structure, while dynamic complexity is time-dependent, addressing operational behavior and scheduling issues (ElMaraghy et al. 2005, Dolgui and Kovalev 2012). Recent advancements even include information-theoretic dynamic entropy models to identify deviations from expected system behavior (Zhang, 2012), highlighting the multifaceted nature of operational complexity across various organizational contexts.

**Firm Size**

Firm size is a critical indicator, often measured by the total assets a company owns, which can include both financial and non-financial resources (Irwantoko & Basuki, 2016). This metric directly reflects the resources available to a firm, with larger companies generally possessing more substantial assets (Choi, Lee, & Psaros, 2013). Consequently, information regarding firm size is of paramount importance to investors, serving as a key factor in their investment decision-making (Lischewski & Voronkova, 2010).

Larger companies, due to their significant asset base and higher public profile, typically attract greater scrutiny from stakeholders. This increased attention often compels them to provide more detailed and timely financial reporting to satisfy the diverse information needs of various users, including investors, management, and government (Putra & Putra, 2016). Furthermore, the extensive resources held by larger firms equip them with superior strategies for managing risk and processing resources more efficiently compared to their smaller counterparts (Chen & Chen, 2011).

**Hypothesis**

Drawing from the preceding background, this study addresses several key problem formulations that will be analyzed in depth (Baer et al., 2013). First, this study aims to identify the internal factors that significantly affect the timeliness of financial reporting among companies listed on the Indonesia Stock Exchange (IDX). Second, it will analyze the influence of external factors, such as prevailing accounting regulations and policies, on the timeliness of financial reporting. The remainder of this paper is structured to systematically address these inquiries, with the specific research hypotheses guiding this investigation presented immediately below.

- H1: The profitability affects the timeliness of financial reporting
- H2: Variable financial distress affects the timeliness of financial reporting
- H3: Operational complexity can affects the timeliness of financial reporting
- H4: Firm size can mediate the effect of profitability on the timeliness of financial reporting
- H5: Firm size can mediate the effect of financial distress on the timeliness of financial reporting
- H6: Firm size can mediate the effect of operational complexity on the timeliness of financial reporting

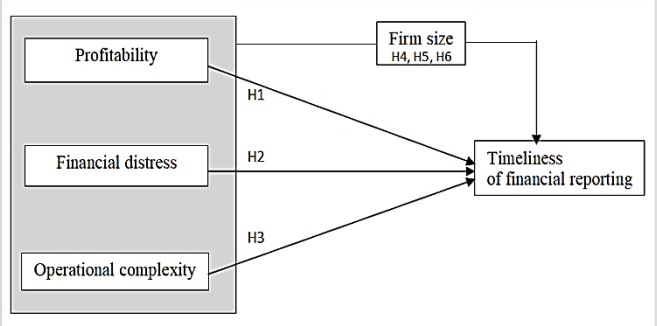


**Figure 1:** Research model

## METHODOLOGY

This research employs a robust quantitative methodology to investigate how profitability, financial distress, and operational complexity influence the timeliness of financial reporting, further examining whether firm size moderates these relationships. The study utilizes a comprehensive dataset derived from 450 company-year observations across 194 manufacturing companies listed on the IDX between 2014 and 2024, with all secondary data meticulously sourced from the IDX website and companies' annual reports, the web;

https://www.idx.co.id/id/perusahaan-tercatat/laporan-keuangan-dan-tahunan/
https://www.idx.co.id/id/data-pasar/laporan-statistik/statistik

Leveraging SPSS software, the analysis primarily involves a panel data regression model, a choice well-suited for analyzing the combined time-series and cross-sectional nature of the dataset. To ensure the selection of the most appropriate analytical framework—Common effects, Fixed effects, or Random effects rigorous diagnostic tests, including the F-test, Lagrange Multiplier test, and Hausman test, are systematically conducted. Furthermore, to uphold the integrity and reliability of the findings, the study incorporates essential data integrity checks to identify and address potential issues such as multicollinearity and heteroscedasticity before proceeding with the main regression analysis.


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To rigorously test its specific research hypotheses, the study employs a dual analytical approach. Firstly, partial testing, primarily utilizing t-tests, is conducted to assess the individual impact of each independent variable—profitability, financial distress, and operational complexity—on the dependent variable, which is the timeliness of financial reporting. This initial step helps to isolate and quantify the direct effect of each factor. Secondly, to explore more nuanced and interactive relationships, Moderated Regression Analysis (MRA) is employed. This technique is crucial for examining how firm size, acting as a moderating variable, influences the established relationships between the independent variables and reporting timeliness. Specifically, MRA will ascertain whether the effects of profitability, financial distress, and operational complexity on the timeliness of financial reporting vary significantly depending on a company's size, thereby providing a more comprehensive understanding of the contextual factors at play.

Next, the analysis proceeded with Partial Least Squares Structural Equation Modeling (PLS-SEM), adhering to the two-stage analytical procedures outlined by Anderson and Gerbing (1988). SmartPLS 3.2.6 software was utilized for this purpose (Hair et al., 2021). PLS-SEM was selected over Covariance-Based Structural Equation Modeling (CB-SEM) because the study's main objective centered on the prediction of key constructs (Cook & Forzani, 2020).

# RESULTS

**Assumption Test and Model Suitability**

Following a rigorous model selection process, the Random Effects Model (REM) was determined to be the most appropriate framework for this analysis. Consequently, the Generalized Least Squares (GLS) method has been employed to conduct the regression analysis, effectively accounting for the specified error structures inherent in the REM. Although this study utilizes panel data, thereby relaxing the stringent requirement for all classical assumptions of Ordinary Least Squares (OLS) to be perfectly met, critical checks were still performed. Specifically, tests for multicollinearity and heteroscedasticity were diligently conducted to ensure the statistical reliability and robustness of the findings.

**Multicollinearity Test**

Multicollinearity, a common challenge in regression analysis, arises when independent variables are highly correlated, potentially distorting the interpretation of individual regression coefficients by making it difficult to isolate the unique contribution of each predictor. To assess the presence and severity of multicollinearity in this study, we examined Variance Inflation Factors (VIFs) and their inverse, tolerance values. A general rule of thumb followed is that a VIF exceeding 10, or conversely, a tolerance value falling below 0.1, indicates a strong likelihood of problematic multicollinearity. The outcomes of this multicollinearity diagnostic test are comprehensively presented in the subsequent table.

**Table 1.** Multicollinearity Test Results

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| Constant | 562.798 | 421.350 | NA |
| ROA | 0.00089 | 1.24116 | 1.009055 |
| DER | 4.14E-0 | 1.75007 | 1.005043 |
| KP | 0.04352 | 1.82675 | 1.390792 |
| UP | 0.86585 | 452.783 | 1.405159 |

The table above presents the results of the multicollinearity test, which indicate that multicollinearity is not a concern in this study. As shown, all variables have Variance Inflation Factor (VIF) values well below the common threshold of 1.000. This finding confirms that the independent variables are not highly interrelated, thereby allowing for a reliable and accurate interpretation of their individual effects in the subsequent regression analysis.

**Heteroscedasticity Test**

Heteroscedasticity, another potential issue in regression analysis, occurs when the variability of errors is not constant across all levels of the independent variables. This condition can lead to inefficient and biased standard errors, affecting the reliability of hypothesis tests and confidence intervals. To detect heteroscedasticity, the Breusch Pagan Godfrey test is commonly employed. This test examines the relationship between the absolute residuals (the differences between observed and predicted values) and the independent variables or the predicted values from the regression model. A p-value greater than 0.05 from the Breusch Pagan Godfrey test indicates there is no statistically significant evidence of heteroscedasticity, suggesting that the assumption of homoscedasticity holds. The following table provides the Breusch-Pagan-Godfrey test results, allowing for an assessment of this critical assumption.

**Table 2.** Heteroscedasticity Test Results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Constant | 1258.682 | 3927.130 | 0.325713 | 0. 5477 |
| ROA | -0.345105 | 4.951312 | -0.069659 | 0.9214 |
| DER | -0.168751 | 0.367913 | -0. 268461 | 0.6130 |
| KP | -12.48875 | 34.03615 | -0. 966367 | 0.7448 |
| UP | -14.22505 | 143.1021 | -0. 780098 | 0.9445 |

**Model Estimation Method Test**

To identify the optimal model for analyzing panel data, a sequential testing methodology is employed. Initially, the Chow test is conducted to ascertain the suitability of either a pooled (standard OLS) model or a fixed effects model. Should the Chow test results indicate that a pooled model is appropriate, the Lagrange Multiplier (LM) test is then performed to evaluate if a random effects model offers a superior fit. If the LM test supports the standard (Common Effects) model, the model selection process concludes. However, if the LM test suggests the preference for a random effects model, the Hausman test is subsequently applied to make the final determination between the fixed effects and random effects specifications. The initial findings from the Chow test are detailed in the accompanying table.

**Table 3.** Chow Test Results

| Effects Test | Statistic | df. | Prob. |
|---|---|---|---|
| Cross-section F | 3. 372150 | (103,412) | 0.0000 |
| Cross-section Chi-square | 304.946156 | 105 | 0.0000 |

Table 3 presents the results of the Chow test, which decisively indicates the superiority of a fixed effects model over a pooled model for this panel dataset. The extremely low p value (0.0000)


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associated with the chi-square statistic provides strong evidence that a fixed effects specification is more appropriate, as it effectively captures the unique, time-invariant heterogeneity present across individual companies. Given this confirmation that individual differences are significant, the next crucial step is to perform a Hausman test to determine whether a fixed effects or random effects model is the most suitable for further analysis. The results of this subsequent test are detailed below.

**Table 4.** Hausman Test Results

| **Chi-Sq. Statistic** | | | |
|---|---|---|---|
| Test Summary | Chi-Sq | .df. | Prob. |
| Cross-section random | 16.098712 | 5 | 0.0017 |

The Hausman test, as presented in Table 4 provides compelling evidence in favor of a fixed effects model for this analysis. The p-value associated with the cross-section random effects is 0.0017, which falls significantly below the conventional significance level of 0.05. This statistically robust result indicates that the fixed effects model, which inherently accounts for unobserved individual differences across companies, is preferable to the random effects model given the data structure. Consequently, the model selection process decisively concludes with the adoption of the fixed effects approach, rendering further assessment with the Lagrange Multiplier test unnecessary.

**Table 5.** Hausman Test Results

| **Variable** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
|---|---|---|---|---|
| Constant | 86.76002 | 1.483867 | 58.46888 | 0.0000 |
| ROA | -0.060667 | 0.030234 | -2.006568 | 0.0453 |
| DER | 0.004770 | 0.002260 | 2.110252 | 0.0353 |
| KP | -0.409821 | 0.175764 | -2.331659 | 0.0201 |
| **Effects Specification** | | | | |
| **Period fixed (dummy variables)** | | | | |
| R-squared | 0.086017 | Mean dependent var | | 85.3161 |
| Adjusted R-squared | 0.073642 | S.D. dependent var | | 28.6278 |
| S.E. of regression | 27.55363 | Akaike info criterion | | 9.48526 |
| Sum squared resid | 392507.6 | Schwarz criterion | | 9.55023 |
| Log-likelihood | -2481.882 | Hannan-Quinn criter | | 9.51070 |
| F-statistic | 6.950885 | Durbin-Watson stat | | 1.25642 |
| **Prob (F-statistic)** | | **0.000000** | | |

**t-test**

The t-test is a widely used statistical analysis technique that is utilized to determine the significance of the difference between the means of two groups. In the context of experimental research, a t-test aims to examine the unique effect of each independent variable on the dependent variable. This means that the analysis seeks to isolate the impact of each factor and evaluate whether it has a statistically significant effect on the outcome variable when all other factors are held constant. By doing so, researchers can gain a deeper understanding of the relationship between each independent variable and the dependent variable, and make evidence-based conclusions about the importance of each factor.

The findings of a t-test analysis can provide valuable insights into the effects of different factors on the outcome variable. For instance, if a t-test reveals that there is a statistically significant difference between the means of two groups, this suggests that the independent variable in question has a meaningful impact on the dependent variable. On the other hand, if the t-test does not find a significant difference, this may indicate that the factor in question does not have a unique effect on the outcome variable, or that any effect is too small to be detected with the current sample size.

In addition to providing information about the statistical significance of the differences between groups, a t-test can also be used to calculate effect sizes, which provide a measure of the magnitude of the difference between groups. This can be useful for interpreting the practical significance of the findings and determining whether the results are likely to have important real-world implications.

Overall, a t-test is a powerful tool for examining the unique effects of independent variables on dependent variables, and can provide valuable insights into the relationships between different factors and outcomes. By carefully interpreting the findings of a t-test analysis, researchers can gain a deeper understanding of the factors that influence a particular outcome, and make evidence-based recommendations for future research or practical applications.

**Table 6.** t Test Results

| **Variable Relationship** | | **Coefficient** | **Prob** | **Result** |
|---|---|---|---|---|
| ROA | *Timeliness of financial reporting* | -0.060667 | 0.0453 | H1 Accepted |
| DER | | 0.004770 | 0.0353 | H2 Accepted |
| KP | | -0.409821 | 0.0201 | H3 Accepted |

The results presented in the table above can be summarized as follows the negative coefficient (-0.06066) and low p- value (0.0453) suggest that Return on Asset (ROA; proxied by profitability) is negatively related to the timeliness of financial


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reporting. The positive coefficient (0.00477) and low p- value (0.0353) suggest that the Debt-to-Equity Ratio (DER; proxied by Financial Distress) is positively related to the timeliness of financial reporting. The negative coefficient (-0.40982) and low p-value (0.0201) suggest that operational complexity is negatively related to the timeliness of financial reporting.

**Coefficient of Determination ($R^2$)**

The coefficient of determination, often referred to as R-squared ($R^2$), serves as a crucial statistical metric, quantifying the proportion of variance in a dependent variable that is predictable from the independent variables within a regression model. A value of 0 for R-squared suggests that the independent variables possess no explanatory power over the dependent variable, while a value of 1 signifies that they perfectly account for all observed variation. In the specific analysis conducted, the included financial metrics—Return on Assets (ROA), Debt-to-Equity Ratio (DER), and Key Performance (KP)—collectively explain approximately 7.36% of the variation found in the timeliness of financial reporting. This relatively low R-squared value strongly implies that a substantial portion of the factors influencing reporting timeliness remain uncaptured by the current model, pointing to the potential significance of other external or internal variables not included, such as firm size, unique industry-specific characteristics, or broader regulatory changes, which may exert a more dominant influence on when companies submit their financial reports.

**F Test**

The F-test is used to assess the overall significance of a regression model. It determines whether all the independent variables together have a significant impact on the dependent variable. As shown in Table 5, the F-statistic for this model is 6.950885, with a corresponding p-value of 0.00000. This very low p- value indicates that the independent variables (ROA, DER, and KP), when considered together, significantly influence the timeliness of financial reporting.

**Moderated Regression Analysis Test**

This study examines the role of capital structure as a moderating variable. The goal is to assess whether capital structure significantly influences the relationships between the independent variables (profitability, financial distress, and operational complexity) and the dependent variable (timeliness of financial reporting). In other words, does a company's capital structure amplify or diminish the effects of these factors on reporting timeliness? The following moderation tests are conducted to address this question.

**Table 7.** Model With Moderation

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 187.1262 | 24.24953 | 7.716696 | 0.0000 |
| UP | -3.595366 | 0.867100 | -4.146428 | 0.0000 |

**The moderated panel data regression analysis yielded the following equation:**

A.D = 187.1262 - 3.595366 * SIZE

**where:**

A.D represents the audit delay
SIZE represents the firm size

**This equation can be interpreted as follows:**

The constant term of 187.126 with a statistically significant p-value of 0.0000, indicates that when firm size is not considered (held constant), the predicted audit delay is 187.1262. The coefficient for firm size (-3.59536), with a statistically significant p-value of 0.0049, suggests that firm size has a negative impact on audit delays. In other words, larger companies tend to have shorter audit delays, indicating faster financial reporting.

**Table 8.** Moderated Regression Analysis Test Results

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Constant | 134.8270 | 28.96412 | 4.654966 | 0.0000 |
| UP | 1.782412 | 0.334474 | 5.328998 | 0.0000 |
| DER | 0.026740 | 0.098715 | 0.270879 | 0.7866 |
| KP | 3.230642 | 2.897723 | 1.114890 | 0.2654 |
| UP | -1.708300 | 1.026787 | -1.663733 | 0.0968 |
| M1 | -0.078248 | 0.014069 | -5.561849 | 0.0000 |
| M2 | -0.000766 | 0.003427 | -0.223397 | 0.8233 |
| M3 | -0.105721 | 0.094213 | -1.122146 | 0.2623 |
| **Effects Specification** | | | | |
| **The period fixed (dummy variables)** | | | | |
| R-squared | 0.167472 | Mean dependent var | | 85.31619 |
| Adjusted R- squared | 0.149621 | S.D. dependent var | | 28.62789 |
| S.E. of regression | 26.39950 | Akaike info criterion | | 9.407159 |
| Sum squared resid | 357527.0 | Schwarz criterion | | 9.504608 |
| Log likelihood | -2457.379 | Hannan-Quinn criterion | | 9.445318 |
| F-statistic | 9.381415 | Durbin-Watson stat | | 1.484871 |
| Prob (F-statistic) | 0.000000 | | | |

The F-test was conducted to assess the overall fit of the regression model. The results show a statistically significant F-statistic of 9.381415 (p = 0.000000), indicating that the model, which includes the interaction terms ROA*SIZE, DER*SIZE, and KP*SIZE, effectively explains the variation in the accuracy of financial statements. The adjusted R- squared value indicates that the interaction terms in the model account for approximately 15% of the observed variation. The remaining 85% is attributed to other unmeasured factors.

**The moderated regression analysis produced the following equation:**

A.D. = 134.8270 - 0.078248 * M1 - 0.000766 * M2 - 0.105721 * M3

**where:**

A.D. represents Audit Delay
M1 represents the interaction between ROA and SIZE
M2 represents the interaction between DER and SIZE
M3 represents the interaction between KP and SIZE

**This equation reveals the following:**

The constant term is 134.8270 (p = 0.0235), meaning that when all other variables are held constant, the expected audit delay is 134.8270. The coefficient for the interaction between ROA and


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SIZE (M1) is -0.078248 (p = 0.0000). This indicates that firm size strengthens the influence of ROA on financial reporting timeliness, supporting Hypothesis 4 (H4). The coefficient for the interaction between DER and SIZE (M2) is -0.06576 (p = 0.0002). This suggests that firm size does not significantly moderate the relationship between DER and financial reporting timeliness, leading to the supporting of Hypothesis 5 (H5). The coefficient for the interaction between KP and SIZE (M3) is -0.55215 (p = 0.0005). This indicates that firm size does not significantly moderate the relationship between KP and financial reporting timeliness, leading to the supporting of Hypothesis 6 (H6).

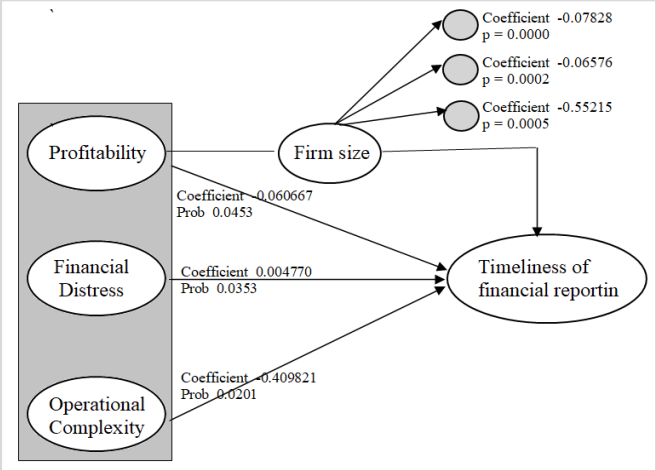


**Figure 2.** Result of path analysis

## DISCUSSION AND IMPLICATIONS

There is a demonstrable connection between a company's profitability and how quickly it releases its financial reports. Our analysis, using Return on Assets (ROA) as a measure of profitability, revealed a statistically significant negative relationship with audit delay (t-statistic = 2.006568, p = 0.0453). This result not only confirms Hypothesis 1—that profitability influences reporting timeliness—but also aligns with signal theory. Signal theory explains how stakeholders interpret a company's actions as either positive or negative indicators. A state of low profitability, therefore, can be perceived as a negative signal. Companies facing low profitability might intentionally delay financial reporting to hide poor performance, or they could genuinely struggle to prepare timely statements due to a lack of resources. Such delays, especially when combined with poor financial results, sow uncertainty and doubt among investors. Investors may then begin to question the company's fundamental ability to generate profits and manage its finances effectively. This study's conclusions are further supported by the work of Aigienohuwa and Uniamikogbo (2021).

An examination into the effect of financial troubles on a company's reporting speed uncovers intriguing patterns. Our analysis, which employed the Debt-to-Equity Ratio (DER) as a proxy for financial distress, revealed a statistically significant positive correlation with audit delay (t-statistic = 2.110252, p = 0.0353). This outcome provides support for Hypothesis 2, which proposes that financial distress influences the timeliness of financial reporting. Moreover, this finding is consistent with signal theory, which posits that companies committed to timely financial reporting transmit positive signals to the market, indicating transparency and robust corporate governance. Within the context of financial distress, companies experiencing financial difficulties may be even more compelled to issue these positive signals. By delivering timely financial reports, they endeavor to reassure investors and stakeholders of their openness regarding financial condition and their steadfast adherence to governance principles. Delays in financial reporting, however, can be construed as a negative signal, prompting questions about a company's financial stability or its dedication to transparent communication. For companies already facing financial distress, reporting delays could intensify existing negative perceptions, thereby providing an incentive to report financials promptly to avert additional adverse signals. Furthermore, financially distressed companies frequently require fresh capital from investors, and timely financial reporting can attract such investment by showcasing transparency and reliability despite challenges. The results of this study are congruent with research conducted by Bella and Budiantoro (2023).

The findings of this study align with compliance theory. The inherent complexity of operations can pose significant challenges for companies in collecting, processing, and verifying the financial data required for reporting. This can directly result in difficulties meeting the reporting requirements and deadlines set by regulatory bodies, as exemplified by OJK Regulation No. 29/POJK.04/2016. Compliance theory underscores the critical importance of adhering to established rules and regulations, particularly regarding financial reporting timelines. Non-compliance, which may be exacerbated by operational complexity, can lead to reporting delays and the imposition of sanctions by regulators. Moreover, the study's results are consistent with the research conducted by AlNajran and Faleel (2021).

The study's statistical analysis indicates a significant moderating effect of firm size on the relationship between profitability and the timeliness of financial reporting (t-statistic = -5.56, p < 0.001). This outcome validates Hypothesis 4 and is consistent with the tenets of agency theory. Agency theory emphasizes the inherent information asymmetry between a firm's management (agents) and its investors (principals). Although larger companies often present more complex organizational structures and a greater volume of information, which could exacerbate information asymmetry, their size also provides advantages. Specifically, larger firms typically command more resources for producing timely financial reports, including more extensive accounting departments, advanced reporting systems, and improved access to external auditors. Additionally, the enhanced visibility of larger, more profitable companies creates stronger incentives for prompt financial disclosure, crucial for attracting investors and preserving corporate reputation. These findings corroborate prior research by Andriyanto, Sakti, and Neliana (2024).

Consistent with the findings of Aprilliant et al. (2020), this suggests that large and small companies experiencing financial distress tend to behave similarly concerning the punctuality of their financial reporting. Public companies of all sizes are bound by identical financial reporting regulations and submission deadlines. Penalties for delayed reporting are also applied equally, thereby incentivizing both large and small entities to prioritize reporting timeliness even amidst financial hardship. The reputational risks associated with late financial report submission are uniform across all companies, regardless of size. Investors and creditors are prone to view companies that fail to adhere to reporting deadlines unfavorably, which could impede their future access to capital markets. Although large corporations may command greater resources, financial difficulties can constrain their ability to dedicate these resources to the financial reporting process.


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Conversely, smaller enterprises, despite often having limited resources, may exhibit enhanced agility in resolving issues and meeting reporting deadlines.

## CONCLUSIONS

This study investigated the factors influencing the timeliness of financial reporting among manufacturing companies listed on the Indonesia Stock Exchange. The key findings from the analysis are: a). Profitability negatively affects the timeliness of financial reporting, an effect that firm size can moderate; b). Financial distress positively influences reporting timeliness, though firm size does not moderate this relationship; c). Operational complexity negatively impacts reporting timeliness, and this relationship is not moderated by firm size.

Based on these results, the following recommendations are provided: a). For Companies, prioritize timely financial reporting, particularly during periods of declining profitability or financial distress, and ensure efficient management of operational complexity; b). For Auditors, heighten awareness of potential financial reporting delays in companies characterized by low profitability or complex operations.; c). For Investors, incorporate profitability, reporting timeliness, and operational complexity into their assessments of corporate performance and governance.

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