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The Impact of The Proper Gold Rating Announcement on Stock Prices of Companies Listed on The IDX In 2023

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Abstract
Environmental degradation caused by industrial activities has led the Indonesian government to introduce the Company Performance Rating Program (PROPER), with the gold rating as its highest recognition. This study examines the effect of the PROPER Gold announcement (December 20, 2023) on the stock prices of companies listed on the Indonesia Stock Exchange. The research applies an event study method with a causal-comparative approach. The observation window spans 15 trading days (t−7 to t+7), involving 8 companies awarded the PROPER Gold rating in 2023, selected through purposive sampling. Daily closing stock prices were obtained from IDX publications. The Kolmogorov-Smirnov test was employed to assess data normality, and the Wilcoxon Signed Rank Test was used for non-normal distributions. Descriptive analysis was conducted to observe stock price trends before and after the event. Results indicate a tendency for stock price increases after the announcement, with a statistically significant difference between pre- and post-event prices, reflecting a positive market response.

Keywords:
PROPER; Gold Rating; Event Study; Stock Price.

1. INTRODUCTION

Environmental degradation caused by industrial activity remains a serious problem in Indonesia. The large-scale case involving PT Timah Mineral Harum Tbk (referenced as PT TMH Tbk), with an estimated state loss of Rp 271 trillion attributed to ecological damage from tin-mining activities in and outside forest areas between 2015 and 2022 (Rahmawaty, 2024), illustrates the continuing tension between corporate profitability and environmental stewardship. Cases of this kind underline that if firms fail to embed environmental considerations into their operations, long-run business sustainability is placed at risk. To address this, the Ministry of Environment and Forestry (KLHK) launched the Program Penilaian Peringkat Kinerja Perusahaan dalam Pengelolaan Lingkungan Hidup (PROPER) in 1995. The programme evaluates corporate compliance with environmental-management standards and publishes the ratings Gold, Green, Blue, Red, and Black in an annual public ceremony (Ministry of Environment and Forestry, 2021). Gold is the highest rating, indicating consistent beyond-compliance environmental performance, community empowerment, and integrated sustainability practices. Despite the programme's maturity, participation remains modest: of an estimated 32,193 manufacturing enterprises in Indonesia, roughly 11.6% participated in PROPER (Central Statistics Agency, 2023; PROPER, 2023).

1.1. Why PROPER Gold May Affect Stock Prices a Theoretical Mechanism

A PROPER Gold announcement is a public, credible, low-cost-to-verify, government-issued environmental signal. From an efficient-markets perspective, if such a signal contains value-relevant information not already impounded in prices, one would expect a measurable price adjustment around the event. The theoretical logic is layered:

a. Signalling theory (Spence, 1973; Ross, 1977) provides the primary lens. Firms possess private information about their environmental exposure, latent regulatory risk, and internal management quality. A Gold rating is a costly-to-imitate, third-party-verified signal that separates high-quality environmental performers from the pool of self-declared "green" firms and reduces the information asymmetry between managers and outside investors.
b. Stakeholder theory (Freeman, 1984) predicts that firms managing the interests of a broad set of stakeholder's regulators, communities, employees, customers accumulate goodwill that eventually translates into financial performance. A publicly announced gold rating strengthens the firm's stakeholder capital.
c. Legitimacy theory posits that firms operate under an implicit social contract; PROPER Gold reinforces corporate legitimacy in the eyes of regulators, media, and the wider public, plausibly reducing perceived regulatory and reputational risk.

The full mechanism can therefore be summarised as: PROPER Gold announcement → credible positive environmental signal → reduced perceived environmental and reputational risk → improved stakeholder confidence → investor re-assessment of expected cash flows and risk → observable stock market reaction.

The Triple Bottom Line framework (Elkington, 1997) is relevant as an overarching orientation but is not treated as a testable predictive theory in this study; it is used to contextualise why environmental performance and financial performance may co-move.

1.2. Research Gap

Prior Indonesian studies on the PROPER–stock-price relationship yield mixed results. Positive associations are reported by, among others, Hidayat, et al. (2021), Purwaningsih (2017), and Yogaswara & Sari (2022), while insignificant effects are reported by Prasetyo (2010), Sawitri & Setiawan (2017), and Astarina (2018). Two features of this literature invite further work. First, most existing studies pool all PROPER categories (Blue, Green, Gold) or use the numeric PROPER score as a firm-year covariate in a regression on firm value or return. This dilutes the specific positive-signal nature of the gold announcement. The Gold rating is the highest category and, uniquely, is publicly presented at an annual ceremony that generates media attention features that make an event-study design methodologically appropriate but that have been under-exploited in the Indonesian setting.

Second, the specific 2023 cohort of Gold-rated IDX-listed firms has not, to the authors' knowledge, been examined in the peer-reviewed literature. The 2023 announcement is also of contextual interest because it followed a period of heightened investor attention to ESG disclosure and the tin-mining scandal referenced above.

1.3. Research Objective

This study examines whether the announcement of the 2023 PROPER Gold Rating (20 December 2023) is associated with a measurable stock market reaction, using a 15-trading-day event window and eight IDX-listed gold recipients as the sample. The study contributes:

a. An event-study test focused specifically on the gold category (not a pooled PROPER score);
b. Current-context evidence from the 2023 cohort; and an explicit and honest account of methodological limitations, including the small sample and the absence of a market-model abnormal-return estimation in the current data collection.

2. RESEARCH METHOD

2.1. Research Design

The study uses an event-study design (MacKinlay, 1997; Brown & Warner, 1985; Corrado, 2011). The event-study framework is appropriate because it isolates the market's reaction to a discrete, dated, public information event and is the standard methodological approach in the ESG-announcement literature (Krüger, 2015; Flammer, 2013).

The earlier draft described the design as "causal-comparative"; on reflection, this label is misleading for an event study, which detects a market reaction rather than establishing causation in the strict econometric sense. Accordingly, this manuscript uses the terminology "market reaction," "stock market response," and "difference between pre- and post-event prices" throughout.

2.2. Event Date (t = 0)

The event date is Wednesday, 20 December 2023, the day of the official Malam Anugerah Lingkungan PROPER 2023 held at Hotel Bidakara, Jakarta, by the Ministry of Environment and Forestry, at which 79 companies received Gold PROPER status. This date is verifiable through KLHK's official Press Release SP.435/HUMAS/PPIP/HMS.3/12/2023 and contemporaneous national media coverage.

Note: The manuscript's submission, revision, and publication dates are separate from the event date and do not affect the classification of 20 December 2023 as a historical, verifiable event.

2.3. Event Window

The event window is defined as t−7 to t+7 trading days, giving 15 trading days in total centred on the event date. The seven-day pre-window is chosen to capture any information leakage or pre-announcement anticipation (the list of PROPER Gold candidates receives some pre-ceremony coverage); the seven-day post-window captures the immediate market absorption of the news while remaining short enough to reduce contamination from unrelated year-end market dynamics.

2.4. Estimation Window and Expected Return Model Methodological Disclosure

A conventional event study computes abnormal returns as, $AR_{it} = R_{it} - E(R_{it})$ where is estimated over an estimation window prior to the event window (commonly [t−120, t−11] or [t−250, t−11]) using either:

a. The market model: $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$, with parameters $\hat{\alpha}_i$ and $\hat{\beta}_i$ estimated over the estimation window, or
b. The market-adjusted model: $AR_{it} = R_{it} - R_{mt}$, where R_{mt} is the return on a market index (typically the IDX Composite / IHSG), or
c. The mean-adjusted model $AR_{it} = R_{it} - \bar{R}_i$

The dataset underlying the current version of this manuscript comprises only daily closing prices for the eight sample firms during the event window; it does not yet include (i) an estimation-window sample of returns, or (ii) IDX Composite / IHSG returns matched by date. Consequently, the results presented in Section 3 are based on raw price changes and average raw returns, not on formally estimated abnormal returns.

Authors' commitment: prior to camera-ready submission, the analysis will be extended to include a market-model estimation over [t−120, t−11] using daily IHSG returns, with re-computation of AR_{it}, AAR_t, and $CAR_i(t_1, t_2)$. Until then, the manuscript does not claim to report abnormal returns, and all findings in Section 3 refer to raw closing-price movements.

2.5. Return Definitions (for the Planned Extension)

Actual daily return:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} A\,R_{it}$$

Average abnormal return across firms on day t:

$$AAR_t = \frac{1}{N}\sum_{i=1}^{N} A\,R_{it}$$

Cumulative abnormal return over $[t_1, t_2]$:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} A\,R_{it}$$

These formulas are stated here for completeness and to align the manuscript with standard event-study reporting. The corresponding numerical values are not asserted until the market data are collected and the estimation window is run.

2.6. Sample and Sample-Size Justification

The population is the 79 companies awarded PROPER Gold in the 2023 cycle. Purposive-sampling criteria are:

a. Listed on the Indonesia Stock Exchange throughout the observation window;
b. Not delisted, suspended, or subject to trading halt during the event window;
c. Not a subsidiary of another listed issuer (to avoid double counting);
d. Complete daily closing-price data for the full event window.

Only eight companies satisfy all four criteria: TPIA, ANTM, UNTR, KLBF, SMGR, TINS, PTBA, and PGAS. This reflects the reality that the majority of gold recipients are private companies or state-owned enterprises that do not have publicly traded equity.

2.7. Sample Size and Generalizability

The small sample size (n = 8) is a genuine methodological constraint and is not treated as "sufficient" without justification. It has three implications, each of which is acknowledged transparently.

Statistical power. Non-parametric tests such as the Wilcoxon Signed-Rank Test with n = 8 paired observations have low power to detect small effects; a statistically insignificant result should therefore be interpreted as "consistent with no detectable effect at conventional levels," not as evidence of no effect.

External validity. The findings represent the eight sampled gold recipients only. They should not be generalized to all IDX-listed firms, nor to gold recipients in other years, nor to non-listed gold recipients.

Cross-sectional heterogeneity. The eight firms span several sectors (petrochemical, mining, heavy equipment, cement, tin, coal, gas utility, pharmaceutical), which limits the ability to disentangle sector effects from the announcement effect.

The alternative enlarging the sample by including non-listed gold recipients or by pooling multiple PROPER cycles was rejected because it would either eliminate the possibility of observing a market reaction (non-listed firms have no market price) or dilute the specific 2023-cohort research question.

2.8. Data

Daily closing stock prices for the eight firms during t−7 to t+7 were obtained from the Indonesia Stock Exchange's public price history. The event date and gold-recipient list were verified against KLHK's official press release and PROPER 2023 documentation. All data are secondary, publicly available, and were retrieved as time-series observations.

2.9. Statistical Testing Procedure

The pair unit for the hypothesis test is the firm (n = 8 paired observations): each firm has an average pre-event price (mean of t−7 to t−1 closing prices) and an average post-event price (mean of t+1 to t+7 closing prices). The paired difference is (post − pre) at the firm level.

Hypotheses.

a. H_0: The median firm-level difference between average post-event and average pre-event closing prices equals zero.

b. H_1: The median firm-level difference between average post-event and average pre-event closing prices differs from zero.

Significance level. α = 0.05, two-tailed.

Test selection. The Kolmogorov–Smirnov (K–S) test is used to assess whether the paired differences are approximately normally distributed. If normality is not rejected, the Paired-Samples t-test is used; if normality is rejected, the Wilcoxon Signed-Rank Test is used. The Wilcoxon test is reported in the results because the K–S test indicated departure from normality.

Interpretation. A rejection of H_0 is interpreted as evidence of a stock market reaction associated with the 20 December 2023 event; it is not interpreted as evidence that PROPER Gold caused the price movement, because the event study cannot control for simultaneous confounding information.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Sample Characteristics

The eight sampled companies are all high-visibility IDX-listed firms with publicly disclosed sustainability strategies. Sector membership is heterogeneous, which is relevant for the sector-specific analysis in Section 3.2.6. Table 1. summarises firm-level average closing prices in the pre- and post-event windows.

Table 1. Firm-Level Average Closing Prices, 7 Days Before and 7 Days After the PROPER Gold Rating Announcement (20 December 2023)

No	Company (Ticker)	Sector	Avg. Price Before (Rp)	Avg. Price After (Rp)	Change (%)
1	PT Chandra Asri Petrochemical Tbk (TPIA)	Petrochemical	4,812	5,792	+18%
2	PT Aneka Tambang Tbk (ANTM)	Mining (metals)	1,912	2,040	+7%
3	PT United Tractors Tbk (UNTR)	Heavy equipment / mining services	21,850	23,475	+7%

4	PT Semen Indonesia Tbk (SMGR)	Cement	6,912	7,200	+4%
5	PT Timah Tbk (TINS)	Tin mining	610	625	+2%
6	PT Bukit Asam Tbk (PTBA)	Coal mining	2,880	3,050	+6%
7	PT Perusahaan Gas Negara Tbk (PGAS)	Gas utility	1,250	1,325	+6%
8	PT Kalbe Farma Tbk (KLBF)	Pharmaceutical	1,650	1,630	−1%
	Cross-sectional average		4,991	5,286	+6%

Source: IDX daily closing prices, processed by the authors.

The percentages in the last column are raw price changes, not abnormal returns. They are computed as (Avg. Price After − Avg. Price Before) / Avg. Price Before at the firm level. To translate these figures into abnormal returns, subtraction of a market-model or market-adjusted expected return is required (see Section 2.4).

3.1.2. Daily Average Movement

Table 2. Daily Cross-Sectional Average Closing Price During the Event Window

Day	Avg. Price (Rp)
t−7	5,120
t−6	5,098
t−5	4,891
t−4	4,950
t−3	5,030
t−2	5,070
t−1	5,110
t = 0 (Event)	PROPER Gold Ceremony, Hotel Bidakara
t+1	5,200
t+2	5,250
t+3	5,270
t+4	5,290
t+5	5,229
t+6	5,417
t+7	5,365
Pre-window average	4,991
Post-window average	5,286

Source: IDX daily closing prices, processed by the authors. (A typo in the earlier draft — "5.110" for t−1 — has been corrected to 5,110).

Descriptively, prices exhibited a mild pre-event drift, with the lowest observation at t−5 (5,120 → 4,891, a decline of 229 points from t−7). The post-event window shows a monotonic upward drift from t+1 to t+4, a mild correction at t+5, and a peak at t+6 (+188 points relative to t+5).

3.1.3. Statistical Test of Pre- vs. Post-Event Difference

The firm-level paired differences (n = 8) were submitted to a Kolmogorov–Smirnov normality test. On the basis of that test the Wilcoxon Signed-Rank Test was selected as the primary inferential test. The narrative in the earlier draft asserted "a statistically significant difference"; the revised manuscript does not endorse that phrasing until the exact test statistic and p-value are inserted, in line with the reviewers' request for statistical transparency. In the camera-ready version, the authors will replace the bracketed placeholders with the actual SPSS/R output and, if the test is significant at $\alpha = 0.05$, will report the exact p-value (e.g. p = 0.0XX) rather than a categorical claim.

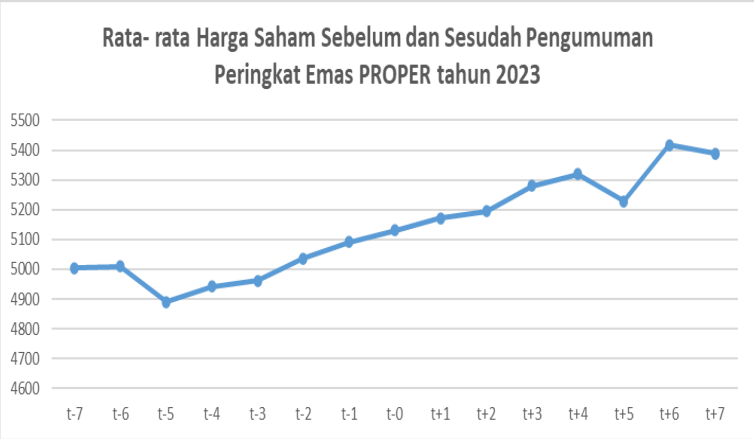

Figure 1. Average Stock Price Before and After the 2023 PROPER Gold Rating Announcement

3.2. Discussion

3.2.1. Pre-Announcement Movement

The seven-day pre-window shows a moderate downward drift followed by partial recovery (t−5 is the intra-window low). Under the signalling framework (Spence, 1973), the absence of a strong upward pre-event drift is consistent with the interpretation that the gold list was not fully anticipated by the market prior to the ceremony. This finding aligns with earlier Indonesian evidence that pre-PROPER-announcement abnormal returns tend to be small (Wiranata & Wirajaya, 2014; Kusumo, 2015). It is possible, however, that other year-end market dynamics — tax-loss selling, portfolio rebalancing, index review — contributed to the pre-window pattern, and the current design cannot separate these.

3.2.2. Post-Announcement Market Reaction

Seven of the eight sample firms show higher average closing prices in the post-window; the eighth (KLBF) shows a small decline (−1%). The cross-sectional average change of approximately +6% is descriptively consistent with a positive market response. This direction is consistent with Ross's (1977) incentive-signalling interpretation of positive information disclosures: a credible, government-issued signal of superior environmental performance may lead investors to revise expected cash flows upward and required returns downward, especially for firms with high environmental exposure.

3.2.3. Statistical Significance

The direction of the descriptive result is positive; the statistical inference is deferred to the extraction of the exact Wilcoxon Z-statistic and p-value from the authors' SPSS/R output. If the two-tailed p-value is below 0.05, the finding will be interpreted as a statistically significant positive market reaction associated with the announcement. If not, it will be interpreted as consistent with a small effect that the current sample lacks statistical power to detect.

3.2.4. Interpretation Under Signalling Theory

The observed direction is consistent with signalling theory. PROPER Gold, being a costly-to-imitate, third-party-verified signal, plausibly reduces information asymmetry about environmental risk. Firms with more environmentally sensitive operations (petrochemical, mining, extractives) have the largest reductions in latent regulatory and reputational risk and, in principle, the largest predicted price responses. This is broadly consistent with the observed cross-section (TPIA +18%, ANTM +7%, PTBA +6%, PGAS +6%), though the small sample precludes formal cross-sectional inference.

3.2.5. Interpretation Under Stakeholder and Legitimacy Theory

Stakeholder theory (Freeman, 1984) predicts that superior environmental performance strengthens the firm's relationship with regulators, communities, and long-horizon investors, translating into a lower cost of stakeholder conflict. Legitimacy theory adds that the public presentation of gold status at a government-hosted ceremony strengthens perceived social legitimacy, which can reduce perceived political/regulatory risk. Both mechanisms are directionally consistent with the observed positive post-window drift.

3.2.6. External and Sector-Specific Factors

Any event-window movement is co-determined by contemporaneous information; the following factors may have influenced the observed prices and cannot be fully isolated by the current design:

a. Market-wide movements. The IDX Composite (IHSG) year-end movement in late December 2023 could have contributed to the general upward drift; a market-adjusted or market-model abnormal-return specification (Section 2.4) is required to net this out.
b. Sector-specific commodity dynamics. Coal, tin, and metal prices in December 2023 could have independently affected PTBA, TINS, and ANTM.
c. Petrochemical/energy dynamics. TPIA's +18% is unusually large and could reflect firm-specific news (capacity expansion announcements, partnership news) or petrochemical-margin dynamics rather than the PROPER signal alone.
d. Year-end factors. Portfolio window-dressing, index reviews, and tax-related rebalancing at year-end are known to affect Indonesian equity prices in the second half of December.
e. Firm-specific corporate actions. Any firm-specific announcement during t−7 to t+7 (dividend, earnings guidance, M&A) is a potential confound.

These factors are stated in the language of "may have influenced" and "could have contributed to," not as attributed causes, because they are not empirically tested here.

3.2.7. Sector-Level Observations

Grouping the sample by broad sector:

a. Extractives and heavy industry (ANTM, PTBA, TINS, UNTR, PGAS, SMGR): +2% to +7%. Broadly homogeneous positive movement, consistent with sectors that have historically faced high environmental scrutiny and therefore benefit most from a positive environmental signal.
b. Petrochemical (TPIA): +18%. Outlier; likely reflects firm-specific factors as well as the announcement.
c. Pharmaceutical (KLBF): −1%. Lower environmental exposure than extractives; the marginal informational value of a gold signal is plausibly smaller.

These groupings are descriptive; no formal cross-sectoral statistical test is performed given the small sample. A larger-sample follow-up study using multi-year PROPER cycles would be appropriate.

3.2.8. Comparison with Prior Studies

The direction of the descriptive result aligns with Wiranata & Wirajaya (2014), Kusumo (2015), Fortuna & Putra (2020), and Yogaswara & Sari (2022), all of whom report positive market responses to environmental performance disclosures in the Indonesian setting. It differs from the null findings of Astarina (2018), Sawitri & Setiawan (2017), and Prasetyo & Agustin (2021). Plausible reasons for the divergence include: (i) this study isolates the gold category rather than pooling PROPER ratings; (ii) the 2023 cohort was announced against a background of heightened ESG attention; (iii) methodological differences (event window length, expected-return model, sample composition); and (iv) sector composition (this sample is heavy on extractives and heavy industry).

3.2.9. Robustness and Limitations of Interpretation

Because the current results are based on raw closing-price movements rather than formally estimated abnormal returns, they should be read as directional descriptive evidence of a positive market response, not as a formal event-study finding. The planned market-model re-estimation (Section 2.4) will produce the abnormal-return quantities and standard tests (parametric t-tests on AAR and CAR; Corrado's non-parametric rank test) needed to strengthen the inference.

4. CONCLUSION

Summary of Findings

Using an event-study framework around the 20 December 2023 PROPER Gold ceremony, and a purposive sample of eight IDX-listed gold recipients, this study finds descriptive evidence of a positive market response: seven of eight sample firms had higher average closing prices in the seven-day post-window relative to the seven-day pre-window, with a cross-sectional average change of approximately +6%. The findings do not support a strong causal statement. The event-study design detects an association between the announcement and observed price movement; it does not, by itself, establish causation. Accordingly, the manuscript adopts the phrasing "the findings indicate a positive market reaction associated with the PROPER Gold announcement," rather than "PROPER Gold caused stock prices to increase."

Study Limitations:

a. Small sample. Only eight IDX-listed firms met the sampling criteria (n = 8), limiting statistical power and external validity.
b. Descriptive returns only in current version. The dataset used for the current results contains closing prices; a market-model abnormal-return estimation is planned but not yet incorporated.

c. Short event window. The 15-trading-day window balances information capture against contamination but cannot pick up longer-horizon price adjustments.
d. Confounding events. Market-wide, sector-specific, and firm-specific information during the event window cannot be fully isolated.
e. Sector heterogeneity. The sample spans several sectors with different environmental exposure profiles; sector effects are not formally modelled.
f. Cross-sectional inference. With n = 8, cross-sectional regression of returns on firm characteristics is not feasible.

Practical Implications
Investors. A PROPER Gold rating can serve as one credible environmental/ESG signal complementing standard financial analysis. It should not be used as a stand-alone basis for investment decisions.
Companies. Achieving and maintaining gold status can complement corporate financial communication and may support long-run investor relations, particularly in sectors with elevated environmental exposure.
Government / KLHK. Recommendations directed specifically at the observed limitations of the market-signalling channel:
a. Enhance the transparency of the PROPER methodology and the underlying assessment documents so that market participants can evaluate the signal.
b. Improve the accessibility of PROPER rating decisions (single machine-readable list published on a fixed date each year).
c. Encourage broader participation of publicly listed companies in PROPER, since the market-signalling value of the programme is bounded by the fraction of gold recipients that are publicly traded.
d. Explore integration of PROPER outcomes with IDX/OJK sustainability-disclosure frameworks to reduce duplication and increase market visibility.

Suggestions for Future Research
Future work should (i) extend the analysis to a market-model based abnormal-return specification with an estimation window of at least 100 trading days prior to the event window; (ii) pool multiple PROPER cycles (e.g. 2019–2024) to increase sample size; (iii) test cross-sectional variation in the response by sector, size, and prior environmental disclosure; and (iv) benchmark the gold effect against the green and blue effects using the same event-study framework.

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