

Can Digital Transformation and Governance Control Managerial Opportunistic Behavior in Earnings Management?

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Abstract: This research investigates the relationship of Digital Transformation, Audit Quality, and Board Characteristics on Earnings Management in non-financial companies listed on the Indonesia Stock Exchange from 2018 to 2022. Analysing 1,440 observations from 228 companies using purposive sampling and fixed effects regression, the findings reveal that Digital Transformation enhances transparency and real-time information access, reducing opportunities for earnings management, consistent with the Resource-Based View theory. High Audit Quality mitigates conflicts between managers and shareholders, aligning with agency theory. However, Board Characteristics, including size, independence, and meeting frequency, show no significant impact on earnings management, as most companies in the sample only comply with the minimum requirements of established corporate governance regulations, leading to homogeneity in board characteristics. This research provides a new perspective on the rarely researched relationship between earnings management and digital transformation, emphasising its implications for improving corporate governance in emerging markets.

Keywords: Digital Transformation; Audit Quality; Board Characteristics; Earning Management; Governance.

Abstrak: Penelitian ini menyelidiki hubungan Transformasi Digital, Kualitas Audit, dan Karakteristik Dewan Komisaris terhadap Manajemen Laba pada perusahaan non-keuangan yang terdaftar di Bursa Efek Indonesia dari tahun 2018 hingga 2022. Analisis terhadap 1.440 observasi dari 228 perusahaan menggunakan purposive sampling dan regresi efek tetap, temuan tersebut mengungkapkan bahwa Transformasi Digital meningkatkan transparansi dan akses informasi secara real-time, mengurangi peluang untuk manajemen laba, konsisten dengan teori Resource-Based View. Kualitas Audit yang tinggi mengurangi konflik antara manajer dan pemegang saham, sejalan dengan teori keagenan. Namun, Karakteristik Dewan Komisaris, termasuk ukuran, independensi, dan frekuensi rapat, tidak menunjukkan dampak signifikan pada manajemen laba, karena sebagian besar perusahaan dalam sampel hanya mematuhi persyaratan minimum peraturan governansi korporat yang ditetapkan sehingga terjadi homogenitas. Penelitian ini menawarkan wawasan baru tentang hubungan yang belum dieksplorasi antara Transformasi Digital dan Manajemen Laba, yang menekankan implikasinya untuk meningkatkan tata kelola perusahaan di pasar negara berkembang.

Kata Kunci: Transformasi Digital; Kualitas Audit; Karakteristik Dewan Komisaris; Manajemen Laba; Governansi Koprort.

INTRODUCTION

Several financial scandals have captured public attention, such as the Enron case in the United States and scandals in Indonesia involving PT Garuda Indonesia Tbk and PT Tiga Pilar Sejahtera Food Tbk (AISA). Scandals often arise when executives aggressively



manage company profits through accounting strategies and policies to enhance financial performance in reported results (Alhadab et al., 2020).

The public is concerned about earnings management because it harms capital markets and financial reporting (Alhadab et al., 2020). Earnings management occurs when managers use judgment in financial reporting, potentially leading stakeholders to misinterpret the company's performance or influencing revenue-related contracts based on the financial statement (El-Helaly et al., 2018).

Earnings management research has dominated the accounting research landscape for about three decades (Habib et al., 2022). After the emergence of various regulations aimed at enhancing transparency and accountability in financial reporting, many managers began using Real Earnings Management. Real Earnings Management refers to actions such as overproduction, a decrease in the cost of goods sold and the cutting of R&D investment to boost current-period earnings. As a result, REM increases information risk and reduces the quality of the overall information environment, leading to significant negative consequences (Habib et al., 2022). In unique institutional settings where companies are characterised by concentrated ownership structures dominated by controlling shareholders, managers often face heightened pressure and more rigorous supervision from these dominant stakeholders (AlQadasi & Abidin, 2018). As a result, an agency problem emerges between majority and minority shareholders, driven by the potential conflicts of interest and differing objectives between the controlling and minority stakeholders.

The information asymmetry between majority and minority shareholders has become a growing concern amid rapid digital transformation. With globalisation and digitalisation, new technologies offer opportunities for companies to reduce information asymmetry by optimising operations and enhancing transparency. Key technologies driving digitalisation include 5G, which enables high-speed internet and real-time connectivity; cloud computing, which allows efficient data storage and processing; big data, which supports large-scale data analysis for decision-making; artificial intelligence, which enhances automation and efficiency; the Internet of Things (IoT), which connects hardware to the internet for data collection; and blockchain, which increases security and transparency in digital transactions (Zhang & Chen, 2024).

The role of digital transformation and technology adaptation has supported companies in achieving their objectives. For instance, research by (Liao et al., 2023) indicates that digital transformation can reduce inefficient corporate investments, enhance the company's inclination to take risks (Tian et al., 2022), drive corporate innovation (Niu et al., 2023), and reduce agency issues to enhance the quality of accounting information (Wang & Han, 2023).

When information asymmetry between principals and agents leads to agency problems, external audits are necessary to ensure the accuracy of company financial statements. From the agency theory's perspective, audit quality is considered an effective monitoring mechanism that detects managers' manipulation and aligns shareholders' and managers' interests (Alzoubi, 2018). Audit quality is defined as the joint probability of detecting and reporting accounting breaches and providing greater assurance of high financial reporting quality, ensuring the integrity and reliability of financial information (Rajgopal et al., 2021).

Another governance attribute that helps mitigate information asymmetry and managerial opportunism is the role of the board of commissioners. The board of directors plays a crucial role as an internal control mechanism, acting as a bridge between shareholders, who provide capital, and managers, who deploy that capital to generate



value and maximise shareholder wealth. Furthermore, the board oversees the firm's accounting processes by ensuring that managers adhere to applicable accounting principles and standards when preparing financial reports, thereby maintaining the credibility and reliability of accounting information (Githaiga et al., 2022). Previous studies have examined the influence of board characteristics on earnings management practices. However, findings remain mixed, as demonstrated in research by (Githaiga et al., 2022), (Le & Nguyen 2023), and (Rajeevan & Ajward, 2019), which reveals varying results regarding the impact of board characteristics on earnings management.

Earnings management, driven by information asymmetry and agency conflicts, remains a critical issue in financial reporting. Practices like real earnings management (REM) undermine reliability in financial reporting. Despite the growing importance of digital transformation, no studies have specifically examined its role in mitigating earnings management in Indonesia. This research addresses this gap by investigating how digital transformation and corporate governance mechanisms, both internal (board oversight) and external (external audits), interact to reduce earnings management. By leveraging technologies such as blockchain, AI, and big data, this study highlights their combined potential to enhance transparency, accountability, and sustainable corporate value creation, offering a fresh perspective.

THEORETICAL REVIEW

Resource-Based View Theory. The concept of RBV was first proposed by (Wernerfelt, 2024), who analysed companies from a resource perspective rather than just a product perspective. Analysis from a resource perspective has opened up different strategic possibilities compared to approaches that only focus on products. These could include new ways to utilise existing resources, manage product portfolios, or create more sustainable competitive advantages.

Experts have analysed digital transformation from various perspectives, distilling it into two key areas: digital resources and the utilisation of digital technology (Guo et al., 2023). Digital resources are very important for companies because they can help in various operational and strategic aspects (Wen et al., 2022). Hence, digital transformation primarily refers to using digital resources and technology in businesses, including how it is used in strategy, manufacturing procedures, and managerial decision-making (Guo et al., 2023).

Agency Theory. The existence of agency relationships serves as the foundation for agency theory; according to (Meckling, 1976), agency relationships are defined as a contract in which there are one or more owners (principals) who involve other people (agents or managers) to carry out work in the form of services for the interests of the principal. It entails giving the agent some decision-making power within the parameters of the business. (Jensen & Meckling, 1976) Stated that in an agency relationship, when there are two parties maximising utility, it will cause the possibility that the agent will not always act in the interests of the principal; additional costs are required to provide the agent with suitable incentives, monitoring costs and bonding costs. An agent who acts inconsistently with the principal's interests is caused by the principal delegating authority to the agent so that the agent can make decisions that benefit themselves because every consequence of the decision is borne entirely by the principal.

The Negative Relationship between Digital Transformation and Earnings Management. The implementation of digital transformation is essential in mitigating



earnings management practices. Digital transformation gives businesses a competitive edge through better resource management and usage by utilising technology. Prior research has looked at how digital transformation affects businesses. For instance, (Tian et al., 2022) demonstrated that digital transformation increases a company's risk-taking propensity, providing evidence that digital transformation enhances corporate innovation (Niu et al., 2023) and reduces agency issues to enhance the quality of accounting information (W. Chen et al., 2022).

The Resource-Based View (RBV) states that digital transformation is more than a technical update; it is a strategic approach to developing and managing organisational resources. RBV suggests an organisation's competitive advantage stems from its ability to acquire and utilise valuable, rare, inimitable, and non-substitutable resources (VRIN). Digital technologies such as blockchain, cloud computing, artificial intelligence, and big data analytics meet these criteria because they significantly enhance operational efficiency, foster innovation, and improve decision-making capabilities.

When companies effectively integrate these technologies, they create robust capabilities in data analytics, management information systems, and digital platforms. These advancements enable organisations to operate more efficiently, improve resource allocation, and respond swiftly to changing market conditions. One critical area where digital transformation profoundly impacts is financial reporting and corporate transparency. Digital transformation lessens information asymmetry between managers and stakeholders by guaranteeing the authenticity and dependability of financial information and facilitating real-time data access.

Transparency is a key outcome of digital transformation that aligns with RBV by strengthening organisational governance. Increased transparency lowers the possibility of financial misreporting and limits managers' ability to manage earnings. This is particularly significant because earnings management often stems from the agency problem, where managers may prioritise personal or short-term goals over the organisation's long-term interests. The real-time monitoring and reporting capabilities provided by digital tools empower stakeholders with better insights into the company's financial health, thereby discouraging opportunistic behaviour.

Moreover, digital transformation fosters accountability by providing advanced mechanisms for monitoring, auditing, and controlling organisational processes. Technologies such as blockchain enhance the integrity of financial data by offering immutable and verifiable records, while big data analytics can detect transaction anomalies, further curbing unethical practices. In this context, digital transformation aligns with RBV theory as a strategic resource that drives competitive advantage and promotes ethical financial practices by improving transparency and reducing uncertainties in reporting.

Based on this theoretical foundation and supported by prior empirical research, this study proposes the following hypothesis:

H1: Digital transformation has a negative relationship with real earnings management.

The Negative Relationship between Audit Quality and Earnings Management.

Agency theory states that external audits by impartial parties are required to guarantee that a company's financial statements are truthful and adhere to relevant standards due to the information asymmetry between majority and minority shareholders. Several studies have found that audit quality and audit reputation, as measured by the use of Big 4 audit firms,



can reduce corporate earnings management practices (Mnif & Ben Hamouda, 2020; Muhammad Shaheer Nuhu et al., 2024)

The audit quality provided by Big 4 auditors can lower earnings management practices due to their higher capabilities, strong reputation, and good independence. Supported by competent resources, extensive experience, and advanced audit technology, Big 4 auditors are better at spotting earnings management. The global reputation of the Big Four firms drives their commitment to maintaining credibility and providing objective opinions, thereby reducing the likelihood of earnings management. Big Four auditors tend to have more independence, limiting management's influence over the audit process. Their in-depth industry knowledge and rigorous audit methodologies enable them to identify earnings management practices and provide more thorough and accurate oversight. This factor makes Big Four firm audits more successful in guaranteeing financial reporting accuracy and transparency.

Based on agency theory and prior research findings, the hypothesis of this study is as follows:

H2: There is a negative relationship between audit quality and real earnings management.

The Negative Relationship between Board Characteristics and Earnings Management. Based on agency theory, the relationship between the board of commissioners and earnings management is viewed as an oversight mechanism to reduce potential conflicts of interest between management and shareholders. Several studies have examined how board characteristics affect earnings management (Githaiga et al., 2022; Le & Nguyen, 2023; Rajeevan & Ajward, 2019). A company with a larger board of commissioners can improve performance and enhance management oversight due to the more effective monitoring role. With a larger board, the monitoring activities become more intensive, potentially reducing appropriation behaviours by management (Githaiga et al., 2022).

When a company has a larger board of commissioners, it benefits from the collective expertise, diverse perspectives, and broader oversight capabilities that come with a larger group of individuals. This composition can boost management supervision and improve corporate performance by strengthening the board's capacity to carry out its monitoring duties. A larger board often includes members with varied professional backgrounds, expertise, and networks. This diversity enables a more comprehensive evaluation of management decisions and strategies, as members can bring insights from different industries or disciplines. The board can better recognise possible risks, offer strategic direction, and ensure the business complies with its governance and ethical standards when it has a broader range of expertise.

Additionally, with more members, the distribution of oversight responsibilities becomes more efficient. Tasks such as reviewing financial reports, evaluating internal controls, and monitoring compliance can be delegated among specialised committees or individual board members. This focused approach leads to more thorough and intensive monitoring of management activities, reducing the likelihood of errors or mismanagement. Larger boards also offer a more muscular system of checks and balances. With multiple members scrutinising managerial decisions, the potential for collusion or undue influence is minimised. This layered oversight increases the accountability of executives and discourages behaviours such as earnings manipulation or other opportunistic practices.



H3: Board size has a negative relationship with earnings management.

According to (Idris et al., 2018), a higher percentage of board independence is related to more effective monitoring, reducing earning management practice. Independent boards are regarded as more effective in overseeing and regulating company managers because their members typically lack significant personal ties or financial stakes, ensuring greater objectivity in decision-making. This independence fosters a governance environment where the board primarily focuses on protecting shareholders' interests, upholding ethical standards, and ensuring compliance with financial and regulatory obligations.

An independent board's impartiality enables it to critically assess management's performance, increasing the likelihood that it will spot and oppose activities like earnings management. Earnings management often involves manipulating financial reports to meet targets or mask actual financial performance, which can harm the company's transparency and long-term value. Independent board members, free from conflicts of interest, are better equipped to resist pressures from executives to overlook or approve such manipulative practices.

H4: Board independence has a negative relationship with earnings management.

The number of board meetings is also one of the essential characteristics of the board, which indicates the activity and effectiveness of the board (Aleqab & Ighnaim, 2021).

Regular board meetings can reduce prospects for earning management by strengthening oversight over senior management. When boards convene regularly, they are better positioned to closely monitor and evaluate the decisions and actions of the directors. These frequent interactions allow board members to scrutinise financial reports, question anomalies, and ensure compliance with ethical and regulatory standards. Moreover, regular meetings create a platform for discussing strategic issues and addressing potential risks promptly. This ongoing engagement fosters accountability, as directors know their decisions and actions are continuously reviewed. The increased scrutiny discourages opportunistic behaviours such as earnings manipulation, as executives are less likely to engage in practices that could be flagged or questioned during board discussions.

Frequent board meetings facilitate a more dynamic flow of information between management and the board, reducing information asymmetry. This transparency strengthens the board's ability to detect irregularities, enforce governance policies, and maintain the integrity of financial reporting. Consequently, the board's proactive role in overseeing managerial activities limits directors' chances of manipulating earnings and aligning corporate actions with long-term value creation and stakeholder interests.

H5: Board meetings have a negative relationship with earnings management.

METHODS

This research is quantitative. Its population consists of companies listed on the Indonesia Stock Exchange from 2018 to 2022, and it uses purposive sampling techniques, so the final sample consists of 288 companies or 1,440 observations.



Purposive sampling is used in this study to establish criteria for selecting samples that align with the study's goals. The criteria sample for this research includes companies listed on the Indonesia Stock Exchange during the sample period, excluding those delisted or newly listed during the sample period up to t-1, as well as companies in the financial industry sector. Additionally, companies without annual reports (AR), incomplete AR, or AR presented in image format are excluded. Finally, companies with negative retained earnings are eliminated, as such companies may lack the ability to pay debts and exhibit different financial behaviour.

Dependent Variable. Real Earning Management is measured based on several real earnings management techniques such as sales manipulation, overproduction and reduction of discretionary accruals as per research (Khuong et al., 2023).

$$REM = - (ABSCFO + ABSDISX) + ABSPROD \dots \dots \dots (1)$$

Companies can carry out earnings management practices by their objectives, whether upward or downward earnings management, so this research uses absolute values to measure earnings management.

To obtain the residual values for ABSCFO, ABSPROD, and ABSDISX, regressions were performed based on equations outlined in the study by (Khuong, 2023), (Salihi et al., 2023).

Sales Manipulation.

$$CFO_{it}/Asset_{it-1} = \alpha_0 + \alpha_1(1/Asset_{it-1}) + \beta_1(Sales_{it}/Asset_{it-1}) + \beta_2(\Delta Sales_{it}/Asset_{it-1}) + \epsilon_{it} \dots (2)$$

Over Production

$$PROD_{it}/Asset_{it-1} = \alpha_0(1/Asset_{it-1}) + \beta_1(Sales_{it}/Asset_{it-1}) + \epsilon_{it} \dots \dots \dots (3)$$

Reduction of Discretionary Accruals

$$DISX_{it}/Asset_{it-1} = \alpha_0(1/Asset_{it-1}) + \beta_1(Sales_{it}/Asset_{it-1}) + \epsilon_{it} \dots \dots \dots (4)$$

CFO reflects the net cash flows from operating activities, PROD represents the cost of goods sold (COGS), DISX captures discretionary expenses including selling, general, administrative, advertising, and R&D costs, Asset denotes the total assets from the prior year, Sales indicates the company's net sales, and ΔSales measures the year-over-year change in net sales.

Independent Variable. Digital Transformation was measured based on previous research conducted by (W. Chen et al., 2022) using keywords from research (D. Chen & Hu, 2022) using four large groups of words related to Artificial Intelligence, blockchain, could compete and blockchain. Nevertheless, other keywords associated with the usage of digital technology were employed in the research. Therefore, the keywords used in this study include artificial intelligence, blockchain, could competing, blockchain, and the usage of digital technology.

The list of words is taken from several previous studies, regulations regarding digital transformation that apply in Indonesia, and analysis of the disclosure and discussion of digital transformation in annual reports.

Based on several previous studies, approximately 1 percent of the sample companies read annual reports as a reference in determining dictionary words. Just as research (Fang et al., 2023) carried out manual readings worth 100 AR from 15,592 samples or around



(0.641 per cent). Likewise, research (Han et al., 2023) only carried out manual readings of 1.107 per cent of 200 companies from a total sample of 18,052. So, this research analyses 1 per cent of the annual reports in the sample to determine the word dictionary that will be used as the basis for this research.

Regarding the determination of the word dictionary in this study, it was taken from the word dictionary of previous research, as well as research (Y. Chen & Xu, 2023; Ji et al., 2022; Liao et al., 2023) added with the results of reading a manual of rules related to digitalisation in Indonesia and company annual reports. Several words identified from several documents are re-identified, including whether the words are terms, only company programs, or terms used as a whole. Finally, the word dictionary has been completed to calculate digital transformation variables.

After creating a list of words related to digital technology, this research used NVIVO to calculate the number of related words found in company annual reports. Then, to measure the level of digital transformation, the frequency of digital keywords is taken by its natural logarithm plus one $\ln(x+1)$ (Y. Chen & Xu, 2023) to avoid the invalid value 0 in the logarithm.

Audit Quality. Audit quality is measured using a dummy proxy from the Public Accounting Firm that provides Financial Report Audit services. The company will receive one if audited by KAP Big4 and zero otherwise. In addition to having expert teams and resources, Big 4 KAPs will uphold their reputation and trust, ensuring that the company's audit results are more impartial and reliable (Alzoubi, 2018).

Board Characteristics. The characteristics of the Board of Commissioners are considered to improve governance because the Board of Commissioners has a supervisory role. Several characteristics, such as size, independence and meeting frequency, have become the focus of several studies. Following research (Rajeevan & Ajward, 2019), board size is measured by the total number of board of commissioners in the company; board independence is measured by the total independent board of commissioners divided by the total board of commissioners; The number of board of commissioners meetings throughout a year is used to calculate the frequency of board meetings.

Control Variable. To avoid and reduce the occurrence of omitted variable bias, control variables are added to handle this problem. Omitted variable bias occurs when, in a regression model, a third variable (q) is not included in the model specification. Because the third variable (q), which ought to be included in the model, is not, omitted variable bias breaks the homogeneity assumption. Consequently, regression estimates may be skewed since the impact of the variable (q) on the connection between x and y is not taken into consideration (Wilms et al., 2021).

Following several studies on earnings management (Alhadab et al., 2020; El-Helaly et al., 2018; Gavana et al., 2024; Salihi et al., 2023) using additional control variables in their research such as ROA (Earnings/Assets), Market to Book Ratio (Market Capitalization/Book Value Equity), Leverage (Liabilities/Assets), Size (Ln Assets), Loss (Dummy Variabel; 1 for Loss Companies and zero otherwise, Firm Financial Resources(Operating Cash Flow/Assets).

To test this research using regression with the research model:

$$\text{REM}_{it} = \beta_0 + \beta_1 \text{DT}_{it} + \beta_2 \text{AUDITQUALITY}_{it} + \beta_3 \text{BOARDSIZE}_{it} + \beta_4 \text{BOARDIND}_{it} + \beta_5 \text{BOARDMEET}_{it} + \beta_6 \text{ROA}_{it} + \beta_7 \text{FFRS}_{it} + \beta_8 \text{SIZE}_{it} + \beta_9 \text{LEV}_{it} + \beta_{10} \text{GROWTH}_{it} + \beta_{11} \text{LOSS}_{it} + \epsilon_{it} \dots \dots \dots (5)$$



The variables for this research are defined as follows: DT represents the frequency of words related to digital transformation; AUDITQUALITY denotes audit quality; BOARD SIZE and BOARDIND indicate the total and independent board members, respectively; BOARDMEET captures the frequency of board meetings; ROA measures profitability as the ratio of profit to total assets; FFRS reflects the ratio of cash from operations to total assets; SIZE is the natural logarithm of total assets; LEV represents leverage as the ratio of total liabilities to total assets; GROWTH measures market capitalisation relative to total equity; LOSS identifies companies experiencing losses; and ϵ denotes the residual or error term, all measured for company i in year t

RESULTS

The results of the research sample, descriptive statistical tests, model selection test, normality test, multikoleniarity test, autocorrelation test, heteroskedasticity test, coefficient determination test, and regression test for testing hypothesis.

Research Sample. Table 1 shows the final results of the research sample.

Table 1. Research Sample

No	Criteria	Total	Observation
1	Companies registered on the IDX in the 2018 to 2022 period	921	4.605
2	Companies listed after 2017	(411)	(2.055)
3	Companies operating in the Financial Industry sector	(89)	(445)
4	Companies whose Annual Reports are inaccessible and incomplete	(80)	(400)
5	Companies that have a negative Retained Earnings	(53)	(265)
	Final Sample	288	1.440

The purposive sampling method used in this research involves selecting companies based on specific criteria that align with the study's objectives. First, the sample includes companies registered on the Indonesia Stock Exchange (IDX) between 2018 and 2022, ensuring that only firms listed within this timeframe are considered. Companies listed after 2017 are excluded to maintain consistency in data availability over the study period. Additionally, because their financial practices and regulatory environment differ significantly from those of non-financial enterprises, companies in the financial industry sector are excluded from the sample. Furthermore, only companies with accessible and complete annual reports are selected, eliminating those with missing or incomplete data to ensure data quality. Finally, companies with negative retained earnings are excluded from the sample, as they may not reflect the typical financial health required for the study. After applying these criteria, the final sample consists of 288 companies, representing 1,440 observations, which form the basis for the research analysis.

Descriptive Statistical Tests. Table 2 shows the data processing results for descriptive statistical tests.



Table 2. Descriptive Statistical Tests

VARIABLE	OBS	MEAN	STD DEV	MIN	MAX	MED
ABS REM	1.440	0.236	0.280	0.000	1.993	0.137
DT	1.440	2.985	1.237	0.000	6.347	2.944
AUDIT QUALITY	1.440	0.376	0.485	0.000	1.000	0.000
BOARD SIZE	1.440	4.250	1.843	2.000	16.000	4.000
BOARD INDEPENDENCE	1.440	0.439	0.118	0.300	1.000	0.400
BOARD MEET	1.440	6.988	3.441	2.000	38.000	6.000
ROA	1.440	0.039	0.086	-0.384	0.616	0.000
SIZE	1.440	29.154	1.613	24.570	33.655	0.029
LEV	1.440	0.451	0.209	0.003	0.972	0.447
GROWTH	1.440	2.035	3.712	0.052	60.672	1.083
LOSS	1.440	0.770	0.421	0.000	1.000	1.000
FFRS	1.440	0.069	0.102	-0.341	0.624	0.050

Source: Data Processed (2024)

Table 2 shows the results of descriptive research statistics consisting of the mean. Standard deviation. Minimum. Maximum and median of each research variable. ABS REM measures earnings management with an average of 0.236 and a standard deviation 0.280. The values vary quite a bit from 0.000 to 1.993, indicating that there are differences in earnings management practices among companies. DT or Digital Transformation. Measured by the frequency of words related to digital transformation. Has an average of 2.985 and a standard deviation of 1.237, with a maximum value of 6.347 and a minimum value of 0. This means that some companies in the sample do not disclose words related to digital transformation in their annual reports.

AUDIT QUALITY is a binary variable indicating audit quality, with an average of 0.376. This value indicates that some small companies in the sample have high audit quality and tend not to be audited by the Big 4. BOARD SIZE (number of board members) averages 4.250 and ranges from 2 to 16 members, indicating a large variation in board size. By Financial Services Authority Regulation Number 33/POJK.04/2014, the minimum limit for company commissioners is 2.

BOARD IND (board of commissioner independence) has an average value of 0.430, the lowest value is 0.300, the maximum value is one, and the median is 0.400. The regulation, in this case, Financial Services Authority Regulation Number 33/POJK.04/2014, sets the minimum limit for the proportion of independent boards at 0.300. Moreover, this data shows that most companies maintain a proportion close to this minimum limit. The average frequency of board meetings (BOARD MEET) is 6.980, a minimum value of 2, a maximum of 38, and a median value of 6. Some companies in the sample do not meet the minimum regulations, with the number of board meetings being less than 6 times. These results show that many companies hold meetings (meetings) that approach the minimum limit of the regulation.

ROA (Return on Assets) has an average of 0.040, indicating a low but varying level of profitability (range -0.380 to 0.620). The SIZE variable (company size based on the logarithm of assets) shows that the size of the companies in this sample is relatively uniform. LEV (leverage). With an average of 0.450, indicates that the companies in this sample have a moderate level of debt. The GROWTH variable has high variability, with an average of 4.350, indicating diverse growth prospects.



Meanwhile, LOSS shows that around 77 per cent of companies experience losses. Finally, FFRS (Firm Financial Resources) is measured by the ratio of operating cash to total assets, with an average of 0.070 indicating differences in operating cash flow efficiency among the companies in this sample.

Model Selection Test. Table 3 shows the results of the Chow test and the Hausman test.

Table 3. Estimation Model

No	Model Test	Result	Conclusion
1	Uji Chow (Common vs FE)	p-value (0.000) less than 0.050	FE
2	Uji Hausmant (FE vs RE)	p-value (0.000) less than 0.050	FE

Source: Data Processed (2024)

Table 3 shows a significant difference between CE and FE. with a p-value of 0.000, which is lower than the specified significance level. This result indicates that the Fixed Effect is more suitable because it can effectively control the specific fixed effects on each panel unit. Furthermore, the Hausmant Test also shows a significant difference between FE and RE with p-values that are both significant at the 0.000 level. So, based on the test results. The most suitable model for this study is the Fixed Effect.

Normality Test. Table 4 shows the result for the test Skewnwss and Curtosis for normality.

Table 4. Normality Test

Variable	Skewness	Kurtosis
ABS REM	1.882	7.774
DT	-0.015	2.801
BOARD SIZE	1.261	5.970
BOARDING	1.378	5.727
BOARD MEET	1.592	5.216
AUDIT QUALITY	0.510	1.260
ROA	0.758	4.489
SIZE	-0.043	2.766
LEV	0.088	2.220
GROWTH	1.680	5.094
LOSS	-1.284	2.649
FFRS	1.346	7.386

Source: Data Processed (2024)

Table 4 shows that the results are good if the data distribution approaches normality, which can be tested by examining skewness and kurtosis. Variables with high Kurtosis values, such as ABSREM, GROWTH, ROA, and BOARDMEET, were winsorised to reduce the impact of outliers by trimming extreme values. After performing the winsorisation, as shown in **Table 4**, the variables demonstrated a normal distribution with Skewness values below three and Kurtosis values below 10. Therefore, the data is considered to be normally distributed.

Multikoleniarity Test. Table 5 shows the multikoleniarity test.



Table 5. Multikoleniarity Test

Variable	Collinearity Statistics	
	VIF	Tolerance
DT	8.000	0.125
BOARD SIZE	7.330	0.136
BOARDING	1.050	0.954
BOARD MEET	6.740	0.148
AUDIT QUALITY	2.050	0.487
ROA	3.740	0.267
SIZE	1.260	0.795
LEV	5.850	0.170
GROWTH	2.610	0.383
LOSS	6.590	0.151
FFRS	2.660	0.376

Source: Data Processed (2024)

The multicollinearity test examines the correlation between independent variables in the regression model. Initially, the VIF value for SIZE was very high at 45.700 and BOARDIND at 15.710, which indicates multicollinearity. The centring technique was applied to address this issue. After centring, as a result in **Table 5**, the VIF values for all variables were reduced to below 10, and the tolerance values were greater than 0.100, indicating that the data is now free from multicollinearity problems.

Autocorrelation Test. **Table 6** shows the Wooldridge test for the multikoleniarity test.

Table 6. Wooldridge Test

Management Laba	REM
F (1. 287)	18.252
It is more than F	0.000

Source: Data Processed (2024)

The autocorrelation test determines whether the regression model correlates with errors in one observation period and the previous period. The Wooldridge Test is used in this research to test autocorrelation, with a Prob more than F result of 0.000, meaning that the model has an autocorrelation problem. So, the Driscoll-Kraay standard error is used to overcome this problem.

Heteroskedasticity Test. **Table 7** shows the Breusch Pagan Godfrey test for heteroskedasticity test.

Table 7. Breusch Pagan Godfrey test

	REM
Chi2(1)	185.950
It is more than Chi2	0.000

Source: Data Processed (2024)



The heteroscedasticity test is used to determine whether there is a difference in residual variation between observations in one period and other observations in the regression model. This study uses the Breusch-Pagan test, which shows the results of Prob more than chi2 is 0.000. This means that there is heteroscedasticity in the model, so it uses the Driscoll-Kraay standard error to overcome this problem.

Coefficeinet Determination Test. Table 8 shows the Coefficient Determination Test.

Table 8. Coefficeinet Determination Test

	ABSREM
Number of Obs	1.440
It is more than f	0.000
R-Square	23.180 per cent

Source: Data Processed (2024)

Table 8 presents the results of the Coefficient of Determination (R-Square) test for the variable ABSREM. The analysis includes 1.440 observations, as shown in the "Number of Obs" row. The "Prob more than f" value of 0.000 indicates that the model is statistically significant, meaning that the independent variables in the model have a significant relationship with the dependent variable ABSREM. The R-Square value of 23.180 per cent indicates that approximately 23.180 per cent of the variance in ABSREM is explained by the model, with factors not covered by the model or that cannot be explained accounting for the remaining variance.

Regression Test to test the hypothesis. Table 9 shows a Fixed-Effect Regression Test with Driscoll-Kraay standard error to answer the hypothesis.

Table 9. Fixed Effect Regression Test with Driscoll-Kraay standard error

VARIABLE	ABS REM
DT (H1)	-0.005 *(-2.300)
AUDITQUALITY (H2)	-0.043 *(-2.470)
BOARDSIZE (H3)	-0.004 (-0.990)
BOARDING (H4)	-0.046 (-1.210)
BOARDMEET (H5)	0.000 (0.470)
ROA	0.802 *** (11.220)
FFRS	0.425 *** (4.890)
SIZE	0.115 ** (2.960)
LEV	0.074 * (2.280)
GROWTH	-0.003 (-0.320)
LOSS	-0.003 (-0.320)
R Square	23 per cent
Prob>F	0.000

Description: *** significant at 1 per cent level (p less than 0.010); ** significant at 5 per cent level (p less than 0.050); * significant at 10 per cent level (p less than 0.100)

Table 9 shows the results of the fixed effect regression test, which has passed the classical assumption test.



The DT variable has a significant positive value of 10 per cent, meaning that every 1 unit increase in CDT can reduce earnings management by 0.005. The AUDITQUALITY variable has a significant positive value at 10 per cent, meaning that every 1 unit increase in AUDITQUALITY can reduce earnings management by 0.044. The results of BOARDSIZE. BOARDIND. BOARDMEET show insignificant results, so hypothesis 3, hypothesis 4, and hypothesis 5 cannot be proven in this study. The control variables' outcomes demonstrate the variable's ROA. FFRS. SIZE and LEVERAGE have significant positive results.

DISCUSSION

Digital Transformation and Earning Management: The findings of this research indicate that digital transformation has a significant negative relationship with earnings management, suggesting that as companies undergo digital transformation, the likelihood of earnings manipulation decreases. This is consistent with the Resource-Based View (RBV) theory, which posits that companies must effectively utilise their resources to gain a competitive advantage. In this context, digital transformation through technologies like cloud computing, blockchain, artificial intelligence, and big data enhances transparency and reduces information asymmetry, making it more difficult for managers to manipulate earnings. The results align with previous research by (Al Shanti & Elessa, 2023), (W. Chen et al., 2022), (Wang & Han, 2023) which show that digital transformation can improve the quality of accounting information and reduce fraudulent activities. The implications of these findings are far-reaching: for managers, it means a reduction in the opportunities and incentives to manipulate earnings; for shareholders, it ensures more accurate financial reporting, reducing risks related to financial misstatements; and for regulators, it highlights the importance of supporting digital transformation initiatives to enhance corporate governance.

Audit Quality and Earning Management: Regarding audit quality, this research finds that high-quality audits, particularly those conducted by Big4 auditors, are successful in reducing earnings management practices. These findings are consistent with earlier research (Mnif & Ben Hamouda, 2020; Muhammad Shaheer Nuhu et al., 2024), which shows that audit quality can reduce corporate earnings management practices.

External auditors act as independent overseers of a company's financial statements by providing an objective and thorough review of the company's financial records. They help prevent the occurrence of earnings management practices, which managers could otherwise use to distort financial results for personal or organisational benefit. They play a crucial role in keeping an eye on and guaranteeing adherence to accounting rules and standards intended to safeguard stakeholders' interests. Particularly shareholders. The presence of high-quality auditors. Such as those from the Big 4. It enhances corporate governance by fostering transparency and accountability within the company. Auditors from reputable firms have the incentive and the expertise to identify discrepancies, Inconsistencies, or irregularities in financial reporting., which may indicate earnings management or other fraudulent activities.

External auditors improve the accuracy of financial reports by spotting and disclosing such problems, which lessens managers' chances of managing earnings. This ultimately protects the interests of shareholders. It ensures that the reported financial performance accurately reflects the company's economic situation without manipulation. These mechanisms lead to the acceptance of the study's second hypothesis. This affirms



that high-quality audits, as indicated by the participation of Big4 auditors, are successful in lowering earnings management methods. This connection emphasises how crucial robust independent audits are as a component of a more extensive corporate governance system that helps management and shareholders align their interests, eventually promoting integrity and trust in financial reporting. External auditors serve as independent overseers, ensuring financial statements adhere to accounting standards and protect stakeholders' interests. The implications for companies are that engaging high-quality auditors promotes transparency and reduces the chances of earnings management, thereby fostering trust and integrity in financial reporting. This means that shareholders' investments are safeguarded through more reliable financial disclosures. Additionally, the findings emphasise the need for companies to prioritise high-quality audits to enhance governance and ensure compliance with financial regulations.

Board Characteristics and Earning Management: The results of BOARDSIZE, BOARDIND, and BOARDMEET show insignificant results, so hypothesis 3, hypothesis 4 and Hypothesis 5 cannot be proven in this research. This result is consistent with (Rajeevan & Ajward, 2019), which shows that specific characteristics, such as board size and board meetings, have no significant effect on earnings management. In contrast, CEO-Chairman duality has a positive impact on earnings management.

Regarding the characteristics of the board of commissioners. It has been regulated in the Financial Services Authority Regulation Number 33 / POJK.04 / 2014 concerning the Board of Directors and Board of Commissioners of Issuers or Public Companies Article 20 concerning membership of the Board of Commissioners and Article 31 concerning the Board of Commissioners Meeting so that in this study most companies have implemented regulations and caused insignificant results.

One of the reasons why the research results are insignificant is because most companies in the sample have followed the guidelines or rules regarding corporate governance that have been set. Thus creating homogeneity in the characteristics of the board of commissioners. This is reflected in descriptive statistics, which show that most companies in the sample meet only the minimum requirements set out in the guidelines. For example. for board size and the proportion of independent commissioners (board independence). Although some companies implement policies that exceed the minimum requirements, these variables' mean and median values tend to be close to the minimum required values. This indicates that companies in the sample only meet the minimum standards without significant variation in their implementation.

When the majority of companies comply with the same standards or guidelines, the variation in the data becomes low. This low variation makes it difficult to find a statistically significant relationship between the characteristics of the board of commissioners and earnings management. The differences between companies in terms of the characteristics of the board tested (like the board size, board independence, and board meeting) are not large enough to show a real relationship to earnings management practices.

The implication for companies is that simply meeting the minimum governance standards may not significantly influence earnings management practices. Regulators might consider revising corporate governance regulations to encourage more diverse and effective board structures, which could reduce earnings manipulation.

Control Variable: The results for the control variables ROA, FFRS, SIZE, and LEVERAGE demonstrate significant positive relationships with earnings management. Indicating that an increase in these variables corresponds to a higher likelihood of



managerial manipulation in financial reporting. A high Return on Assets (ROA), which reflects strong company performance, often pressures managers to sustain favourable shareholder perceptions and meet profit targets. Maintaining or improving the ROA measure may encourage managers to use earnings management techniques like modifying spending or manipulating accruals. Similarly, high Firm Financial Resources (FFRS), particularly related to operating cash flow, provide managers with greater flexibility to adjust reported financial outcomes. This flexibility enables managers to smooth earnings, creating stable or improved performance even when the underlying results may not fully align with such portrayals.

Large company size (SIZE) introduces additional complexity. While larger firms are subject to heightened scrutiny and monitoring, they face intense pressure to meet market expectations such as analyst forecasts and shareholder demands. Managers in larger firms may manipulate earnings to align reported results with these expectations, leveraging the complexity of their operations to conceal financial adjustments. On the other hand, high leverage (LEVERAGE) places significant financial strain on companies as they must demonstrate the ability to meet debt obligations and maintain favourable financial ratios. Under such conditions, managers may manipulate earnings to present a stronger financial position, ensuring compliance with creditor requirements and preserving the company's creditworthiness.

In conclusion, these control variables highlight how firm characteristics such as profitability, financial flexibility, size, and debt levels create both the means and the motivation for earnings management. Managers may exploit these factors to align financial results with desired targets, manage perceptions, and mitigate financial pressures, ultimately distorting the accuracy of reported financial performance.

CONCLUSION

Audit quality and digital transformation play pivotal roles in curbing earnings management practices within companies, making them crucial elements for effective corporate governance. A more transparent and effective operating environment is promoted by digital transformation, which is characterised by the incorporation of cutting-edge digital technologies into company processes. This transformation enables real-time accurate data collection and reporting, significantly reducing the potential for earnings management by providing stakeholders with reliable financial information. By enhancing transparency, digital transformation constrains managerial discretion in financial reporting as it becomes increasingly difficult to manipulate financial data in a system that allows for real-time monitoring and audit trails. In the Resource-Based View (RBV) theory context, digital transformation is more than just an operational tool; it represents a strategic resource companies can leverage to gain a competitive advantage. Integrating technologies like blockchain, artificial intelligence, cloud computing, and big data analytics creates valuable, inimitable resources that bolster a company's capacity to deliver trustworthy and accurate financial information. These technologies strengthen the integrity of accounting practices, enhancing the overall governance framework of the company and making it less susceptible to earnings manipulation.

Furthermore, high audit quality is an essential governance mechanism that ensures the reliability of financial reporting. External auditors who maintain high professional standards and independence are guardians of financial transparency. Their role is to verify the accuracy of financial statements, ensuring that they reflect the company's financial



health. This is consistent with agency theory, highlighting the necessity of efficient monitoring systems to close the knowledge gap between shareholders and managers. By guaranteeing that the financial data given to shareholders is reliable and limiting the chance for managers to participate in profit management techniques that could skew the company's actual financial performance, competent auditors help to avoid conflicts of interest. This makes the role of auditors crucial in maintaining the integrity of financial reporting and, by extension, corporate governance.

However, this research also reveals that the characteristics of the board of commissioners, such as board size, independence, and meeting frequency, do not significantly impact earnings management practices. This lack of influence is likely attributed to many companies in the sample only meeting the minimum governance requirements set by regulations. As a result, the board characteristics across these firms tend to be relatively homogeneous, limiting the potential for board characteristics to have a distinct effect on earnings management behaviour. This suggests that while corporate governance regulations may be in place, they may not go far enough in driving meaningful differences in governance practices or influencing the behaviour of management regarding earnings manipulation.

The limitations of this study are also worth noting. First, the research sample is restricted to companies that meet specific inclusion criteria, focusing primarily on the quantity of digital transformation implementation. The study does not address the quality of digital transformation, such as the extent to which technology is effectively integrated into business operations or the depth of technology adoption. Future research could expand on this by examining the implementation of digital technologies and their effectiveness in improving corporate governance and financial reporting. Additionally, this research does not explore how digital transformation might influence the oversight functions of the audit committee and board of commissioners.

Future research might look into how digital transformation modifies these oversight mechanisms. Specifically, it improves the audit committee's capacity to monitor financial reporting and assist external auditors. Furthermore, research could also explore how digital transformation impacts the data and information collection process for external auditors, improving the accuracy and reliability of audits. Lastly, it would be valuable for future studies to develop more robust measures to assess how companies are utilising digital transformation, considering the presence of technology and the effectiveness and sophistication of its application in driving transparency and reducing earnings management.

In conclusion, while digital transformation and audit quality serve as practical tools for reducing earnings management, The characteristics of the board of commissioners have a less pronounced impact in this context. Future research should consider a broader and deeper exploration of digital transformation's role in corporate governance, its impact on the effectiveness of audit functions, and how well companies adopt digital tools to enhance transparency and curb earnings management.

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