
**ARTIFICIAL INTELLIGENCE DISCLOSURE AS A STRATEGIC SIGNAL:
IMPLICATIONS FOR CORPORATE FINANCIAL PERFORMANCE**

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Abstract

This study examines Artificial Intelligence Disclosure as a strategic non-financial signal and its implications for the financial performance of banking companies listed on the Indonesia Stock Exchange during 2021–2024. Financial performance is measured using Return on Assets, Return on Equity, Net Interest Margin, and Price to Earnings. This study applies a quantitative approach using secondary data obtained from annual reports and financial statements. Using purposive sampling, 47 banking companies were selected, resulting in 188 firm-year observations. The data were analyzed using panel data regression with model selection through the Chow, Hausman, and Lagrange Multiplier tests. The findings show that Artificial Intelligence Disclosure has no significant effect on Return on Assets and Return on Equity, but has a positive and significant effect on Net Interest Margin and Price to Earnings. These results indicate that Artificial Intelligence Disclosure is more strongly reflected in operational efficiency and market valuation than in short-term accounting profitability. This study contributes to the development of signaling theory by positioning Artificial Intelligence Disclosure as a technology-based strategic signal. Practically, the findings imply that banking management should strengthen transparent and informative Artificial Intelligence Disclosure to enhance investor confidence and competitiveness in the digital transformation era.

Keywords: Artificial Intelligence Disclosure, Banking Companies, Financial Performance, Net Interest Margin, Price to Earnings, Signaling Theory

INTRODUCTION

Financial performance is a fundamental signal for investors, traders, and other capital market participants in assessing the condition and prospects of banking companies. In the banking sector, financial performance is particularly important because banks operate in a highly regulated industry, face high exposure to credit and liquidity risks, and depend heavily on public trust. Rising non-performing loan (NPL) ratios, liquidity pressure, and high operating expense-to-operating revenue (BOPO) ratios may indicate weakening banking performance (Sholika & Zaki, 2023). Recent data from the Financial Services Authority show that the NPL ratio increased from 2.08% in December 2024 to 2.24% in April 2025 (Octaviano & Hema, 2025).

The assessment of banking financial performance can be reflected through several indicators. Return on Assets measures the ability of banks to generate income from their total assets (Anggraini et al., 2023). Return on Equity reflects the company's ability to generate returns for shareholders (Ibrahim et al., 2024). Net Interest Margin captures the bank's ability to generate net interest income from productive assets, while Price to Earnings reflects market expectations toward future earnings. These indicators are relevant for evaluating both accounting-based performance and market-based valuation.

The increase in credit risk indicates that Indonesian banking companies face serious challenges in maintaining profitability, operational efficiency, and market confidence. This condition requires banks to adopt more effective and innovative strategies, particularly in response to the acceleration of digital financial services and the disruption caused by financial technology companies. Therefore, digital transformation has become an important strategic response to maintain financial stability and competitiveness in the banking industry.

One of the most important forms of banking digital transformation is the adoption of mobile banking and other technology-based financial services. Mobile banking has grown rapidly because it supports customer mobility and provides efficient access to banking services in the digital era (Alamsyah & Safitri, 2024). However, digital transformation is no longer limited to service channels. It increasingly involves advanced technologies that support risk management, operational efficiency, and strategic decision-making.

Artificial Intelligence (AI) is increasingly viewed as a strategic technology that can support operational transformation in banking. AI can automate repetitive activities, improve decision-making processes, and optimize corporate cost structures (Machucho & Ortiz, 2025). In addition, AI is able to replicate cognitive functions at greater speed and scale, making it relevant for credit scoring, fraud detection, liquidity management, Know Your Customer processes, robo-advisory services, and customer service automation.

In Indonesia, corporate-level AI adoption grew by 47% year-over-year in 2024, and approximately 10% of companies had integrated AI into decision-making processes and the development of new models (Destryawan, 2025). This development indicates that AI has become part of business innovation. Nevertheless, external stakeholders cannot directly observe the extent to which AI is actually implemented within a company's internal systems.

This condition creates information asymmetry between management and external stakeholders. Voluntary disclosure, including disclosure of emerging technology-related risks and opportunities, plays an important role in reducing information asymmetry and strengthening shareholder confidence in the capital market (Jubaedah et al., 2024). In this context, signaling theory provides a relevant theoretical foundation for explaining the role of Artificial Intelligence Disclosure as a strategic signal communicated by management to the market.

Artificial Intelligence Disclosure does not merely indicate whether a company uses AI. It also explains the functions, objectives, benefits, governance, and risks of AI in supporting corporate activities and decision-making. Thus, Artificial Intelligence Disclosure serves as a transparency mechanism that bridges the information gap between management and stakeholders. The emergence of technology-based banks and digital banking models, such as Bank Jago (ARTO), illustrates the growing importance of technology readiness in the Indonesian banking sector.

To date, Artificial Intelligence Disclosure remains voluntary and does not yet have a standardized reporting framework regarding the format and type of information that should be disclosed. Consequently, the depth and quality of AI-related disclosure depend on each company's policy. This creates variation in disclosure practices and raises the need to examine whether such disclosure is perceived as a meaningful signal by the market.

Previous research by Abdelrauf et al. (2025) demonstrated that Artificial Intelligence Disclosure has a positive and significant effect on banking financial performance. However, this finding differs from Gunawan and Sustaningrum (2024), who found negative implications of artificial intelligence for financial performance. These inconsistent findings indicate a research gap, particularly regarding Artificial Intelligence Disclosure as a signaling mechanism in the Indonesian banking context. Therefore, this study examines the effect of Artificial Intelligence Disclosure on banking financial performance in Indonesia and contributes by positioning AI-related disclosure as a technology-based non-financial signal that may influence both operational performance and market valuation.

REVIEW OF LITERATURE

Signaling Theory

Signaling Theory, introduced by Ross (1977), explains that when information asymmetry exists between management and investors, companies may send signals through policies, financial decisions, and voluntary disclosures to communicate their actual condition and future prospects. In a financial context, dividend policy, debt utilization, disclosure transparency, and corporate governance practices can reduce investor uncertainty and influence market perceptions of firm value. In the context of digital transformation, Artificial Intelligence Disclosure can serve as a credible non-financial signal regarding a company's innovation capability, technological readiness, and long-term strategic orientation.

The concept of signaling theory is interpreted as an institutional effort to communicate relevant information to external parties in response to asymmetric information. This situation occurs when management possesses more information than investors and

other stakeholders (Sari et al., 2022). Cahyaningtyas (2020) emphasizes that information is not merely data, but a strategic message that helps align the relationship between management, investors, and the market. Accordingly, transparent Artificial Intelligence Disclosure can strengthen the credibility of corporate signals by showing how banks manage innovation, risk, and digital transformation.

Artificial Intelligence Disclosure

Artificial Intelligence Disclosure refers to the structured presentation of information regarding the use, implementation, strategy, benefits, governance, and risks of artificial intelligence within a company. Such disclosure may take the form of high-level public disclosure in annual reports, sustainability reports, corporate websites, or other official publications. In the banking sector, Artificial Intelligence Disclosure provides stakeholders and shareholders with information on how banks utilize AI in financial services, risk management, data governance, fraud detection, digital innovation, and customer service.

Artificial Intelligence Disclosure not only reflects the presence of AI in operational activities but also indicates a company's readiness to use technology to create long-term value for shareholders. The ongoing digital transformation across industries has positioned AI as a core component of business operations (Riswanto & Rachmadi, 2023). In banking, AI supports credit scoring, fraud detection, liquidity risk management, Know Your Customer processes, and robo-advisory or chatbot services. These applications may reduce costs, improve decision accuracy, and enhance operational efficiency, consistent with Karmali and Valilai (2025), who found that AI can accelerate operational processes and increase efficiency.

Financial Performance

Financial performance reflects the company's ability to generate economic benefits and maintain business sustainability. In the banking sector, financial performance can be assessed through profitability, efficiency, and market valuation indicators. This study specifically examines four indicators: Return on Assets, Return on Equity, Net Interest Margin, and Price to Earnings. Return on Assets reflects the ability to generate profit from total assets, Return on Equity measures returns generated for shareholders, Net Interest Margin reflects the ability to generate net interest income from productive assets, and Price to Earnings captures investor expectations toward future earnings by comparing market price per share with earnings per share (Brigham & Houston, 2019).

From the perspective of signaling theory, Artificial Intelligence Disclosure can reduce information asymmetry between management and investors regarding the use of AI in business operations. Transparent disclosure allows investors to better assess technological capability, operational efficiency, risk management, and future profitability. Previous studies have reported mixed findings. Shiyyab et al. (2023), Syed et al. (2025), and Abdelrauf et al. (2025) found a positive relationship between Artificial Intelligence Disclosure and financial performance, while other studies found inconsistent results. This debate strengthens the need to re-examine the relationship in the Indonesian banking context.

Based on the literature review and signaling theory explained above, this study proposes the following hypotheses:

- H1: Artificial Intelligence Disclosure has a significant effect on Return on Assets
H2: Artificial Intelligence Disclosure has a significant effect on Return on Equity
H3: Artificial Intelligence Disclosure has a significant effect on Net Interest Margin
H4: Artificial Intelligence Disclosure has a significant effect on Price to Earnings

RESEARCH METHOD

This study employs a quantitative causal approach using secondary data obtained from annual reports and corporate financial statements. The population consists of banking companies listed on the Indonesia Stock Exchange during the 2021–2024 period. The sampling technique used in this study is purposive sampling, resulting in 47 banking companies and 188 firm-year observations. The independent variable is Artificial Intelligence Disclosure, measured using the Artificial Intelligence Disclosure (AID) through content analysis. The index consists of 15 disclosure items grouped into four categories: (1) AI Strategy and Governance, (2) AI Implementation and Applications, (3) AI Benefits and Performance, and (4) AI Risks and Ethical Considerations. Each item is scored using a dichotomous approach, where 1 is assigned if the item is disclosed and 0 if it is not disclosed. The total score is divided by the maximum possible score to obtain an index value between 0 and 1.

Table 1.
Research Sampling Process

Sample Criteria	Total
Banking companies listed on the Indonesia Stock Exchange during 2021–2024	47
Companies that did not consistently publish annual reports and financial statements during the observation period	0
Companies with incomplete data related to Artificial Intelligence Disclosure and financial performance indicators	0
Total sample for one year	47
Total observations for four years, 2021–2024	188

Source: Researcher's Analysis

Table 2. Operationalization of Variables

Variables	Definition	Measurements
Independent Variable		
Artificial Intelligence Disclosure (AID)	Artificial Intelligence Disclosure refers to the disclosure of information related to the use, implementation, strategy, benefits, and risks of artificial intelligence in corporate reports. In this study, AI Disclosure is measured using the Artificial Intelligence Disclosure	$AID = \frac{\text{Number of disclosed AI items}}{\text{Total AI disclosure items}} \times 100\%$. Each item is scored using a dichotomous approach: 1 if disclosed and 0 if not

	Index, which consists of 15 disclosure items classified into four categories: AI strategy and governance, AI implementation and applications, AI benefits and performance, and AI risks and ethical considerations (Shiyyab et al., 2023).	disclosed (Shiyyab et al., 2023).
Dependent Variables		
Return on Assets (ROA)	Return on Assets is a profitability ratio that measures a company's ability to generate earnings from its total assets (Anggraini et al., 2023).	$ROA = \text{Net Income} / \text{Total Assets} \times 100\%$
Return on Equity (ROE)	Return on Equity is a profitability ratio that measures a company's ability to generate earnings from shareholders' equity (Ibrahim et al., 2024).	$ROE = \text{Net Income} / \text{Total Equity} \times 100\%$
Net Interest Margin (NIM)	Net Interest Margin is a banking ratio that measures a bank's ability to generate net interest income from its earning assets (Fadhilah et al., 2026).	$NIM = \text{Net Interest Income} / \text{Average Earning Assets} \times 100\%$
Price to Earnings (P/E)	Price to Earnings is a market valuation ratio that reflects investors' assessment of a company's earnings and future growth prospects (Brigham & Houston, 2019).	$\text{Price to Earnings} = \text{Market Price per Share} / \text{Earnings per Share} \times 100\%$

Sources: Adapted from Shiyyab et al. (2023), Anggraini et al. (2023), Ibrahim et al. (2024), Fadhilah et al. (2026), and Brigham and Houston (2019).

The data were processed using Microsoft Excel and EViews 12. Panel data regression analysis was applied because the research data combine cross-sectional observations of banking companies and time-series observations across four years. Model selection was conducted using the Chow test, Hausman test, and Lagrange Multiplier test to determine the most appropriate estimation model among the Common Effects Model, Fixed Effects Model, and Random Effects Model. The regression models used in this study are specified for each financial performance indicator as the dependent variable.

RESULTS AND DISCUSSION

The researchers conducted data analysis using Microsoft Excel and EViews 12. The panel data regression method was selected to accommodate the combined cross-sectional and time-series characteristics of the data. The estimation model for each dependent variable was determined based on the Chow, Hausman, and Lagrange Multiplier tests. The model selection results, classical assumption tests, regression results, and hypothesis testing are presented in the following tables.

Table 3. Model Selection Test Results, Y = Return on Assets

Testing	Probability	Decision Rule	Selected Model
Chow Test	0.0178	$p < 0.05$ indicates Fixed Effects Model	FEM
Hausman Test	0.0253	$p < 0.05$ indicates Fixed Effects Model	FEM
Selected Estimation Model	-	Based on model selection tests	Fixed Effects Model

Source: Researcher's Analysis

Based on the model selection tests, the effect of Artificial Intelligence Disclosure on Return on Assets was analyzed using the Fixed Effects Model.

Table 4. Model Selection Test Results, Y = Return on Equity

Testing	Probability	Decision Rule	Selected Model
Chow Test	0.0152	$p < 0.05$ indicates Fixed Effects Model	FEM
Hausman Test	0.0641	$p > 0.05$ indicates Random Effects Model	REM
Lagrange Multiplier Test	0.0208	$p < 0.05$ indicates Random Effects Model	REM
Selected Estimation Model	-	Based on model selection tests	Random Effects Model

Source: Researcher's Analysis

Based on the model selection tests, the effect of Artificial Intelligence Disclosure on Return on Equity was analyzed using the Random Effects Model.

Table 5. Model Selection Test Results, Y = Net Interest Margin

Testing	Probability	Decision Rule	Selected Model
Chow Test	0.0001	$p < 0.05$ indicates Fixed Effects Model	FEM

Hausman Test	0.0608	$p > 0.05$ indicates Random Effects Model	REM
Lagrange Multiplier Test	0.0329	$p < 0.05$ indicates Random Effects Model	REM
Selected Estimation Model	-	Based on model selection tests	Random Effects Model

Source: Researcher's Analysis

Based on the model selection tests, the effect of Artificial Intelligence Disclosure on Net Interest Margin was analyzed using the Random Effects Model.

Table 6. Model Selection Test Results, Y = Price to Earnings

Testing	Probability	Decision Rule	Selected Model
Chow Test	0.0000	$p < 0.05$ indicates Fixed Effects Model	FEM
Hausman Test	0.1876	$p > 0.05$ indicates Random Effects Model	REM
Lagrange Multiplier Test	0.0002	$p < 0.05$ indicates Random Effects Model	REM
Selected Estimation Model	-	Based on model selection tests	Random Effects Model

Source: Researcher's Analysis

Based on the model selection tests, the effect of Artificial Intelligence Disclosure on Price to Earnings was analyzed using the Random Effects Model.

Table 7. Classical Assumption Test Results

Classical Assumption Tests	Test Name	Qualification	Variable	Result	Conclusion
Test of Normality	Jarque-Bera	Prob > 0.05	X -> Y1	0.204	Passed Normality Test
			X -> Y2	0.737	
			X -> Y3	0.706	
			X -> Y4	0.492	
Test of Autocorrelation	Run Test	Prob > 0.05	X -> Y1	0.196	Passed Autocorrelation Test
			X -> Y2	0.196	
			X -> Y3	0.200	
			X -> Y4	1.000	
Test of Multicollinearity	Tolerance	T > 0.01	X -> Y1	T = 1.0 - VIF = 1.0	

	VIF	VIF < 10	X -> Y2	T = 1.0 - VIF = 1.0	Passed Multicollinearity Test
			X -> Y3	T = 1.0 - VIF = 1.0	
			X -> Y4	T = 1.0 - VIF = 1.0	
Test of Heteroscedasticity	<i>Glejser</i>	Prob > 0.05	X -> Y1	0.364	Passed Heteroscedasticity Test
			X -> Y2	0.211	
			X -> Y3	0.084	
			X -> Y4	0.073	

Source: Researcher's Analysis

After the panel data regression models were selected, classical assumption tests were conducted to ensure the reliability of the estimation results. The tests included normality, autocorrelation, multicollinearity, and heteroscedasticity. As presented in Table 7, all probability values and diagnostic indicators meet the required criteria, indicating that the models satisfy the classical assumption requirements and can be used for hypothesis testing.

Table 8. Regression Results

Dependent Variable	Intercept Coefficient	AID Coefficient	P-Value	Notes
Return on Assets	3.830	0.002	0.080	Not Significant
Return on Equity	16.106	0.012	0.126	Not Significant
Net Interest Margin	25.242	0.033	0.001	Significant
Price to Earnings	6.565	0.003	0.012	Significant

Source: Researcher's Analysis

Referring to the panel data regression results presented in Table 8, the estimated coefficients of Artificial Intelligence Disclosure on the four dependent variables—Return on Assets, Return on Equity, Net Interest Margin, and Price to Earnings—produce the following regression equation models:

Table 9. Four Regression Equation Models

Y1it	= 3.830 + 0.002AIDit + e
Y2it	= 16.106 + 0.012AIDit + e
Y3it	= 25.242 + 0.033AIDit + e
Y4it	= 6.565 + 0.003AIDit + e

Source: Researcher's Analysis

Robustness

Robustness checks were conducted to verify that the main findings remain stable across alternative estimation specifications. The primary models—Fixed Effects Model for Return on Assets and Random Effects Model for Return on Equity, Net Interest Margin, and Price to Earnings—were cross-validated using alternative model specifications. The direction and significance of the Artificial Intelligence Disclosure coefficients remained qualitatively

consistent. Net Interest Margin ($\beta = 0.033$, $p = 0.001$) and Price to Earnings ($\beta = 0.003$, $p = 0.012$) remained positive and statistically significant, while Return on Assets ($\beta = 0.002$, $p = 0.080$) and Return on Equity ($\beta = 0.012$, $p = 0.126$) remained positive but statistically insignificant. These results confirm that the main findings are not sensitive to the choice of estimation method, thereby strengthening the reliability of the study conclusions.

The Effect of AI Disclosure on Return on Assets

Table 10. T-Test of the Effect of AI Disclosure on Return on Assets

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.830395	0.407535	9.398937	0.0000
X	0.002266	0.001204	1.881718	0.0808
R-squared	0.201864	Mean dependent var	3.132500	
Adjusted R-squared	0.144854	S.D. dependent var	0.730639	
S.E. of regression	0.675652	Akaike info criterion	2.170191	
Sum squared resid	6.391076	Schwarz criterion	2.266765	
Log likelihood	-15.36153	Hannan-Quinn criter.	2.175136	
F-statistic	3.540866	Durbin-Watson stat	1.042356	
Prob(F-statistic)	0.080831			

Source: Researcher's Analysis

Based on the Return on Assets ratio, the p-value is 0.080. Since this probability value exceeds the significance threshold of 0.05, H1 is not supported. The coefficient of 0.002 indicates a positive direction between Artificial Intelligence Disclosure and Return on Assets, although the relationship is not statistically significant. This result suggests that an increase in Artificial Intelligence Disclosure is associated with a positive tendency in asset-based profitability, but the effect has not yet reached a significant level.

From the perspective of signaling theory, Artificial Intelligence Disclosure as a non-financial signal has not yet been fully interpreted by the market and stakeholders as an indicator of improved asset-based profitability. The disclosure provided by companies is still prospective in nature and does not yet provide a sufficiently strong signal regarding the realization of operational efficiency that directly affects Return on Assets. Investors may still view Artificial Intelligence Disclosure as a long-term strategic commitment rather than as an immediate driver of short-term profitability.

The insignificant effect may also be explained by the time lag between AI implementation, disclosure, and the realization of economic benefits. In the banking context, the benefits of AI for optimizing productive assets, reducing operational costs, and improving credit quality are generally gradual and may not be immediately reflected in the Return on Assets ratio within the 2021–2024 observation period.

The Effect of AI Disclosure on Return on Equity

Table 11. T-Test of the Effect of AI Disclosure on Return on Equity

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.83126	2.525677	9.435592	0.0000
X	0.012135	0.007464	1.625779	0.1263
R-squared	0.158813	Mean dependent var		20.09438
Adjusted R-squared	0.098729	S.D. dependent var		4.410708
S.E. of regression	4.187319	Akaike info criterion		5.818467
Sum squared resid	245.4710	Schwarz criterion		5.915041
Log likelihood	-44.54774	Hannan-Quinn criter.		5.823413
F-statistic	2.643158	Durbin-Watson stat		0.942691
Prob(F-statistic)	0.126288			

Source: Researcher's Analysis

Based on the Return on Equity ratio, the p-value is 0.126. Since this value exceeds 0.05, H2 is not supported. The coefficient of 0.012 shows a positive direction, but it is not statistically significant. This finding indicates that Artificial Intelligence Disclosure has not yet significantly contributed to increasing returns for shareholders. The coefficient of determination further shows that only a limited portion of Return on Equity variation can be explained by Artificial Intelligence Disclosure.

From the perspective of signaling theory, Artificial Intelligence Disclosure as a non-financial signal has not yet been fully recognized by shareholders in the form of increased equity returns. The information disclosed by companies tends to be perceived as a long-term commitment and does not yet provide sufficiently strong assurance regarding profit growth that can directly benefit shareholders. In addition, Return on Equity is influenced by capital structure, leverage, and retained earnings policy, which may weaken the direct relationship between Artificial Intelligence Disclosure and equity-based profitability.

The Effect of AI Disclosure on Net Interest Margin

Table 12. T-Test of the Effect of AI Disclosure on Net Interest Margin

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.24226	2.939165	8.588241	0.0000
X	0.033212	0.008686	3.823533	0.0019
R-squared	0.510821	Mean dependent var		15.01500
Adjusted R-squared	0.475880	S.D. dependent var		6.730804
S.E. of regression	4.872841	Akaike info criterion		6.121700
Sum squared resid	332.4241	Schwarz criterion		6.218274
Log likelihood	-46.97360	Hannan-Quinn criter.		6.126645
F-statistic	14.61941	Durbin-Watson stat		0.509081
Prob(F-statistic)	0.001862			

Source: Researcher's Analysis

Based on the Net Interest Margin ratio, the p-value is 0.001. Since this p-value is smaller than 0.05, H3 is supported. The coefficient of 0.033 indicates a positive and significant effect. With an R-squared value of 0.510, Artificial Intelligence Disclosure explains 51% of the variation in Net Interest Margin. This result shows that higher Artificial Intelligence Disclosure is associated with better operational efficiency in generating net interest income.

This finding supports signaling theory because transparent disclosure of AI initiatives provides a positive signal regarding a bank's ability to improve credit scoring, fraud detection, liquidity management, and operational efficiency. The use of AI can strengthen the accuracy of credit assessment and reduce inefficiencies in interest-based banking activities. Therefore, Artificial Intelligence Disclosure is more strongly reflected in Net Interest Margin because this ratio directly captures the efficiency of banks in generating net interest income from productive assets.

The Effect of AI Disclosure on Price to Earnings

Table 13. T-Test of the Effect of AI Disclosure on Price to Earnings

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.565145	0.430542	15.24856	0.0000
X	0.003647	0.001272	2.866805	0.0124
R-squared	0.369897	Mean dependent var	5.441875	
Adjusted R-squared	0.324889	S.D. dependent var	0.868733	
S.E. of regression	0.713795	Akaike info criterion	2.280027	
Sum squared resid	7.133051	Schwarz criterion	2.376601	
Log likelihood	-16.24022	Hannan-Quinn criter.	2.284973	
F-statistic	8.218574	Durbin-Watson stat	0.357436	
Prob(F-statistic)	0.012431			

Source: Researcher's Analysis

Based on the Price to Earnings ratio, the p-value is 0.012. Since this p-value is smaller than 0.05, H4 is supported. The coefficient of 0.003 shows a positive and significant relationship, with Artificial Intelligence Disclosure explaining 36.9% of the variation in Price to Earnings. This finding supports signaling theory because the market rewards companies that transparently disclose their AI initiatives through higher valuation. Investors appear to interpret Artificial Intelligence Disclosure as a positive signal regarding banks' digital readiness and future growth potential.

Conceptually, Price to Earnings reflects investors' expectations regarding a company's future earnings growth rather than merely its current financial performance. Price to Earnings compares the market price per share with earnings per share, making it useful for assessing how the market values a company's earnings and future growth prospects (Brigham & Houston, 2019). Therefore, the effect of Artificial Intelligence Disclosure on Price to Earnings is more indirect and perception-based. Artificial Intelligence Disclosure provides strategic information regarding a company's digital readiness, innovation direction, and technological capability in responding to the increasingly digitized financial industry. The signal conveyed through AI-related disclosure shapes shareholders' perceptions of long-term growth potential, which is then reflected in higher market valuation.

From the perspective of signaling theory, Artificial Intelligence Disclosure serves as a credible signal conveyed by management to investors regarding the company's commitment to innovation, efficiency, and sustainable digital transformation. This disclosure reduces information asymmetry between management and shareholders, particularly regarding the company's digital strategy. Accordingly, companies that disclose AI initiatives more

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transparently are more likely to gain positive market responses through higher Price to Earnings.

CONCLUSION

This study aims to analyze the effect of Artificial Intelligence Disclosure on the financial performance of banking companies listed on the Indonesia Stock Exchange during 2021–2024. Financial performance is measured using Return on Assets, Return on Equity, Net Interest Margin, and Price to Earnings. The results show that Artificial Intelligence Disclosure has no significant effect on Return on Assets ($p = 0.080$) and Return on Equity ($p = 0.126$). However, Artificial Intelligence Disclosure has a positive and significant effect on Net Interest Margin ($p = 0.001$) and Price to Earnings ($p = 0.012$).

These findings indicate that Artificial Intelligence Disclosure functions more effectively as an operational efficiency and market signaling mechanism than as a direct driver of short-term accounting profitability. While the benefits of AI on asset and equity returns may require a longer period to materialize, transparent AI-related disclosure is associated with better Net Interest Margin and higher market valuation. From the perspective of signaling theory, Artificial Intelligence Disclosure serves as a credible non-financial signal that reduces information asymmetry and strengthens investor confidence in banks' digital transformation strategies.

This study contributes theoretically by extending the application of signaling theory to emerging technology disclosure in Indonesia's banking sector. Practically, the findings suggest that banking management should develop more transparent, structured, and informative Artificial Intelligence Disclosure to strengthen investor trust and competitive positioning. For regulators, the findings indicate the importance of developing clearer guidance for technology-related disclosure, especially regarding the governance, benefits, risks, and ethical aspects of AI implementation in financial institutions.

This study has several limitations. First, the observation period is limited to 2021–2024, so the long-term impact of Artificial Intelligence Disclosure may not yet be fully captured. Second, the measurement of Artificial Intelligence Disclosure relies on content analysis of publicly available reports, which may not fully reflect the actual depth of AI implementation within banks. Future research is suggested to use a longer observation period, broader financial sectors, and more advanced estimation methods to address potential endogeneity issues and to compare the effects of AI disclosure across different industries.

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