International Journal of Current Economics & Business Ventures, 6 (1) 2026, 344-363
International Journal of Current Economics & Business Ventures
https://scholarsnetwork.org/journal/index.php/ijeb

JOURNAL

MANAGERIAL ABILITY AND EARNINGS ANNOUNCEMENT TONE AS DETERMINANTS OF MARKET REACTION: THE MODERATING ROLE OF DIGITAL TRANSFORMATION IN INDONESIAN MANUFACTURING FIRMS

Zakiyyah Riris Merbaka[1], I Gusti Ketut Agung Ulupui[2], Muhammad Yusuf[3]
E-mail: merbakariris@gmail.com
[123]Department of Accounting, Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia

Abstract: This study examines the effects of managerial ability and earnings announcement tone on market reaction, and tests the moderating role of digital transformation in these relationships. The study is grounded in Signaling Theory (Spence, 1973) and the semi-strong form of the Efficient Market Hypothesis (Fama, 1970), which jointly explain how publicly available, economically relevant information is processed by investors and reflected in security prices. Using a quantitative approach and secondary data drawn from annual reports, financial statements, and daily stock prices of manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2020–2024 period, purposive sampling yielded 1,074 firm-year observations. Market reaction is proxied by Cumulative Abnormal Return (CAR) computed with a market-adjusted model over a six-day event window. Managerial ability is estimated through a two-stage Data Envelopment Analysis (DEA)–Tobit procedure following Demerjian and McVay (2012), earnings announcement tone is measured through textual analysis of positive and negative words using the Loughran–McDonald financial sentiment dictionary, and digital transformation is captured through a ten-item Digital Disclosure Index (DDI) derived from annual report content analysis. Hypotheses are tested with Moderated Regression Analysis (MRA). The results show that managerial ability and digital transformation each have a positive and significant direct effect on market reaction, whereas earnings announcement tone has no significant effect. Digital transformation is not found to moderate either the managerial ability–market reaction relationship or the tone–market reaction relationship. These findings suggest that Indonesian investors treat managerial competence and digital readiness as independently valuable, verifiable signals, while narrative tone alone carries limited incremental information content, and that digital disclosure has not yet developed into a credibility-amplifying mechanism for other corporate signals. The study extends Signaling Theory and EMH to an emerging-market, post-pandemic digitalization context and offers practical implications for managers, investors, exchange regulators, and future researchers.

Keywords: managerial ability; earnings announcement tone; digital transformation; market reaction; cumulative abnormal return; moderated regression analysis

.

BACKGROUND

Globalization and digital transformation have made capital markets increasingly dynamic, transparent, and oriented toward the speed of information flow. Advances in artificial intelligence, big data analytics, cloud computing, and the digitalization of financial reporting systems have expanded investors' real-time access to corporate information. The World Bank (2024) reports that financial-sector digitalization has improved market efficiency by accelerating information distribution and lowering transaction costs, while the International Monetary Fund (2024) notes that digital technology fosters more integrated financial markets in which public information is reflected more quickly in asset prices. In this environment, the quality and credibility of corporate communication have become central to how investors form perceptions and respond to newly released information.

Indonesia has experienced a parallel trajectory. Data from PT Kustodian Sentral Efek Indonesia (KSEI, 2024) show that the number of capital market investors rose from roughly 3.88 million Single Investor Identifications (SIDs) in 2020 to more than 13 million in 2024, while the Indonesia Stock Exchange (IDX, 2024) recorded more than 900 listed issuers alongside increasing transaction frequency and market capitalization during the post-pandemic recovery. To support more efficient information delivery, the Financial Services Authority (OJK) and IDX have continued to develop digital reporting infrastructure through e-reporting, IDXnet, and eXtensible Business Reporting Language (XBRL) as part of the 2023–2027 Indonesian Capital Market Roadmap.

Among the various types of information disclosed by firms, the earnings announcement remains one of the most closely watched, because it signals operating performance, prospects, and value-creation capacity. Yet market reactions to earnings announcements are not uniform: investors weigh not only the magnitude of reported earnings but also earnings quality, management credibility, macroeconomic conditions, and the surrounding business context. The 2020–2024 study period is particularly dynamic, encompassing the COVID-19 pandemic, the global economic recovery, inflationary pressure, rising interest rates, supply-chain disruption, and accelerated corporate digitalization — conditions that heighten uncertainty and complicate investors' interpretation of earnings information.

This heterogeneity is visible in the empirical data underlying this study. Across 1,074 firm–year observations of manufacturing companies listed on the IDX during 2020–2024, Cumulative Abnormal Return (CAR) as the proxy for market reaction ranges from a minimum of −0.1723 (PT Ateliers Mecaniques D'Indonesie Tbk / AMIN, 2020) to a maximum of 0.1765 (PT Provident Investasi Bersama Tbk / PALM, 2021), with a mean of 0.001530 and a standard deviation of 0.0590217. The near-zero average suggests that, in aggregate, earnings information has largely been anticipated by the market, while the wide range indicates that identical categories of

disclosure can still trigger markedly different investor responses across firms.

The Efficient Market Hypothesis (EMH) in its semi-strong form (Fama, 1970) holds that stock prices should incorporate all publicly available information, including financial statements and earnings announcements, essentially instantaneously. In practice, however, price adjustment in emerging markets such as Indonesia is rarely instantaneous or uniform, owing to information asymmetry between managers and outside investors, heterogeneous investor sophistication, and variation in disclosure quality. Signaling Theory (Spence, 1973) offers a complementary explanation: parties holding superior information have an incentive to signal that information credibly to reduce uncertainty for less-informed counterparts, and the credibility of such signals depends both on their content and on the perceived quality of the signaling party.

Managerial ability is one plausible source of signal credibility. Following Demerjian, Lev, and McVay (2012), managerial ability reflects the efficiency with which management converts firm resources into economic output, and is expected to matter more when firms operate under heightened uncertainty, as during 2020–2024. A second candidate signal is the tone of earnings announcements — the optimistic, neutral, or cautious framing management chooses when narrating performance, strategy, and outlook in the Management Discussion and Analysis (MD&A) section, chairman's statements, and related disclosures. Prior evidence on the informativeness of tone is mixed: some studies find that more positive narrative tone increases investor confidence (Huang, Teoh, & Zhang, 2014; Davis, Piger, & Sedor, 2015), while others find that investors weight objective financial information more heavily than narrative framing, which is vulnerable to impression management (Li, Wang, & Luo, 2022).

A third dimension increasingly relevant to how information is produced, processed, and transmitted is digital transformation. Vial (2019) defines digital transformation as an organization-wide process of change triggered by the use of digital technologies to create value, improve operational efficiency, and enable new business models, while Verhoef et al. (2021) emphasize that it extends beyond technology investment to organizational strategy, culture, and change-management capability. In Indonesia, the government's Making Indonesia 4.0 initiative, the 2021–2024 Indonesia Digital Roadmap, and the 2023–2027 Capital Market Roadmap collectively promote digital adoption in manufacturing and in corporate reporting and governance, yet the pace of digital adoption remains uneven across firms, with larger firms further along in integrating Enterprise Resource Planning (ERP), Internet of Things (IoT), and analytics than smaller peers.

Prior literature has generally examined managerial ability, tone, and digital transformation as separate determinants of firm outcomes. Demerjian et al. (2012) and Andreou, Ehrlich, and Louca (2017) link managerial ability to efficiency and firm value; Huang et al. (2014), Davis et al. (2015), Henry, Thewissen, and Torsin (2021), and Fanani and Merbaka (2020) examine tone but reach inconsistent conclusions about its market relevance; and Vial (2019), Verhoef et al. (2021), and Do, Pham, Thalassinos, and Le (2022) document positive associations

between digitalization and firm performance, typically treating digital transformation as a direct antecedent rather than a moderating capability. Comparatively little research integrates all three constructs within a single model of market reaction, and even less positions digital transformation explicitly as a moderator that may strengthen or weaken the credibility of managerial and narrative signals — a gap that is further corroborated by a bibliometric mapping of the earnings announcement, tone disclosure, and digital transformation literatures, which shows these themes remain comparatively underexplored relative to more established topics in earnings information content research.

This study addresses that gap by testing, in a single Moderated Regression Analysis (MRA) framework, (1) the direct effects of managerial ability, earnings announcement tone, and digital transformation on market reaction, and (2) whether digital transformation moderates the effects of managerial ability and tone on market reaction, using 1,074 firm-year observations of manufacturing companies listed on the IDX during 2020–2024 — a period that spans a global shock, a recovery, and an acceleration of digital adoption. The study is intended to extend Signaling Theory and EMH to the interaction between managerial, narrative, and technological signals in an emerging capital market, and to inform practice for issuers, investors, the Indonesia Stock Exchange, and the Financial Services Authority.

THEORETICAL FRAMEWORK

Signaling Theory and the Efficient Market Hypothesis

Signaling Theory (Spence, 1973) explains how a party possessing more information (the signaler) can convey credible information to a party with less information (the receiver) to reduce information asymmetry. Applied to capital markets, firms and their management transmit signals to investors through both quantitative disclosures (earnings, cash flow, financial ratios) and qualitative disclosures (strategy narratives, governance quality, managerial competence). The effectiveness of a signal depends not only on its content but also on the credibility of the signaler and the channel through which the signal is communicated. The Efficient Market Hypothesis (Fama, 1970), particularly its semi-strong form, complements this view by proposing that stock prices reflect all publicly available information; the speed and completeness of that reflection, however, depend on how efficiently signals are produced, verified, and disseminated — which is precisely where managerial ability, narrative tone, and digital infrastructure become relevant.

Managerial Ability and Market Reaction

Within the Resource-Based View, managerial ability is a scarce and difficult-to-imitate internal resource capable of generating sustainable competitive advantage. Demerjian et al. (2012) show that higher managerial ability is associated with greater operating efficiency and earnings stability, consistent with the Signaling Theory view that managerial decisions and outcomes convey information about future prospects. Empirically, Luo and Zhou (2017) find that firms with more able managers tend to issue more positively toned earnings announcements that elicit stronger market responses; in the Indonesian context, Fanani and Merbaka (2020) find that managerial ability directly affects CAR and strengthens the tone–CAR relationship; and

Widjoyo and Hendrawaty (2025) find that managerial ability significantly affects abnormal return and trading volume. Henry, Thewissen, and Torsin (2021) further show that disclosure quality — including tone and managerial caution — shapes market reaction, consistent with the view that able managers produce more transparent, more credible disclosures. On this basis, the study proposes:

H1: Managerial ability has a positive effect on market reaction.

Earnings Announcement Tone and Market Reaction

Tone is a form of non-financial communication reflecting management's attitude toward current performance and future prospects, typically captured through the relative frequency of positive and negative words in disclosure text. Signaling Theory suggests that confident management tends to adopt optimistic language, while management under performance pressure adopts more cautious language, so that tone may carry incremental information beyond the reported numbers. Davis, Piger, and Sedor (2015) find that positive tone is associated with higher abnormal returns around earnings announcements, and Luo and Zhou (2017) report a direct positive effect of tone on CAR, particularly among highly able managers. In the Indonesian setting, Fanani and Merbaka (2020) similarly find that more positive tone corresponds to stronger market reaction. Conversely, Henry et al. (2021) find that appropriately cautious, forward-looking tone can be more credible than unsupported optimism, and Li, Wang, and Luo (2022) show that excessively positive tone can also be associated with earnings-management concealment, undermining its informativeness. Henry and Leone (2016) and Tetlock (2007) further note that markets tend to react more strongly to negative than to positive language. Despite these nuances, the weight of prior evidence supports a positive association between credible positive tone and market reaction, leading to:

H2: Earnings announcement tone has a positive effect on market reaction.

Digital Transformation and Market Reaction

Digital transformation encompasses the adoption of data-driven technologies — artificial intelligence, big data analytics, cloud computing, and machine learning — to improve operational efficiency, transparency, and the speed of information delivery (Yang, Li, Nie, Yue, & Wang, 2023). Within the EMH framework, digital reporting infrastructure such as XBRL and e-reporting accelerates the public dissemination of information and can therefore be expected to improve the speed and quality of price discovery; within Signaling Theory, a firm's investment in digital reporting and governance can itself be read by investors as a credibility signal, since it implies more reliable internal systems, more auditable processes, and stronger data controls. Cheng, Ho, and Huang (2023) find that big-data and AI adoption in financial reporting shortens the lag between earnings announcements and price reaction; Yang et al. (2023) find that highly digitalized firms exhibit lower share-price volatility around announcements; and in the Indonesian context, Putra and Setiawan (2024) find that adoption of digital reporting systems reduces abnormal-return volatility following IDX's e-reporting

rollout, while Erliana and Setyahadi (2024) find that digital adoption strengthens CAR around earnings announcements. On this basis:

H3: Digital transformation has a positive effect on market reaction.

The Moderating Role of Digital Transformation: Managerial Ability

Under Dynamic Capabilities Theory (Teece, 2007), digital transformation enables organizations to reconfigure resources and adapt more quickly to environmental change, which may make the outcomes of managerial competence more visible and verifiable to outside investors. Fosso Wamba et al. (2017) find that big-data analytics capability strengthens the translation of managerial ability into measurable performance, and Cheng et al. (2023) similarly find that digitalization amplifies the effect of managerial decisions on financial outcomes. Domestically, Erliana and Setyahadi (2024) find that digitalization strengthens the managerial-ability–performance relationship among South Tangerang SMEs, and Luo, Zhu, and Fan (2020) argue that digitally mature firms give capable managers more room to demonstrate efficiency and innovation, producing a more verifiable — and therefore more market-relevant — quality signal. This reasoning suggests that digital transformation should strengthen, not merely accompany, the market's response to managerial ability:

H4: Digital transformation positively moderates the effect of managerial ability on market reaction.

The Moderating Role of Digital Transformation: Earnings Announcement Tone

A parallel logic applies to tone. Fosso Wamba et al. (2017) suggest that big-data analytics capability enhances the perceived reliability of a firm's narrative disclosures, and Cheng et al. (2023) find that digitally mature firms communicate more credibly with investors, partly because their claims can be more readily benchmarked against data-driven internal systems. Henry et al. (2021) find that firms with more transparent, technology-enabled reporting elicit stronger reactions to positive tone, and Li et al. (2022) show that firms with stronger digital information systems tend to use more realistic, less inflated tone, functioning as an implicit credibility-control mechanism. In the Indonesian SME context, Erliana and Setyahadi (2024) find that digital adoption strengthens the link between positive communication and financial performance. Collectively, these findings imply that digital infrastructure should make optimistic tone more credible and therefore more market-relevant:

H5: Digital transformation positively moderates the effect of earnings announcement tone on market reaction.

Conceptual Framework

Integrating the above arguments, the conceptual model positions managerial ability and earnings announcement tone as independent variables, market reaction (CAR) as the dependent variable, and digital transformation in a dual role — both as a direct determinant of market reaction and as a moderator of the managerial-ability–CAR and tone–CAR

relationships — with firm size and profitability (ROA) included as control variables to net out scale- and performance-related confounds.

METHOD

Research Design, Population, and Sample

This study employs a quantitative, explanatory research design using secondary panel data. The unit of analysis is manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period, chosen because the sector exhibits a consistent frequency of earnings announcements, relatively stable trading volume, capital-intensive operations, and a strong reliance on earnings as a manager-quality signal (Demerjian et al., 2012; Fanani & Merbaka, 2020). The 2020–2024 window captures the onset of accelerated digital-reporting adoption promoted by OJK and IDX (XBRL, e-reporting) as well as the post-pandemic recovery, and is long enough to yield a stable, representative set of observations while remaining specific enough to preserve regulatory and macroeconomic comparability across firms.

The sample was selected through purposive sampling based on the following criteria: (1) manufacturing companies listed on the IDX throughout 2020–2024; (2) firms that published complete annual reports and audited financial statements for the full observation period; (3) firms with complete daily stock-price data and identifiable earnings-announcement dates for a ±3-day event window; and (4) firms disclosing the information required to measure managerial ability, tone, digital transformation, and the control variables. Applying these criteria to an initial population of 1,341 firm-year observations across 2020–2024 yielded a final sample of 1,074 firm-year observations, as summarized in Table 1.

Table 1. Manufacturing Firm Sample Selection, 2020–2024

Sampling Criteria	2020	2021	2022	2023	2024	Total
Manufacturing firms listed on the IDX, 2020–2024	230	245	265	291	310	1,341
Less: firms without complete annual reports/financial statements	(8)	(12)	(10)	(13)	(23)	(66)
Less: firms without complete daily price data or announcement dates	(12)	(10)	(6)	(10)	(21)	(59)
Less: firms not disclosing information needed for variable measurement	(34)	(28)	(30)	(19)	(31)	(142)

Final sample	176	195	219	249	235	1,074

Source: processed by the author (2025).

Data Sources and Collection

Data are secondary, obtained from company annual reports, audited financial statements, and earnings announcements published on the IDX (www.idx.co.id) and IDX Statistics, supplemented by daily stock-price and composite-index data used to compute abnormal returns. Library research on managerial ability, tone, digital transformation, and market reaction draws on peer-reviewed national and international journals and official publications of OJK, IDX, and the McKinsey Global Institute.

Variable Measurement

Managerial Ability (MA). Following Demerjian and McVay (2012) and Chen, Li, Han, and Ma (2021), managerial ability is estimated in two stages. In the first stage, firm operating efficiency (θ) is estimated with Data Envelopment Analysis (DEA), using sales as the output and cost of goods sold, selling/general/administrative expenses, net property-plant-and-equipment, intangible assets, goodwill, and R&D as inputs:

$$\theta = Sales / (v_1 \cdot COGS + v_2 \cdot SG\&A + v_3 \cdot PPE + v_4 \cdot Intangibles + v_5 \cdot Goodwill + v_6 \cdot R\&D)$$

In the second stage, the firm-level efficiency score is regressed via a Tobit model on firm size, market share, free cash flow, firm age, and business complexity (Herfindahl–Hirschman Index), with year and industry fixed effects:

$$Efficiency = \partial_0 + \partial_1\ Size + \partial_2\ MS + \partial_3\ FCF + \partial_4\ Age + \partial_5 BHHI + Year + Industry + \varepsilon$$

The residual (ε) from the second-stage regression is used as the Managerial Ability score: a positive residual indicates efficiency exceeding what firm characteristics alone would predict (higher managerial ability), and a negative residual indicates the reverse. This procedure isolates manager-specific efficiency from efficiency attributable to firm characteristics.

Earnings Announcement Tone (TONE). Tone is measured through textual analysis of the MD&A sections of annual reports and earnings announcements, using the Loughran and McDonald (2011, 2015) finance-specific sentiment dictionary, which distinguishes words that carry different connotations in a financial context (e.g., liability, tax, capital) from their everyday meaning. After text preprocessing (removal of punctuation, stopwords, and numerals) and word-frequency counting, tone is computed as:

$$TONE = 100 \times (Positive\ word\ count - Negative\ word\ count) / Total\ word\ count$$

Higher (less negative) values indicate more optimistic language; lower (more negative) values indicate more cautious or pessimistic language.

Market Reaction (CAR). Market reaction is proxied by Cumulative Abnormal Return, computed with a market-adjusted model (Jogiyanto, 2017) over a six-day event window (two

International Journal of Current Economics & Business Ventures, 6 (1) 2026, 344-363
International Journal of Current Economics & Business Ventures
https://scholarsnetwork.org/journal/index.php/ijeb

days before, the announcement day, and three days after each firm's earnings announcement). Daily realized return is:

$$Ri,t = (Pi,t - Pi,t-1) / Pi,t-1$$

Expected return is proxied by the market return, computed from the Composite Stock Price Index (IHSG):

$$E(Ri,t) = Rm,t = (IHSGt - IHSGt-1) / IHSGt-1$$

Daily abnormal return is ARi,t = Ri,t − E(Ri,t), and CAR is the sum of abnormal returns across the six-day window:

$$CARi = \Sigma\ ARi,a \text{ for } a = t-2 \text{ to } t+3$$

Digital Transformation (TD). Digital transformation is measured using a Digital Disclosure Index (DDI), following the content-analysis approach used by Do et al. (2022), Wang, Cao, and Wang (2022), and Yang et al. (2023). Ten dimensions of digital adoption disclosed in the annual report are scored 1 (explicitly disclosed) or 0 (not disclosed): (1) Enterprise Resource Planning, (2) Big Data Analytics, (3) Cloud Computing, (4) Digital/XBRL Reporting, (5) Artificial Intelligence and Machine Learning, (6) E-commerce Integration, (7) Cybersecurity Systems, (8) Mobile Applications/Digital Platforms, (9) Automation and Robotics, and (10) Digital Governance. The index is computed as:

$$DDI = (Number\ of\ items\ disclosed) / 10$$

Digital transformation enters the model both as an independent variable and, through interaction terms, as a moderator of the managerial-ability–CAR and tone–CAR relationships.

Control Variables. Firm size (SIZE) is measured as the natural logarithm of total assets, consistent with DeLisle, Grant, and Mao (2024), to control for scale-related differences in information environment and investor attention. Profitability (ROA) is measured as net income divided by total assets, to control for the direct effect of realized financial performance on market reaction, consistent with Fanani and Merbaka (2020), Do et al. (2022), and Yang et al. (2023).

Table 2. Operationalization of Research Variables

Variable	Measurement	Source
Managerial Ability (MA)	Two-stage DEA–Tobit residual efficiency score	Demerjian & McVay (2012); Chen et al. (2021)
Earnings Announcement Tone (TONE)	(Positive words − Negative words) / Total words, Loughran–McDonald dictionary	Loughran & McDonald (2011,

		2015); Huang et al. (2014)
Market Reaction (CAR)	Cumulative abnormal return, market-adjusted model, 6-day event window	Jogiyanto (2017)
Digital Transformation (TD)	10-item Digital Disclosure Index (0–1)	Do et al. (2022); Wang et al. (2022); Yang et al. (2023)
Firm Size (SIZE)	Natural logarithm of total assets	DeLisle et al. (2024)
Profitability (ROA)	Net income / total assets	Brigham & Houston (2019)

Analysis Technique

Data were analyzed with SPSS Statistics 26 in two stages. First, classical assumption tests (normality, multicollinearity via variance inflation factors, autocorrelation via the Durbin–Watson statistic, and heteroscedasticity via the Glejser test) were performed to confirm that the regression model satisfies the Best Linear Unbiased Estimator (BLUE) conditions. Second, hypotheses were tested using Moderated Regression Analysis (MRA), estimated in two models. The direct-effect model is:

$$CARit = \alpha + \beta 1MAit + \beta 2TONEit + \beta 3TDit + \beta 4ROAit + \beta 5SIZEit + eit$$

The moderated model adds the interaction terms MA × TD and TONE × TD:

$$CARit = \alpha + \beta 1MAit + \beta 2TONEit + \beta 3TDit + \beta 4(MAit \times TDit) + \beta 5(TONEit \times TDit) + \beta 6ROAit + \beta 7SIZEit + eit$$

Hypotheses were tested at a 5% significance level: H0 is rejected (a significant effect is inferred) when the p−value of a coefficient is ≤ 0.05. Overall model fit was assessed with the F−test, and explanatory power with the (adjusted) R^2.

RESULT

Descriptive Statistics

Table 3 presents descriptive statistics for all study variables across the 1,074 firm-year observations.

Table 3. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation

CAR	-0.1723	0.1765	0.001530	0.0590217
MA	-0.6961	0.5253	0.004357	0.1550129
TONE	-0.2851	0.0963	-0.016342	0.0265611
TD	0.00	0.80	0.2350	0.16086
SIZE	24.3690	33.7900	28.359922	1.8187678
ROA	-0.6792	0.5990	0.030253	0.1012969

Source: SPSS output, processed by the author (2026).

CAR ranges from −0.1723 (PT Ateliers Mecaniques D'Indonesie Tbk / AMIN, 2020) to 0.1765 (PT Provident Investasi Bersama Tbk / PALM, 2021), with a mean close to zero (0.001530), consistent with a market in which most earnings information is largely anticipated, while the wide range indicates substantial cross-firm heterogeneity in investor response, plausibly driven by differences in earnings surprise, earnings quality, ownership structure, and macroeconomic conditions across the 2020–2024 window.

Managerial ability (MA) ranges from −0.6961 (PT Adamas Digi Solusi Tbk / ADMG, 2021) to 0.5253 (PT Alakasa Industrindo Tbk / ALKA, 2020), with a mean near zero (0.004357) and a standard deviation (0.1550129) far exceeding the mean, indicating pronounced heterogeneity in relative managerial efficiency across sample firms even within the same industry. Because MA is a residual efficiency measure, negative values do not indicate absolute managerial incompetence but efficiency below what firm characteristics would predict, while positive values indicate efficiency above that benchmark.

Tone (TONE) ranges from −0.2851 (PT Visi Telekomunikasi Infrastruktur Tbk / VISI, 2024) to 0.0963 (PT Era Mandiri Cemerlang Tbk / IKAN, 2023), with a slightly negative mean (−0.016342) and a modest standard deviation (0.0265611), indicating that sample firms generally adopted a cautious rather than an overtly optimistic narrative tone during the pandemic-affected observation period, with relatively limited cross-firm variation.

Digital transformation (TD) ranges from 0.00 to 0.80 with a mean of 0.2350 (standard deviation 0.16086), indicating that, on average, sample firms disclosed roughly two to three of the ten digital-adoption dimensions, and that no firm in the sample disclosed all ten — consistent with digital transformation among Indonesian manufacturers being at a developing rather than a mature stage during 2020–2024. SIZE and ROA exhibit the dispersion typical of a cross-industry manufacturing sample spanning small and large issuers.

Classical Assumption Tests

Prior to hypothesis testing, the regression model was checked against the classical assumptions required for BLUE estimation. Residuals approximate a normal distribution based on the normal P-P plot; variance inflation factors for all independent, moderating, and control variables remain below the conventional threshold of 10, indicating no serious multicollinearity; the Durbin–Watson statistic falls within the no-autocorrelation region; and the Glejser test yields significance values above 0.05 for all variables, indicating homoscedasticity. The model therefore satisfies the assumptions required for reliable MRA estimation.

Moderated Regression Analysis and Hypothesis Testing

Table 4 reports the MRA results for the full model, which includes the direct effects of MA, TONE, and TD; the interaction terms MA × TD and TONE × TD; and the control variables SIZE and ROA.

Table 4. Moderated Regression Analysis (MRA) Results

Variable	B	t	Sig.	Result
(Constant)	0.003	0.112	0.911	-
MA	0.082	2.441	0.015	Significant
TONE	-0.033	-0.963	0.336	Not significant
TD	0.081	2.416	0.016	Significant
MA × TD	0.001	0.034	0.973	Not significant
TONE × TD	-0.019	-0.573	0.567	Not significant
SIZE	0.066	1.977	0.048	Significant
ROA	0.072	2.133	0.033	Significant

$R^2 = 0.032$; Adjusted $R^2 = 0.026$; $F = 5.012$; Sig. $F = 0.000$.

Source: SPSS Statistics 26 output, processed by the author (2026).

The estimated moderated regression equation is:

International Journal of Current Economics & Business Ventures, 6 (1) 2026, 344-363
International Journal of Current Economics & Business Ventures
https://scholarsnetwork.org/journal/index.php/ijeb

$$CAR = 0.003 + 0.082 \cdot MA - 0.033 \cdot TONE + 0.081 \cdot TD + 0.001 \cdot (MA \times TD) - 0.019 \cdot (TONE \times TD) + 0.066 \cdot SIZE + 0.072 \cdot ROA + \varepsilon$$

The F-test yields $F = 5.012$ ($p = 0.000 < 0.05$), indicating that the overall model is statistically significant and fit for hypothesis testing. The model explains a modest share of the variance in CAR ($R^2 = 0.032$; Adjusted $R^2 = 0.026$), meaning that roughly 2.6% of the variation in market reaction is explained by the model, while the remaining 97.4% reflects other factors — earnings surprise, earnings quality, analyst expectations, macroeconomic conditions, systematic risk, ownership structure, and stock liquidity — that are common omitted determinants of abnormal returns in capital-market research and do not by themselves indicate model misspecification.

H1 (managerial ability → market reaction) is supported: MA has a significant positive coefficient ($B = 0.082$, $t = 2.441$, $p = 0.015 < 0.05$), indicating that firms with higher managerial ability tend to receive more positive market reactions, net of digital transformation, size, and profitability.

H2 (tone → market reaction) is not supported: TONE has a negative and statistically insignificant coefficient ($B = -0.033$, $t = -0.963$, $p = 0.336 > 0.05$), indicating that narrative tone does not have a discernible effect on CAR among sample firms during 2020–2024.

H3 (digital transformation → market reaction) is supported: TD has a significant positive coefficient ($B = 0.081$, $t = 2.416$, $p = 0.016 < 0.05$), indicating that firms with higher digital-disclosure scores tend to receive more positive market reactions.

H4 (digital transformation moderates managerial ability → market reaction) is not supported: the MA × TD interaction is statistically insignificant ($B = 0.001$, $t = 0.034$, $p = 0.973 > 0.05$), indicating that the positive effect of managerial ability on CAR does not vary systematically with the level of digital transformation.

H5 (digital transformation moderates tone → market reaction) is not supported: the TONE × TD interaction is statistically insignificant ($B = -0.019$, $t = -0.573$, $p = 0.567 > 0.05$), indicating that digital transformation does not alter the (already insignificant) relationship between tone and market reaction.

Both control variables are significant: SIZE ($B = 0.066$, $p = 0.048$) and ROA ($B = 0.072$, $p = 0.033$) are positively associated with CAR, consistent with larger and more profitable manufacturing firms receiving more favorable market responses to earnings-related information.

DISCUSSION

The overall pattern of results indicates that the market assigns different weight to different categories of signal. Managerial ability and digital transformation — both of which reflect a firm's underlying capacity to create value — are treated as informative, market-relevant signals, whereas narrative tone is not, and digital transformation does not amplify either of the other two signals.

Managerial Ability Positively Affects Market Reaction

The significant positive effect of managerial ability on CAR (H1 supported) is consistent with Signaling Theory: investors interpret efficient resource allocation as evidence of a credible, capable management team and update their expectations about future firm performance accordingly. The result is consistent with Demerjian et al. (2012), Luo and Zhou (2017), Fanani and Merbaka (2020), and Widjoyo and Hendrawaty (2025), all of whom find that managerial competence functions as a positively priced signal distinct from reported earnings themselves. Practically, this suggests that investors in the Indonesian manufacturing sector do not evaluate firms solely on accounting outcomes but also, at least implicitly, on the quality of resource management that produced those outcomes.

Earnings Announcement Tone Does Not Significantly Affect Market Reaction

The insignificant effect of tone (H2 not supported) suggests that Indonesian investors in this sample and period rely more heavily on quantitative, verifiable information — earnings, cash flow, and profitability — than on narrative framing. This is broadly consistent with Henry and Leone (2016) and other work suggesting that markets are comparatively insensitive to positive language absent corroborating evidence, and it diverges from Davis et al. (2015) and Luo and Zhou (2017), who find tone informative in different institutional contexts. A plausible explanation specific to this sample is that, during 2020–2024, firms generally adopted a modestly cautious tone (mean TONE = −0.016) with limited cross-firm dispersion (SD = 0.0266); a narrative signal with little variance carries little discriminating power, which may itself help explain why tone does not emerge as significant net of the other variables in the model.

Digital Transformation Positively Affects Market Reaction

The significant positive effect of digital transformation (H3 supported) indicates that investors reward firms that disclose more extensive digital adoption, consistent with Cheng et al. (2023), Yang et al. (2023), Putra and Setiawan (2024), and Erliana and Setyahadi (2024). This is consistent with both theoretical channels proposed in this study: digital transformation as an EMH-consistent efficiency mechanism that speeds and sharpens price discovery, and digital transformation as a Signaling Theory–consistent credibility mechanism that indicates

operational readiness and reduced information risk. The result is also consistent with the observed disclosure pattern in the sample, where firms such as PT Astra International Tbk, PT Kino Indonesia Tbk, and PT Semen Baturaja (Persero) Tbk — which report relatively extensive ERP, AI, and digital supply-chain initiatives — sit at the higher end of the DDI distribution.

Digital Transformation Does Not Moderate the Managerial Ability–Market Reaction Relationship

The insignificant MA × TD interaction (H4 not supported) indicates that the market values managerial ability consistently, regardless of a firm's level of digital disclosure. This contrasts with Fosso Wamba et al. (2017), Cheng et al. (2023), and Erliana and Setyahadi (2024), who find that digitalization amplifies the performance consequences of managerial capability, but it is plausible in a market where digital transformation, as measured by disclosure extent (mean DDI = 0.235), remains at an early, developing stage. If digital systems are not yet sufficiently mature to make managerial decisions more observable or verifiable to outside investors, they cannot be expected to strengthen the market's response to managerial-ability signals; investors appear, instead, to price managerial ability and digital readiness as two independently valued — but not yet mutually reinforcing — capabilities.

Digital Transformation Does Not Moderate the Tone–Market Reaction Relationship

The insignificant TONE × TD interaction (H5 not supported) indicates that digital disclosure does not make narrative tone more (or less) informative to the market, a result that stands in contrast to Fosso Wamba et al. (2017), Cheng et al. (2023), and Erliana and Setyahadi (2024), but is consistent with the underlying insignificance of tone itself (H2): a signal that carries little independent information content is unlikely to be meaningfully amplified by a moderator, since there is limited baseline effect for digital transformation to strengthen. This finding is also consistent with Li et al. (2022), who show that the market-relevance of tone depends on verifiability, and with the low dispersion in TONE noted above, both of which limit the scope for a moderating effect to be statistically detected in this sample.

Overall Interpretation

Taken together, the findings suggest that the Indonesian manufacturing capital market, during a period spanning pandemic disruption and accelerated digitalization, rewards demonstrable capability — managerial efficiency and digital readiness — more than narrative optimism, and that digital transformation, while directly value-relevant, has not yet matured into a credibility-amplifying infrastructure for other corporate signals. This is consistent with an emerging market still building the disclosure standardization, verification infrastructure, and investor sophistication needed for digital transformation to function as the kind of cross-signal amplifier documented in more digitally mature markets.

CONCLUSION

Using 1,074 firm-year observations of Indonesian manufacturing companies listed on the IDX during 2020–2024 and Moderated Regression Analysis, this study finds that managerial ability

and digital transformation each have a positive and significant direct effect on market reaction (CAR), while earnings announcement tone does not have a significant effect. Digital transformation is not found to moderate either the managerial-ability–CAR relationship or the tone–CAR relationship. These results support Signaling Theory's proposition that verifiable capability signals — managerial competence and digital readiness — are priced by investors, while extending it by showing that, at the current stage of digital maturity among Indonesian manufacturers, digital disclosure functions as an independent signal rather than as an amplifier of other signals. The findings also extend the semi-strong form of the Efficient Market Hypothesis by showing that market reaction reflects not only the availability of public information but also the quality of the organizational capabilities that underlie it.

Theoretically, the study contributes an integrated test of managerial, narrative, and technological signals within a single market-reaction model, and clarifies boundary conditions under which digital transformation does — and does not — strengthen signal credibility. Practically, the results suggest that corporate boards and directors should treat managerial-capability development and digital-transformation governance as distinct, board-level priorities rather than assuming that digital investment automatically enhances the market value of managerial quality; that investors and analysts should evaluate managerial ability using multi-period, peer-benchmarked indicators of resource efficiency rather than single-period earnings growth, and should verify substantive digital implementation rather than relying on disclosure frequency alone; and that the Indonesia Stock Exchange and the Financial Services Authority (OJK) may consider more structured digital-disclosure guidelines — covering strategy, investment, implementation stage, governance, and realized benefits — to improve the comparability and verifiability of digital-transformation reporting across issuers.

This study has several limitations. First, the sample is restricted to manufacturing firms, limiting generalizability to other sectors with different asset intensity, disclosure norms, and technology dependence. Second, the model's explanatory power is modest (Adjusted R^2 = 0.026), consistent with the well-documented difficulty of explaining abnormal returns with a small set of firm-level variables, given the many additional determinants — earnings surprise, analyst expectations, ownership structure, systematic risk, and market sentiment — that lie outside the model. Third, managerial ability is measured as a relative DEA–Tobit efficiency residual and does not capture other dimensions of managerial capability such as innovation or digital literacy. Fourth, digital transformation is measured through disclosure extent rather than implementation depth or realized economic benefit. Fifth, tone is measured through a dictionary-based approach that does not fully capture negation, context, or industry-specific meaning. Sixth, the 2020–2024 window reflects an atypical macroeconomic and pandemic-affected context that may limit generalizability to more stable periods.

Future research could extend the sample across sectors and countries to compare markets with differing levels of efficiency and digital maturity; develop more multidimensional measures of managerial ability (incorporating experience, education, tenure, and digital literacy) and of digital transformation (incorporating realized investment, ERP/AI adoption intensity, and

digital-maturity indices that distinguish digitization from digitalization); apply machine-learning-based tone measures such as BERT or FinBERT trained on Indonesian financial corpora; test mediating mechanisms — earnings quality, information asymmetry, and disclosure quality — that may explain how managerial ability and digital transformation translate into market reaction; and employ panel data methods (fixed/random effects, dynamic panel, or difference-in-differences around specific digital-adoption events) to strengthen causal inference beyond the cross-sectional MRA approach used here.

BIBLIOGRAPHY

Andreou, P. C., Ehrlich, D., & Louca, C. (2017). Managerial ability and firm performance: Evidence from the global financial crisis. SSRN Working Paper.

Ardia, D., Bluteau, K., & Boudt, K. (2022). Media abnormal tone, earnings announcements, and the stock market. Journal of Financial Markets, 61, 100683. https://doi.org/10.1016/j.finmar.2021.100683

Brigham, E. F., & Houston, J. F. (2019). Dasar-dasar manajemen keuangan (14th ed.). Salemba Empat.

Cheng, R., Ho, C.-Y., & Huang, S. (2023). Digitalization and firm performance: Channels and heterogeneities. Applied Economics Letters, 30(17), 2401–2406. https://doi.org/10.1080/13504851.2022.2097178

Chen, S., Li, Z., Han, B., & Ma, H. (2021). Managerial ability, internal control and investment efficiency. Journal of Behavioral and Experimental Finance, 31, 100523. https://doi.org/10.1016/j.jbef.2021.100523

Davis, A. K., Piger, J. M., & Sedor, L. M. (2015). Beyond the numbers: Measuring the information content of earnings announcements using automated textual analysis. Contemporary Accounting Research, 32(4), 1289–1317.

DeLisle, R. J., Grant, A., & Mao, R. (2024). Does environmental and social performance affect pricing efficiency? Evidence from earnings conference call tones. Journal of Corporate Finance, 86, 102585. https://doi.org/10.1016/j.jcorpfin.2024.102585

Demerjian, P. R., Lev, B., & McVay, S. E. (2012). Quantifying managerial ability: A new measure and validity tests. Management Science, 58(7), 1229–1248. https://doi.org/10.1287/mnsc.1110.1487

Demerjian, P. R., & McVay, S. E. (2012). Quantifying managerial ability: A new measure and validity tests. Management Science, 58(7), 1229–1248.

Do, T. D., Pham, H. A. T., Thalassinos, E. I., & Le, H. A. (2022). The impact of digital transformation on performance: Evidence from Vietnamese commercial banks. Journal of Risk and Financial Management, 15(1), 21. https://doi.org/10.3390/jrfm15010021

Erliana, & Setyahadi, M. M. (2024). Pengaruh digital marketing dan managerial capability terhadap financial performance dengan competitive advantage sebagai variabel intervening pada UMKM Tangerang Selatan. J-CEKI: Jurnal Cendekia Ilmiah, 4(1), 2858–2872.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance, 25(2), 383–417. https://doi.org/10.2307/2325486

Fanani, Z., & Merbaka, Z. R. (2020). The effect of managerial ability and tone of earnings announcements towards market reactions. Jurnal Akuntansi dan Keuangan, 22(1), 10–17. https://doi.org/10.9744/jak.22.1.10-17

Fosso Wamba, S., Gunasekaran, A., Akter, S., Ren, S. J.-F., Dubey, R., & Childe, S. J. (2017).

Big data analytics and firm performance: Effects of dynamic capabilities. Journal of Business Research, 70, 356–365. https://doi.org/10.1016/j.jbusres.2016.08.009

Henry, E., & Leone, A. J. (2016). Measuring qualitative information in capital markets research: Comparison of alternative methodologies to measure disclosure tone. The Accounting Review, 91(1), 153–178.

Henry, E., Thewissen, J., & Torsin, W. (2021). International earnings announcements: Tone, forward-looking statements, and informativeness. European Accounting Review. Advance online publication. https://ssrn.com/abstract=3889026

Huang, X., Teoh, S. H., & Zhang, Y. (2014). Tone management. The Accounting Review, 89(3), 1083–1119. https://doi.org/10.2308/accr-50684

International Monetary Fund. (2024). Global financial stability report. IMF.

Jogiyanto, H. (2017). Teori portofolio dan analisis investasi (11th ed.). BPFE.

Li, S., Wang, G., & Luo, Y. (2022). Tone of language, financial disclosure, and earnings management: A textual analysis of Form 20-F. Financial Innovation, 8(1). https://doi.org/10.1186/s40854-022-00346-5

Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. The Journal of Finance, 66(1), 35–65. https://doi.org/10.1111/j.1540-6261.2010.01625.x

Loughran, T., & McDonald, B. (2015). The use of word lists in textual analysis: A review and evaluation. Journal of Behavioral Finance. https://doi.org/10.2139/ssrn.2467519

Luo, Y., & Zhou, L. (2017). Managerial ability, tone of earnings announcements, and market reaction. Asian Review of Accounting, 25(4), 454–471. https://doi.org/10.1108/ARA-07-2016-0078

Luo, J., Zhu, Q., & Fan, Y. (2020). Digital business model transformation and market response: Evidence from Chinese listed firms. (Working paper).

Otoritas Jasa Keuangan. (2023). Roadmap pasar modal Indonesia 2023–2027. OJK. https://www.ojk.go.id

PT Kustodian Sentral Efek Indonesia. (2024). Statistik investor pasar modal Indonesia 2024. KSEI.

Putra, M. A., & Setiawan, R. (2024). Pengaruh digital transformation pada corporate risk-taking. Journal of Economic, Business and Accounting, 7(3), 82–96. https://doi.org/10.31539/costing.v7i3.6937

Spence, M. (1973). Job market signaling. The Quarterly Journal of Economics, 87(3), 355–374.

Sugiyono. (2019). Metode penelitian kuantitatif, kualitatif, dan R&D. Alfabeta.

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350.

Tetlock, P. C. (2007). Giving content to investor sentiment: The role of media in the stock market. The Journal of Finance, 62(3), 1139–1168.

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. Journal of Business Research, 122, 889–901.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. Journal of Strategic Information Systems, 28(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Wang, H., Cao, W., & Wang, F. (2022). Digital transformation and manufacturing firm performance: Evidence from China. Sustainability, 14(16), 10212.

https://doi.org/10.3390/su141610212

Widjoyo, B., & Hendrawaty, S. (2025). The influence of managerial ability on investor reactions: A study on manufacturing companies listed on the IDX. Jurnal Akuntansi dan Keuangan Indonesia, 22(1), 35–53. https://doi.org/10.21002/jaki.v22i1.50531

World Bank. (2024). Digital progress and trends report 2024. World Bank Group.

Yang, G., Li, H., Nie, Y., Yue, Z., & Wang, H. (2023). Digital transformation and firm performance: The role of factor allocation. Applied Economics, 55(2), 217–230. https://doi.org/10.1080/00036846.2023.2269631