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AUDIT QUALITY ON VALUE RELEVANCE OF ACCOUNTING INFORMATION: EVIDENCES FROM MANUFACTURING COMPANIES IN INDONESIA

(Empirical Research on Public Manufacturing Companies listed in the IDX year 2013-2022)

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ABSTRACT

In the context of Indonesia's manufacturing sector, there is a lack of studies examining the relationship between audit quality and the value relevance of accounting information, particularly regarding the impact of audit quality attributes, such as audit firm size, on earnings and book value. This study aims to address these gaps by investigating the influence of audit quality attributes on the value relevance of accounting information, with a specific focus on the manufacturing sector in Indonesia.

To address this, a sample of 120 firm-year observations from public manufacturing companies listed on the Indonesia Stock Exchange was analysed using multiple regression based on the Feltham-Ohlson (1995) model of value relevance. Various statistical techniques were employed including the normality test, multicollinearity tests, R-squared test, F-Test, and the T-Test with robust standard error.

The results indicate that while audit firm size does not have a significant effect on the value relevance of book value per share, it positively influences the value relevance of earnings per share. Moreover, the inclusion of control variables, such as loss, firm size, leverage, and profitability, helps account for variances in the relationship between audit quality and the value relevance of accounting information.

Keywords: audit firm size, value relevance, earnings per share, book value per share, manufacturing firms.

INTRODUCTION

Financial reporting is crucial for maintaining stakeholder trust and confidence in financial markets, as it reflects a company's operational integrity and reliability. The accuracy of financial reporting significantly influences decision-making processes, ensuring stakeholders can base their choices on credible information, thereby reinforcing market confidence (Abdollahi et al., 2020).

However, numerical data alone may not fully represent a company's financial health due to information asymmetry, where one party has more or better information than others. In financial markets, this disparity can occur between stakeholders with different levels of information (Nugroho & Stoffers, 2020). To address this issue, audits are essential as they help reduce information asymmetry, providing investors with a clearer basis for their decisions (Abdollahi et al., 2020; Imhanzenobe, 2022).

Information asymmetry is also linked to lower value relevance, leading to market inefficiencies. Value relevance refers to the extent to which accounting figures explain stock price or return fluctuations (Beisland, 2008; Francis & Schipper, 1999). When financial information is less reliable due to information asymmetry, its value relevance diminishes (Lopes, 2002). Value relevance encompasses the faithfulness and relevance of accounting information, combining these fundamental qualities (Barth et al., 2001; Lee & Lee, 2013).

Investors typically focus on earnings and book value when making decisions, as these metrics summarize a company's financial status (Imhanzenobe, 2022; Mubarika & Handayani,

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2022). Book value represents past performance and capital input, while earnings reflect profitability and are perceived as reducing information asymmetry through accruals (Barth et al., 2001; Lopes, 2002; Mubarika & Handayani, 2022).

Previous studies have shown mixed results regarding the relevance of earnings and book value to stock prices, influenced by factors such as IFRS convergence and the choice between fair value and historical cost accounting, which can affect value relevance (Krismiaji & Kusumadewi, 2020; Outa et al., 2017; Puspa et al., 2022; Siregar & Nurharjanti, 2021).

The importance of audit quality in mitigating information asymmetry underscores the need to examine its impact on the value relevance of accounting information. Big 4 auditors, with their substantial reputation and higher accountability, are believed to provide higher audit quality and are less influenced by client pressures (Abdollahi et al., 2020; Deangelo, 1981). Literature supports that larger audit firms often deliver higher-quality audits (DeFond & Zhang, 2014; Watkins et al., 2004).

This study aims to address the gap in research regarding the impact of audit firm size on the value relevance of accounting information in Indonesia's manufacturing sector, an area with limited prior exploration. Conducted on public manufacturing companies from 2013-2022, the research seeks to offer insights into how audit quality affects the value relevance of book value and earnings in an emerging market context.

RESEARCH FRAMEWORK AND HYPOTHESIS DEVELOPMENT

This part elaborates on theories used in this study, the research framework, as well as the hypothesis development.

Agency Theory

Jensen and Meckling (1976) described an organization as a system of contractual relationships between two parties: the agent (management) and the principal (investors or creditors). Both parties seek to maximize their self-interest, which can lead to the agent acting against the principal's best interests. This separation of ownership and control incurs costs.

Agency theory highlights the importance of external auditors in mitigating conflicts between shareholders and management (Aronmwan et al., 2015). These conflicts, known as moral hazard, arise from information asymmetry, where managers have more information and thus more incentive to issue reliable financial statements through independent auditors (Aronmwan et al., 2015; DeFond & Zhang, 2014). As agency conflicts increase, so does the demand for higher audit quality (DeAngelo, 1981; DeFond & Zhang, 2014). This theory provides a valuable framework for understanding the role of audit quality in the value relevance of accounting information, particularly in the context of agency conflicts.

Signalling Theory

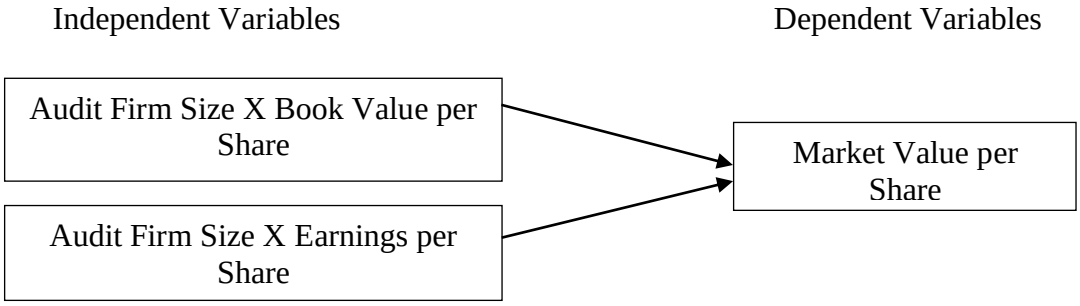
Signalling theory addresses information asymmetry, where signallers (insiders with more knowledge) communicate with receivers (outsiders) who seek this information (Puspitaningtyas, 2019). The theory originated in the labor market, where job candidates use education to signal their qualifications to potential employers (Market et al., 1973)

Beatty (1989) emphasizes that auditors act as critical signalling mechanisms, providing essential information for investors to assess a firm's value. Thus, signalling theory explains the relationship between audit quality and the value relevance of accounting information. High audit quality serves as a signal that financial statements are likely to accurately reflect a firm’s performance, aiding investors in making informed decisions.

Research Framework

The figure below illustrates the relationship among variables. The interaction between audit firm size and BVPS as well as EPS are created to investigate its effect when combined, on its value relevance, measured by market value per share.

Figure 1 Theoretical Framework



Hypothesis Development

Audit Firm Size and Value Relevance of Book Value per Share

Book value per share (BVPS) is a critical financial metric for investors, alongside earnings per share (EPS) (Imhanzenobe, 2022; Mubarika & Handayani, 2022). It provides a static representation of a company's financial position by reflecting its historical performance. Comparing BVPS with market value per share (MVPS) allows investors to assess whether a company is overvalued or undervalued. If BVPS is lower than MVPS, the company is considered overvalued, and vice versa (Andreas, 2016). However, research indicates that the value relevance of BVPS has decreased in recent years when controlling for scale effects Lee & Lee (2013).

This study measures audit quality through audit firm size. Extensive empirical evidence supports this approach, suggesting that larger audit firms are perceived to possess greater competence and independence. Such firms, particularly the Big Four, are less dependent on individual clients, reducing the risk of compromised audit quality. Agency theory posits that audit quality mitigates the conflict of interest between management (the agent) and shareholders (the principal) (Watts & Zimmerman, 1983). Larger audit firms enhance this relationship, improving the reliability of BVPS as a measure of firm value. Signalling theory also supports this, indicating that the presence of a larger audit firm acts as a positive signal regarding financial reporting quality, thus potentially influencing stock prices favorably (Okolie & O Izedonmi, 2014). Therefore, the hypothesis is formulated as follows:

H1: Audit firm size positively influences the value relevance of book value per share.

Audit Firm Size and Value Relevance of Book Value per Share

Earnings are vital for both valuation and assessing a company's financial performance (Banker & Mashruwala, 2007). Unlike BVPS, earnings provide a dynamic measure by reflecting net income and offering insight into future prospects (Bodie et al., 2013). Earnings per share (EPS) is crucial for investors as it assesses profitability relative to the number of shares outstanding.

From an agency theory perspective, audit quality is essential for ensuring reliable financial reports, including EPS. Management may have incentives to manipulate earnings for personal gain; thus, high-quality audits, especially those performed by larger firms, align management's interests with those of shareholders (Deangelo, 1981; DeFond & Zhang, 2014). Larger audit firms are viewed as more independent and capable of delivering accurate financial reports, making EPS a more trustworthy performance indicator.

Signalling theory further suggests that larger audit firms signal higher financial statement quality to the market (Okolie & O Izedonmi, 2014). Companies audited by larger firms are perceived as more credible, which can positively impact stock prices. The perceived quality of the audit enhances investor confidence in reported earnings. Consequently, the second hypothesis is formulated as follows:

H2: Audit firm size positively influences the value relevance of earnings per share.

RESEARCH METHODOLOGY

A detailed explanation of the population, sample, variables included, and the research method used in this study is provided below:

Population and Sample

This study is conducted on public manufacturing companies in Indonesia listed on IDX, year 2013-2022. Purposive sampling would then be used for the sample selection.

Variables and Measure

In this study, MVPS (market value per share) is the dependent variable, and BVPS (book value per share), EPS (earnings per share), as well as AFS (audit firm size) are independent variables. Control variabels are also included in this study, which are loss, size, leverage, and profitability. Additionally, the term market value per share is used to refer to the price per share of a company. For the sake of consistency, MVPS (Market Value per Share) will be primarily used.

Table 1
Variables and Measurement

Variables	Measure
MVPS (Market value per share)	Market value per share of firm *j* in year *t*
BVPS (Book Value per Share)	Book value per share of firm *j* in year *t*
EPS (Earnings per Share)	Earnings per share of firm *j* in year *t*
AFS (Audit firm size)	Dummy variable; 1 for Big4, 0 if otherwise
Loss	Dummy variable, 1 for recorded loss, 0 if otherwise
Size	Total asset of firm *j* in year *t*
Leverage	Leverage of firm *j* in year *t*
Profitability	Profitability of firm *j* in year *t*

Research Methodology

This study employs multiple regression analysis to examine the relationship between audit-related information (audit firm size and audit opinion) and accounting data (book value per share and earnings per share) on market value per share. The Feltham and Ohlson (1995) model is utilized, which links accounting information with market valuation. The study also applies several statistical tests:

1. Coefficient of Determination (R^2): Evaluates how well the independent variables explain the variability in the dependent variable.
2. F-Test: Determines the collective impact of independent variables on the dependent variable.
3. T-Test: Assesses the significance of individual independent variables on the dependent variable.

Lastly, the study conducts classic assumption tests, including the Multicollinearity Test (using Variance Inflation Factor to detect highly correlated variables) and the Normality Test (using skewness-kurtosis to ensure data distribution is normal), and conducts the regression with robust standard error.

RESULTS AND ANALYSIS

Sample Description

The study population consists of public manufacturing companies listed on the Indonesia Stock Exchange from the year 2013 until 2022. Utilizing purposive sampling, the table below shows the process of the sample selection for the study:

Table 2
Sample Criteria

No.	Sample Criteria	Total
1.	Public manufacturing companies listed in Indonesia Stock Exchange per 2022	455
2.	Public manufacturing companies listed in 2014-2021	(227)
3.	Public manufacturing companies with insufficient or missing data	(137)
4.	Outlier data	(79)
	Total of Sample (12 x 10)	120

Descriptive Statistics

The result of the descriptive statistics is provided below:

Table 3
Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
MVPS	120	1.186.744	1.360.145	43.61	7225
BVPS	120	803.956	5.962.868	93.91	2475.91
EPS	120	8.676.733	7.634.299	-143.11	278
Size	120	9.09e+12	9.48e+12	8.19e+10	3.98e+13
Leverage	120	1.943.333	0.6053422	0,05902778	0,17152778
Profitability	120	-2.328.769	1.598.287	-145.206	65.343

The table provides a descriptive statistic for the study's variables from a sample of 120 firms. The market value per share (MVPS) averages at roughly one million with a wide range between 43.6 to 7225. book value per share (BVPS) and earnings per share (EPS) also show significant variation, with means of 803.956 and 8.676.733, respectively. The total asset of the firms ranges widely from 81.9 billion to 39.8 trillion, with a mean of 9.09 trillion. Leverage has a mean of about two million, and profitability shows an average of approximately minus two million, indicating varied financial health among firms.

Table 4
Descriptive Statistics for Loss

		Frequency	Percent	Cumulative Percentage
Valid	No loss reported	114	95	95
	Loss reported	6	5	100
	Total	120	100	

One of the control variables is a dummy variable, which is Loss. It accounts for whether or not company reports any loss in their financial statement, or a minus in their earning. For the dummy variable indicating whether a loss was reported, 6 out of 120 firm-year observation (5%) reported a loss. The cumulative percentage confirms that 100% of the companies were accounted for in this analysis.

Table 5
Descriptive Statistics for Size

		Frequency	Percent	Cumulative Percentage
Valid	No Big Four affiliation	64	53.33	53.33
	Big Four affiliation	56	46.67	100
	Total	120	100	

Lastly, audit firm size as one of the independent variables is also a dummy variable, 53,33% of the firm-year observation were not affiliated with a Big Four audit firm, while the other 46,67% (56 firm-year) were.

Normality Test

Table 6
Normality Test

Variable	Obs	Pr (Skewness)	Pr (Kurtosis)	Adj chi 2(2)	Prob>chi2
MVPS	120	0.0	0.0	59.8	0.0
BVPS	120	0.0003	0.6804	11.17	0.0038
EPS	120	0.3981	0.7808	0.8	0.6689
Size	120	0.0	0.3895	14.74	0.0006
Leverage	120	0.011	0.4766	6.54	0.0379
Profitability	120	0.0	0.0	0.0	0.0

These findings suggest that most variables do not follow a normal distribution, therefore the regression that would be conducted will use a robust standard error to mitigate the effect of non-normality

Multicollinearity Test

Table 7
VIF Result

Variable	VIF	1/VIF
Audit Firm Size	1.63	0.6
Book Value per Share	2.14	0.5
Earnings per Share	2.18	0.5
Loss	2.04	0.5
Size	1.09	0.9
Leverage	1.32	0.8
Profitability	1.81	0.6
Mean Vif	3.13	

Based on the test result, every variable has VIF value of under 10 and tolerance value of more than 0.10, indicating absence of multicollinearity among independent variables. This supports the fact that there is no correlation among variables in the study.

Coefficient of Determination Test (R^2) of Baseline Model

In this model, the relationship between audit firm size and value relevance of BVPS and EPS is examined without the inclusion of any control variables, with the aim of establishing a baseline understanding of the direct relationship between these key variables.

Table 8
Coefficient of Determination Test (R^2) of Baseline Model

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	0.651	0.424	0.398	1055.1
a.	Predictors: (Constant), BVPS, EPS, AFS, BVPS*AFS, EPS*AFS			
b.	Dependent Variable: MVPS			

The R^2 result from the baseline model illustrates the extent to which the predictors—BVPS, EPS, and their interactions with Audit Firm Size—collectively explain the variances in MVPS, which is about 42.4% percent, and 39.8% when adjusted. The standard error of the estimate is 1055.1, reflecting a deviation of MVPS. It can be interpreted that there is a positive relationship between the independent and dependent variables. However, the R squared shows only a moderate

explanatory power and the large standard error suggests that there might be other factors influencing the value relevance of BVPS and EPS.

F Test of Baseline Model

Table 9
F Test of Baseline Model

Model		Sum of Squared	Df	Mean Square	F	P-Value
1	Model	93248084	5	18649616.8	14.03	0.0
	Residual	126901339	114	1113169.64		

The F-statistic shows the ratio of the model's mean square to the residual mean square, indicating how much more variances can be explained by the model compared to what would be expected. F statistic of 14,03 implies that the model has a good predictive ability. The P-value of zero also reinforces the same notion that this model as a whole, fits the data well since it is statistically significant

T Test of Baseline Model

Table 10
T Test of Baseline Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Robust Std. Error	Beta		
1	(Constant)	886.6111	102.16		8,68	0.0
	BVPS	-0.97	0.17	-0.42	-5.8	0.0
	EPS	5.98	1.3	0.34	4.59	0.0
	AFS	-116.4	406.2	-0.41	-2.57	0.007
	Afs#c.bvps					
	1	1.02	0.33	0.53	3.11	0.002
	Afs#c.eps					
	1	8.8	4.1	0.51	2.14	0.034
a. Dependent variable: Market Value per Share						

Drawing from the result of the T test above, it can be inferred that audit firm size has a positive influence towards the value relevance of BVPS, shown by the 0.002 significance level and a positive coefficient of 1.02 between the interaction of AFS and BVPS towards the MVPS. Audit firm size also has a positive and significant relationship with the value relevance of EPS, indicated by the significance level of 0.034 and a positive coefficient of 8.8.

Coefficient of Determination Test (R^2) of Hypothesis Testing Model

To test the hypothesis, control variables such as loss, size, leverage, and profitability are then introduced. This approach allows for assessing the impact of audit firm size on the value relevance of BVPS and EPS while accounting for these external influential factors, ensuring robustness within the regression result.

Table 11
Coefficient of Determination Test of Hypothesis Testing Model

Model	R	R Squared	Adjusted R Squared	Std. Error of the Estimate
1	0.74337	0.5526	0.516	946.21
a.	Predictors: (Constant), BVPS, EPS, AFS, BVPS*AFS, EPS*AFS, Loss, Size, Leverage, Profitability			
b.	Dependent Variable: MVPS			

The model shows a correlation coefficient (R) of 0.74337, indicating a strong positive relationship between the predictors and the Market Value per Share. The R Squared value is 0.5526, meaning that approximately 55.26% of the variability in Market Value is explained by the model. The Adjusted R Squared value is 0.516, which adjusts the R Squared value for the number of predictors in the model, providing a more accurate measure of the model's explanatory power. The standard error of the estimate is 946.21, reflecting the average distance that the observed values fall from the regression line.

Compared with the baseline model, it can be inferred that the inclusion of control variables helps account for variances in the relationship between audit quality and the value relevance of accounting information.

F Test of Hypothesis Testing Model

Table 12
F Test of Hypothesis Testing Model

Model		Sum of Squared	Df	Mean Square	F	P-Value
1	Model	121664209	9	13518245.4	15.1	0.0
	Residual	98485214.4	110	895320.131		

The F-test results for the regression model show that the model's overall fit is statistically significant. The sum of squares for the model is 121.664.209, with 9 degrees of freedom, resulting in a mean square of 13.518.245,4. The F-value is 15.1 with P-value of 0.0, indicating that the model significantly explains the variation in Market Value per Share.

T Test of Hypothesis Testing Model

Table 13
T Test of Hypothesis Testing Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Robust Std. Error	Beta		
1	(Constant)	1265.42	440.66		2.87	0.005
	BVPS	-0.52	0.36	-0.23	-1.43	0.157
	EPS	3.34	3.32	0.19	1.01	0.316
	AFS	-711.08	373.55	-0.26	-1.9	0.06
	Afs#c.bvps					
	1	0.31	0.49	0.16	0.62	0.537
	Afs#c.eps					
	1	8.79	4.3	0.51	2.04	0.044
	Loss	-877.03	369.83	-0.14	-2.37	0.019
	Size	5.02e-11	1.47e-11	0.35	3.41	0.001
	Leverage	-372.38	185.71	-0.17	-2.01	0.047
	Profitability	0.49	4.09	0.006	0.12	0.905
a. Dependent variable: Market Value per Share						

The T-Test results shows that the result of the interaction between BVPS and AFS is 0.537, meaning it is not a strong enough evidence to reject the null hypothesis. However, the interaction between EPS and AFS is 0.044. It indicates that there is enough evidence to reject the null hypothesis, meaning the EPS of companies audited by big four has an increased value relevance.

Moreover, it can also be seen Loss, Size and Leverage have a significant effect in this interaction, with Size being the only significant positive influence towards MVPS.

Results Interpretation

Table 14
Results Interpretation

	Hypothesis	Adjusted R^2	Regression Coefficient (B)	Sig.	Conclusion
H1	Audit firm size positively influences the value relevance of book value per share	0.516	0.31	0.537	H1 is rejected
H2	Audit firm size positively influences the value relevance of earnings value per share.	0.516	8.79	0.044	H2 is accepted

Hypothesis 1

The first hypothesis examines whether companies audited by Big Four firms exhibit an increased value relevance of book value per share (BVPS). However, the interaction between audit firm size (AFS) and BVPS suggests weak evidence against the null hypothesis, indicating that companies audited by the Big Four do not necessarily demonstrate higher BVPS value relevance.

This result is supported by the findings from Burgstahler & Dichev (1997) and Dickinson et al. (2018), which suggest that book value becomes more relevant when companies have negative earnings or are in their beginning or declining phases. Meanwhile, in this study, only two out of 12 manufacturing firms, PT Bumi Resources Minerals Tbk and PT Suparma Tbk, reported negative earnings per share (EPS). For example, PT Bumi Resources Minerals Tbk experienced fluctuating market value per share (MVPS), from a low of 43.61 in 2015 to a high of 274.74 in 2014, and reported negative EPS (-143.11) and profitability (-14,520.6%) in 2016.

According to Burgstahler & Dichev (1997) and Dickinson et al. (2018), firms may exercise an "abandonment option" during poor performance, leading investors to rely more on book value than on earnings, which may not be reliable in such circumstances. Book value provides a tangible measure of a company's net worth, reflecting its net assets or potential liquidation value. In contrast to earnings, BVPS is less prone to manipulation, as it applies historical cost, making it a more static measure.

Thus, during periods of financial instability or early firm stages, BVPS might be more valuable to investors than speculative future earnings. Consequently, the incremental value added by audit quality may have less impact on BVPS than on EPS (Burgstahler & Dichev, 1997; Collins et al., 1999; Dickinson et al., 2018).

Hypothesis 2

The second hypothesis examines the influence of the Big Four audit firms on the value relevance of earnings per share (EPS). The model shows strong evidence against the null hypothesis, with a significance level below 0.05 and a coefficient of 8.79, indicating a positive effect. According to Hazmi & Subekti (2018), higher EPS signifies a company's profitability and is a critical metric for investors assessing firm performance. A higher EPS attracts investors by driving stock prices upward and offering potential profits through dividends or capital gains. As EPS represents net profit allocated to shareholders, a high EPS signals future growth, boosting share demand and stock value.

Given that EPS is more susceptible to manipulation and management discretion (Nguyen et al., 2021), the role of audit quality becomes crucial. High-quality audits ensure that financial figures accurately reflect a company's true performance, making EPS more reliable for investment decisions. As a result, the added value provided by audit quality is significantly greater for EPS than for other financial metrics.

This finding aligns with prior studies, including those by Abdollahi et al. (2020), Alfraih (2016), Lee & Lee (2013), Pratiwi & Syadruddin (2022), and Setiawan & Mettan (2023). The results also support Burgstahler and Dichev's (1997) view that earnings' value relevance evolves throughout a company's lifecycle.

Moreover, the results are consistent with both signaling theory and agency theory. Habib et al. (2014) found that higher audit quality constrains earnings management, reducing opportunities for managerial opportunism and aligning management's actions with shareholders' interests, as outlined by agency theory. Signalling theory suggests that higher audit quality leads to more reliable earnings, offering a clearer reflection of a firm's market value.

CONCLUSIONS AND LIMITATIONS

Conclusions

This study explores the relationship between audit quality, particularly audit firm size, and the value relevance of accounting information within Indonesia's manufacturing sector from 2013 to 2022. High-quality financial information is crucial for sound economic decisions, and auditing enhances the reliability of financial reports, reducing decision-making risks. The research focuses on how audit firm size affects the value relevance of book value per share (BVPS) and earnings per share (EPS).

The findings indicate that while audit firm size does not significantly impact the value relevance of BVPS, it does significantly enhance the value relevance of EPS. Companies audited by the Big Four show increased EPS credibility, supporting signaling and agency theories. This study contributes empirical evidence to the literature, highlighting the importance of audit quality in emerging markets like Indonesia.

The results suggest that high audit quality attracts more investment and enhances market efficiency, benefiting both investors and firms. Additionally, the findings imply that regulators should emphasize auditing standards to ensure compliance and uphold the integrity of financial reporting.

Limitations

This study also has few limitations. This study eliminates several variables that are linked to the value relevance of accounting information, despite the inclusion of control variables. Furthermore, the analysis had to exclude 73 outlier data points and 137 incomplete or missing data, reducing the initial sample size to 120 firm-year observations.

Suggestions

Incorporating additional variables that correlate with the value relevance of accounting information and employing semi-structured interviews with stakeholders involved in setting audit profession regulations could provide a more profound understanding of other audit attributes influencing the value relevance of accounting information.

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