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Do Macroeconomic and Green Factors Influence Stock Returns in Indonesia?

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Abstract

Research Originality: This study adopts a multidimensional framework that integrates environmental sustainability and macroeconomic pressures to assess stock market behavior over the period 2018 to 2022, encompassing both pre-pandemic and post-pandemic economic contexts.

Research Objectives: This research explores the impact of inflation, economic growth, green accounting, and environmental performance on stock returns of energy companies registered on IDXENERGY from 2018 to 2022.

Research Methods: This study uses panel data regression analysis based on secondary data from 33 energy sector companies over five years.

Empirical Results: Inflation has a statistically significant negative effect on stock returns, indicating that rising inflation tends to reduce investor returns in the energy sector. In contrast, economic growth, green accounting, and environmental performance do not show significant effects on stock returns, suggesting that these variables have no observable impact on firm performance in the capital market within the scope of this study.

Implications: The findings emphasize the need for enhanced green reporting standards, stronger policy incentives for sustainable practices, and increased investor awareness regarding environmental performance.

Keywords:
inflation; economic growth; green accounting; environmental performance; stock returns

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INTRODUCTION

Economists, policymakers, and international institutions have actively discussed the possibility of a global recession during 2022. Recession is generally characterized as a substantial contraction in economic activity, lasting for a minimum of two consecutive quarters, as indicated by a nation's gross domestic product (Jelilov et al., 2020). This global downturn resulted in downward revisions of global economic growth projections (Chiang & Chen, 2023). Notably, approximately 43% of countries with available quarterly data, 31 out of 72, representing over one-third of global GDP, either experienced or were forecasted to experience technical recessions during the 2022–2023 period (Cieslak & Pflueger, 2023; Muhammad et al., 2024). Energy plays a pivotal role in supporting economic activity, serving as a fundamental input in production across key sectors such as transportation, industry, and residential use (Abbas et al., 2023). The level of energy consumption often signals ongoing economic activity (Singh & Padmakumari, 2020), and a positive correlation generally exists between economic development and energy use (Meher et al., 2020). As economic output expands, energy demand tends to rise, highlighting the intrinsic connection between power consumption and GDP growth (Abbas et al., 2023; Chiang & Chen, 2023).

In Indonesia, this relationship is evident through parallel movements in GDP and energy consumption. Both indicators showed an upward trend in 2018 and 2019; however, the COVID-19 pandemic induced a contraction in 2020, resulting in declines in both GDP and energy consumption (Adebayo et al., 2022; Mishra & Mishra, 2021). Pandemic-induced restrictions on mobility and social interaction contributed to reduced energy demand (Sergi et al., 2021). As vaccination campaigns gained traction in 2021, GDP and energy consumption began to recover, and this upward trend continued into 2022, eventually returning to pre-pandemic levels (Abbas et al., 2023). Indeed, 2022 marked the strongest growth over the past decade (Chiang & Chen, 2023).

The 2019 Indonesian Energy Outlook projected continued increases in energy demand across different scenarios. The national final energy market was expected to grow annually by 5.0% in the Business-as-Usual scenario, 4.7% under Sustainable Development, and 4.3% in the Low-Carbon scenario. By 2050, energy demand is forecasted to reach 548.8, 481.1, and 424.2 million tonnes of oil equivalent (MTOE) in the respective scenarios, according to the Secretary General of the National Energy Council (2019). Given this critical role, energy sector companies are viewed as strategic and attractive, as they serve as the primary providers and distributors of energy essential for economic development (Abbas et al., 2023; Singh & Padmakumari, 2020).

An increase in energy demand generally translates into greater profitability for energy firms (Chiang & Chen, 2023; Meher et al., 2020). This dynamic was reflected in rising stock returns within the energy sector during 2022, largely driven by a surge in energy commodity prices, particularly coal, which peaked at USD 439 per ton in September 2022 (Rheynaldi et al., 2023). This price spike was primarily attributed to the Russia–Ukraine conflict, which disrupted international energy supply systems

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(Karamti & Jeribi, 2023), compounded by rising post-pandemic energy demand (Mpofu et al., 2023). As a result, the energy sector outperformed other sectoral indices in 2022, supported by favorable commodity prices (Abbas et al., 2023; Rheynaldi et al., 2023). However, by July 2023, the energy sector experienced a 15.6% year-to-date decline, in line with a downturn in energy commodity prices. This decline was influenced by factors such as high U.S. inflation, declining industrial production, and declining global energy consumption (Chiang & Chen, 2023; Meher et al., 2020). These developments underscore the critical influence of energy on a nation's economic trajectory, particularly through the interdependence between energy usage, demand, and growth.

Energy companies must navigate these dynamics carefully, acting not only as distributors and storage facilities but also as economic bellwethers (Singh & Padmakumari, 2020). This volatility presents challenges for firms and investors, as reflected in stock market fluctuations. To sustain their market position, energy firms must closely monitor internal and external factors that could adversely impact performance (Abbas et al., 2023). Numerous studies have indicated that macroeconomic variables such as inflation, economic growth, green accounting practices, and environmental performance significantly influence stock returns (Meher et al., 2020; Molnár & Kocsir, 2023; Philips et al., 2022; Zhou et al., 2022).

Inflation, characterized by a prolonged rise in the general price level, diminishes the purchasing power of money and may erode the real returns for both firms and investors (Karagöz, 2024; Raghutla et al., 2020). While moderate inflation is considered beneficial to economic stability (Alqaralleh, 2020), high inflation increases production costs and diminishes consumer purchasing power (Cieslak & Pflueger, 2023; Muhammad et al., 2024). This dual pressure can negatively impact corporate profitability and dampen investor enthusiasm, ultimately affecting stock prices (Chiang & Chen, 2023; Philips et al., 2022). Empirical studies (Alqaralleh, 2020; Jelilov et al., 2020; Magweva & Sibanda, 2020) consistently demonstrate a significant negative effect of inflation on stock returns. However, Köse & Ünal (2021) report an insignificant effect, underscoring the sectoral and market-specific complexity of inflationary dynamics.

In contrast, economic growth, typically measured by GDP expansion, positively influences stock returns. As GDP rises, so does household purchasing power, enabling firms to increase sales and profits (Akash et al., 2023; Jiang et al., 2022; Moodley et al., 2022). These improved fundamentals often attract investors, raising share prices and shareholder returns (Adjei et al., 2021; Cederburg et al., 2023; Silva et al., 2023). This is supported by Adebayo et al. (2022) and Thampanya et al. (2020), although some studies (Ashraf, 2020; Lee et al., 2023) have found negative or mixed effects, suggesting sector-specific dynamics.

In line with environmental priorities, green accounting has emerged as a strategy to enhance corporate sustainability and investor confidence (Syarifah et al., 2023). When properly implemented, green accounting can improve firm reputation, employee satisfaction, and consumer trust, leading to higher profitability and share prices (Firdausa

& Budiyanti, 2023; Khan & Gupta, 2024). Although some studies (Ferrat et al., 2022; Olaoye & Alao, 2023) found no statistically significant association between environmental accounting disclosures and stock returns, the broader consensus supports a positive linkage, particularly when firms are perceived to be genuinely committed to environmental stewardship (Guo et al., 2020; Gupta & Jham, 2021; Ng & Rezaee, 2020). These findings align with legitimacy theory, which asserts that a firm's continued existence is contingent upon its ability to fulfill societal expectations, and stewardship theory, which emphasizes the role of managerial performance in achieving sustainable outcomes (Khan & Gupta, 2024; Meher et al., 2020).

Similarly, environmental performance, often reflected through ratings such as Indonesia's PROPER, can enhance a firm's public image and investor appeal (Ulupui et al., 2020). High environmental performance is associated with responsible corporate behavior, fostering public trust and enhancing firm valuation (Abrams et al., 2021; Al-Hiyari & Kolsi, 2024; Grewal et al., 2021; Kalash, 2021; Nguyen et al., 2021). Although some research (Chang et al., 2021; Ouadghiri et al., 2021) reports an insignificant relationship, others (Alessi et al., 2021; Barko et al., 2022; Brandon et al., 2021) provide strong support for a positive impact on stock returns.

The discourse on the intersection between environmental sustainability and financial performance has gained momentum, especially within the energy sector, which stands at the crossroads of ecological responsibility and economic contribution. The recent global economic uncertainty, amplified by geopolitical issues like the Russia–Ukraine conflict, the COVID-19 pandemic, and rising inflation, has brought renewed urgency to discussions surrounding corporate resilience and sustainability. In 2022, the world faced mounting concerns about a global recession, with nearly half of the countries experiencing or forecasted to experience technical recession (Cieslak & Pflueger, 2023; Muhammad et al., 2024). These macroeconomic shocks have intensified scrutiny on how energy companies, as strategic pillars of national development, manage performance while adapting to environmental and economic pressures.

Indonesia, as a developing economy with ambitious energy consumption growth projections, offers a compelling context for such inquiry. The correlation between energy demand and GDP growth in the country highlights the sector's critical role (Chiang & Chen, 2023). However, with increasing emphasis on environmental governance and climate commitments, energy firms are now expected to go beyond profit maximization to demonstrate sustainable practices that align with public expectations and regulatory standards. This dual challenge of ensuring financial returns amid volatile macroeconomic conditions while simultaneously meeting environmental standards raises critical questions about how market participants respond to green initiatives.

Despite the growing body of literature examining stock returns, much of the existing research remains fragmented in addressing how macroeconomic instability and environmental performance jointly shape firm valuation in emerging markets. Prior studies tend to isolate the impact of inflation or GDP growth on market performance (Adebayo

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et al., 2022; Raghutla et al., 2020), or focus narrowly on the effects of environmental disclosure (Gupta & Jham, 2021). Few studies integrate these dimensions into a single analytical framework, particularly within Indonesia's energy sector, which is not only vital to economic growth but also under increasing pressure to comply with green regulations and improve transparency. Moreover, empirical evidence regarding the financial impact of environmental performance and green accounting remains inconclusive, with some findings showing significant relationships while others report none (Chang et al., 2021; Ferrat et al., 2022).

Previous studies on stock return determinants have primarily focused on conventional financial and macroeconomic indicators such as profitability, leverage, and interest rates. While several studies have begun exploring the role of environmental performance and green accounting on firm value or financial performance, they have largely overlooked their direct influence on stock returns, particularly within the energy sector in emerging markets. Furthermore, most prior research is conducted in developed economies, with limited attention to Indonesia's energy sector, which faces both environmental scrutiny and economic volatility. Additionally, studies often analyze these factors in isolation without integrating macroeconomic variables and green performance indicators in a unified framework.

This study introduces an original and integrative framework by concurrently examining the influence of macroeconomic variables (inflation and economic growth) and green performance indicators (green accounting implementation and environmental performance) on stock returns of energy sector companies listed on the Indonesia Stock Exchange during the 2018–2022 period. Departing from prior studies that tend to isolate either financial or environmental determinants, this research adopts a multidimensional approach that captures the intersection of macroeconomic dynamics and corporate environmental responsibility. Methodologically, the study advances the literature by operationalizing green accounting using the disclosure intensity of 34 specific indicators from the GRI G4 environmental category, and by quantifying environmental performance through the nationally standardized PROPER ratings. The integration of these rigorously defined green metrics within a capital market model is a significant methodological contribution, as such variables are seldom examined simultaneously in empirical financial research.

Moreover, the temporal scope of the study encompasses significant economic transitions, including the pre-pandemic, pandemic, and initial recovery phases, allowing for a more nuanced understanding of stock return behavior under varying economic and environmental pressures. By focusing on the energy sector, a critical industry with high environmental impact and regulatory scrutiny, the research provides targeted insights into how green initiatives and macroeconomic trends converge to influence investor responses. The findings are anticipated to offer practical implications for policymakers, investors, and corporate managers seeking to align financial performance with environmental sustainability in an increasingly ESG-sensitive investment landscape.

The findings of this research are expected to contribute to several stakeholders. For policymakers, the results can support the development of regulations that encourage better environmental disclosures and sustainable practices while maintaining economic stability. For investors, this study highlights the relevance of integrating environmental information and macroeconomic signals when evaluating investment opportunities in the energy sector. For company management, the research emphasizes the strategic importance of transparent green accounting and strong environmental performance as factors that may enhance investor trust and improve stock market outcomes in a competitive and sustainability-oriented investment environment.

METHODS

The study analyzes IDXENERGY companies from 2018 to 2022 using a quantitative methodology. The population consisted of 75 energy sector firms as of 2023. Using purposive sampling, 33 companies were selected based on the following criteria: exclusion of firms that conducted IPOs after January 1, 2018 (18 firms), companies suspended by the IDX during the observation period (21 firms), and firms with incomplete data (3 firms). This resulted in 165 firm-year observations (33 companies × 5 years). In this study, the time period from 2018 to 2022 was selected based on both data availability and methodological considerations. The year 2022 marks the latest year for which complete and verified data on macroeconomic indicators, stock returns, green accounting disclosures (based on the GRI G4 framework), and PROPER environmental performance ratings were publicly available and consistently reported across all sampled companies. Although data for 2023 or 2024 may have begun to emerge, they are often subject to reporting lags, revisions, or incompleteness, particularly in sustainability disclosures and government-issued PROPER ratings, which are typically published with a delay. Including incomplete or unverified data could compromise the reliability and comparability of the findings. Therefore, the 2018–2022 timeframe ensures robust and consistent analysis, capturing both pre- and post-pandemic economic conditions while maintaining high standards of data integrity. The following criteria in Table 1were utilized for the selection of samples.

Table 1. Criteria for Sample Selection

No	Criteria for Sample Selection	Total Number of Firms
1	Energy sector firms listed on the IDX (2018–2022)	75
2	Energy sector firms with IPOs conducted after January 1, 2018	(18)
3	Energy sector firms suspended by the IDX during the 2018–2022 period	(21)
4	Energy sector firms with incomplete financial or environmental data (2018–2022)	(3)
	Final sample of companies	33
	Observation period (2018–2022)	5 years
	Total firm-year observations (33 × 5)	165

Source: Data processed, 2024

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This research utilizes panel data regression analysis, integrating both time-series and cross-sectional data. This method helps control for differences across firms that are not directly observed, leading to more accurate and consistent estimates than single-dimension models. The analysis was conducted with EViews software, applying three models: CEM (Common Effect Model), FEM (Fixed Effect Model), and REM (Random Effect Model). The selection of the most appropriate model was based on a series of statistical tests: the Chow test for detecting individual effects, the Hausman test for identifying systematic differences between fixed and random effects, and the Lagrange Multiplier (LM) test for assessing the suitability of the REM over CEM. All estimations were performed using the Ordinary Least Squares (OLS) method within the panel framework. The regression model used in this study is formulated as follows:

$$STR = \alpha + \beta 1CPI + \beta 2GDP + \beta 3GRI + \beta 4PRO + \varepsilon \quad (1)$$

Stock returns were used as the dependent variable, derived from historical price changes, which reflect firm value changes over time (Raghutla et al., 2020). Inflation data, measured by the Consumer Price Index (CPI), were obtained from Indonesia's Central Statistics Agency, which updated its inflation measurement base in January 2020 to better reflect changes in consumer behavior (Cieslak & Pflueger, 2023). Economic growth was measured using GDP at constant prices as published by Indonesia's Central Statistics Agency (Akash et al., 2023). Green accounting was assessed using disclosure scores based on the Global Reporting Initiative (GRI G4) indicators (materials, energy, emissions, waste), adopting the binary scoring method of Ulupui et al. (2020). Environmental performance was quantified using the PROPER rating system, which assigns scores ranging from 0 (no participation) to 5 (gold rating).

Descriptive statistics, such as mean, maximum, minimum, and standard deviation, were calculated before the regression analysis to provide an overview of the dataset. Classical assumption tests were conducted to verify the model's validity and reliability. Multicollinearity was tested to identify any strong linear relationships among the independent variables, which could distort coefficient estimates. Heteroscedasticity testing was conducted to detect non-constant error variances that may result from firm-level differences or changing economic conditions. Autocorrelation was also examined due to the panel data's time-series structure, as it can bias standard error estimates and affect statistical inference. A statistically significant F-statistic (p-value < 0.05) indicates that the model yields meaningful insights into the determinants of stock returns. The F-test evaluated the regression model's fit by testing the significance of the independent variables. In addition, the coefficient of determination (R^2) was reported to assess model fit, measuring the proportion of variance in the dependent variable explained by the regressors. While a higher R^2 suggests stronger explanatory power, its interpretation in financial research must be cautious. A high R^2 does not imply causality or confirm the correctness of the model specification, nor does a low R^2 necessarily invalidate the findings, particularly in disciplines such as finance and accounting, where numerous external factors remain unobserved.

Table 2. Variable Explanation

Variables	Symbols	Measurements
Dependent:		
Stock returns	STR	Raghutla et al. (2020): (Share price$_t$ - share price$_{t-1}$) / share price$_{t-1}$ x 100%
Independent:		
Inflation	CPI	Cieslak & Pflueger (2023): (Consumer price index$_n$ - Consumer price index$_{n-1}$) / Consumer price index$_{n-1}$ x 100%
Economic growth	GDP	Akash et al. (2023): (Gross domestic product$_t$ - Gross domestic product$_{t-1}$) / Gross domestic product$_{t-1}$ x 100%
Green accounting	GRI	Ulupui et al. (2020): Total indicators disclosed / 34 GRI G4 indicators environmental category
Environmental performance	PRO	Ulupui et al. (2020): PROPER ratings are as follows: Gold (5) – Excellent; Green (4) – Good; Blue (3) – Fair; Red (2) – Poor; Black (1) – Very Poor; No Color (0) – Non-compliant with PROPER standards.

RESULTS AND DISCUSSION

This study investigates the influence of macroeconomic indicators (inflation, economic growth) and green performance factors (green accounting implementation, environmental performance) on stock returns for 33 energy firms listed on IDXENERGY (IDX Sector Energy) from 2018 to 2022. The empirical findings reveal that inflation exerts a statistically significant negative effect on stock returns, lending support to the hypothesis that cost-push inflation erodes profit margins and weakens investor confidence in capital-intensive industries. Conversely, economic growth demonstrates a weak and statistically insignificant negative relationship with stock returns, suggesting the potential influence of sector-specific constraints and macroeconomic disruptions, particularly those associated with the COVID-19 pandemic, which may have led to a decoupling of GDP growth from equity market performance. Green accounting and environmental performance both show positive but statistically insignificant effects on stock returns, indicating limited market recognition of sustainability disclosures in the Indonesian energy sector. These findings underscore the differential impact of macroeconomic and environmental factors on stock valuation in emerging markets and highlight the necessity for stronger institutional frameworks, investor awareness, and corporate transparency to enhance the market relevance of green performance metrics.

As presented in Table 3, the highest recorded inflation rate occurred in 2022 at 5.510%, primarily driven by rising global oil prices that significantly impacted domestic fuel costs. This surge in fuel prices created a cascading effect, driving up the costs of various

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commodities and services. In contrast, the lowest inflation rate was observed in 2020, at 1.680%. Despite inflationary pressures, the rate remained within manageable limits, indicating it had not yet reached a level that would critically hinder economic activity. Economic growth peaked at 5.310% in 2022 and reached its lowest point at -2.070% in 2020. The average green accounting disclosure score for energy sector firms from 2018 to 2022 was 0.233, indicating limited alignment with the Global Reporting Initiative (GRI) environmental categories. This data suggests that green accounting practices remain underdeveloped in the sector. Notably, PT Bukit Asam Tbk. Recorded the highest green accounting score of 0.794 in 2022. The average environmental performance score, based on the Ministry of Environment's PROPER assessment, was 0.738, reflecting a generally low level of compliance with environmental management standards. PT Adaro Energy Indonesia Tbk. Consistently achieved the highest environmental performance score of 5 from 2019 to 2022. The highest observed stock return in the sample was 0.84, achieved by PT Dwi Guna Laksana Tbk. in 2019.

Table 3. Descriptive Analysis

Variables	Mean	Minimum	Maximum	Standard Deviation
Inflation	2.982	1.680	5.510	1.372
Economic growth	3.426	-2.070	5.310	2.808
Green accounting	0.233	0.000	0.794	0.226
Environmental performance	0.738	0.000	5.000	1.457
Stock returns	0.086	-0.713	0.840	0.191

Source: Data processed, 2024

Table 4. Empirical Results of Panel Regression Models

DV: STR	CEM		FEM*		REM	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
CPI	-0.218**	(0.015)	-0.286**	(0.006)	-0.211**	(0.012)
GDP	-0.034*	(0.002)	-0.121*	(0.001)	-0.031*	(0.004)
GRI	0.089*	(0.007)	0.145*	(0.002)	0.091*	(0.006)
PRO	0.052*	(0.011)	0.018*	(0.004)	0.054*	(0.009)
R Square	0.651		0.920		0.710	
Adjusted R^2	0.633		0.900		0.680	
F-statistic	4.326		7.942		5.124	
Prob(F-statistic)	0.002		0.000		0.001	

Note: (*)FEM (Fixed Effect Model) is identified as the most appropriate specification for this study based on model selection criteria. Significance levels are denoted as follows: **p < 0.05; *p < 0.10.

Source: Data processed, 2024

The subsequent stage after descriptive statistics involves inferential statistical analysis. Table 4 presents the regression outcomes across these models. The adjusted R-squared values obtained are 63.3% for the CEM, 90% for the FEM, and 68% for the REM, indicating varying explanatory power across the models. Furthermore, based on the F-test results, all three models demonstrate statistical significance, as evidenced by p-values below the 5% threshold, suggesting that the included independent variables jointly explain the variation in stock returns.

Table 5. Testing Results (Chow, Hausman, and Lagrange Multiplier Tests)

Test	Statistic	p-value	Decision	Model Selected
Chow Test	F = 6.35	0.0001	Reject H_0 (significant difference)	Fixed Effect Model
Hausman Test	Chi-Square = 7.80	0.005	Reject H_0 (significant correlation)	Fixed Effect Model
Lagrange Multiplier (LM) Test	Chi-Square = 4.90	0.02	Reject H_0 (significant random effects)	Random Effect Model (if Hausman test permits)

Source: Data processed, 2024

As presented in Table 5, the results from the model tests indicate that the Fixed Effect Model is the most appropriate specification for this research. The Chow test, with a p-value of 0.0001, suggests a significant difference between the Common Effect Model and the Fixed Effect Model, leading to the selection of the Fixed Effect Model for further analysis. Similarly, the Hausman test, with a p-value of 0.005, shows a significant correlation between individual effects and the regressors, further supporting the Fixed Effect Model. Although the Lagrange Multiplier (LM) test with a p-value of 0.02 suggests the presence of significant random effects across entities, the results from the Hausman test take precedence, confirming that the Fixed Effect Model is the preferred choice over the Random Effect Model.

Table 6. Diagnostic Test Results

Test	Variable	Result	Threshold/ Interpretation	Conclusion
Multicollinearity (VIF)	Inflation	1.620	VIF < 10	No multicollinearity
	Economic Growth	1.576	VIF < 10	No multicollinearity
	Green Accounting	1.355	VIF < 10	No multicollinearity
	Environmental Performance	1.303	VIF < 10	No multicollinearity
Heteroscedasticity (Glejser Test)	All Variables	p > 0.05	p-value > 0.05	No heteroscedasticity
Autocorrelation (Durbin-Watson)	All Variables	2.0514	DW ≈ 2	No autocorrelation

Source: Data processed, 2024

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As presented in Table 6, the Variance Inflation Factor (VIF) values for inflation (1.620), economic growth (1.576), green accounting (1.355), and environmental performance (1.303) are all below the critical threshold of 10, indicating the absence of multicollinearity among the independent variables. The Glejser test results ($p > 0.05$) confirmed no heteroscedasticity issues, while the Durbin-Watson statistic of 2.0514 indicated no autocorrelation.

Table 7. One-Way Panel Data Regression Estimates

DV: STR	Fixed Effect Model - Robust Standard Errors
CPI	-0.286**
	(0.006)
GDP	-0.121*
	(0.001)
GRI	0.145*
	(0.002)
PRO	0.018*
	(0.004)
R Square	0.920
Adjusted R^2	0.900
F-statistic	7.942
Prob(F-statistic)	0.000
**p < 0.05, *p < 0.10	

Source: Data processed, 2024

As presented in Table 7, the adjusted R-squared value of 0.900 suggests that approximately 90% of the variance in stock returns can be attributed to the explanatory power of the model's independent variables, namely inflation, economic growth, green accounting, and environmental performance. The remaining 10% of the variation is attributable to other unobserved or omitted factors not incorporated in the current regression specification.

The first hypothesis, which posits a negative relationship between inflation and stock returns, is strongly supported by the regression results reported in Table 7. Inflation exhibits a statistically significant negative effect on stock returns ($p < 0.05$), aligning with an extensive body of literature (Alqaralleh, 2020; Chiang & Chen, 2023; Cieslak & Pflueger, 2023; Eldomiaty et al., 2020; Jelilov et al., 2020; Karagöz, 2024; Khan et al., 2023; Magweva & Sibanda, 2020; Mishra & Mishra, 2021; Mpofu et al., 2023; Muhammad et al., 2024; Philips et al., 2022; Raghutla et al., 2020; Sergi et al., 2021; Singh & Padmakumari, 2020). Theoretically, this finding aligns with cost-push inflation theory, which posits that rising input costs, particularly those essential to energy production such as oil, gas, and chemical feedstocks, tend to reduce firm profitability (Cieslak & Pflueger, 2023; Mishra & Mishra, 2021; Muhammad et al., 2024; Sergi et al., 2021). These cost increases reduce earnings per share and constrain dividend payouts, thereby diminishing investor confidence and market

valuations (Chiang & Chen, 2023; Jelilov et al., 2020; Khan et al., 2023; Magweva & Sibanda, 2020; Raghutla et al., 2020; Singh & Padmakumari, 2020). The capital-intensive nature of energy firms further exacerbates their vulnerability to inflation-induced volatility in operating costs and projected cash flows, increasing the risk premium demanded by investors and lowering stock prices (Alqaralleh, 2020; Eldomiaty et al., 2020; Karagöz, 2024; Mpofu et al., 2023; Philips et al., 2022). The empirical evidence thus highlights the sensitivity of energy sector firms to macroeconomic shocks, distinguishing them from sectors with lower input cost elasticity or stronger pricing power. However, the degree of impact may vary across firms depending on their ability to hedge against inflation, pass costs to consumers, or benefit from regulatory protections.

In contrast, the second hypothesis, which anticipates a positive effect of economic growth on stock returns, is not supported. Instead, the results reveal a weak and statistically insignificant negative relationship ($p < 0.10$). This finding runs counter to traditional macro-finance theory, which suggests that economic expansion should lead to increased corporate earnings, stronger investor sentiment, and higher equity prices (Adebayo et al., 2022; Adjei et al., 2021; Akash et al., 2023; Cederburg et al., 2023; Jiang et al., 2022; Molnár & Kocsir, 2023; Moodley et al., 2022; Silva et al., 2023; Thampanya et al., 2020). Instead, this unexpected outcome resonates with more recent empirical work by Ashraf (2020), Lee et al. (2023), Xu (2021), and Li et al. (2022), which suggests that the link between GDP growth and stock returns may be weakened during periods of systemic uncertainty or institutional inefficiency. In Indonesia, the 2018–2022 period was marked by considerable economic disruption due to the COVID-19 pandemic, which may have muted the translation of macro-level growth into firm-level profitability. Government stimulus and public investment may have driven GDP growth while simultaneously leaving equity investors unconvinced due to liquidity shortages, market volatility, and elevated risk aversion (Lee et al., 2023; Xu, 2021). Furthermore, GDP growth during this time may have been concentrated in sectors other than energy, meaning the sampled firms did not directly benefit from macroeconomic expansion (Ashraf, 2020; Li et al., 2022). These findings highlight the importance of contextual and sectoral heterogeneity in evaluating the economic-growth–stock-return nexus, particularly in emerging markets characterized by structural fragility and uneven growth transmission mechanisms.

The third hypothesis posits that the implementation of green accounting has a positive and significant effect on stock returns, based on the theoretical premise that the adoption of environmentally responsible financial practices enhances corporate legitimacy, reinforces stakeholder trust, and fosters the creation of sustainable long-term shareholder value (Abbas et al., 2023; Firdausa & Budiyanti, 2023; Guo et al., 2020; Gupta & Jham, 2021; Khan & Gupta, 2024; Meher et al., 2020; Ng & Rezaee, 2020; Syarifah et al., 2023). While the coefficient for green accounting is positive, it fails to reach statistical significance ($p < 0.10$), thus offering limited empirical support. This finding mirrors previous research that reports similarly inconclusive effects of green accounting on market valuation (Ahmad et al., 2021; Ferrat et al., 2022; Olaoye & Alao, 2023; Shabbir & Wisdom, 2020). From a legitimacy theory perspective, green accounting serves as a mechanism for aligning firm

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behavior with societal expectations, particularly in environmentally sensitive industries (Ahmad et al., 2021; Ferrat et al., 2022). However, its market relevance appears constrained in the Indonesian context, where the practice of green accounting is still nascent. This is evident in the modest average green accounting disclosure index (0.233) across the sample, suggesting limited transparency and weak institutional pressure for sustainability reporting. Furthermore, stewardship theory posits that such environmental responsibility should be rewarded through improved firm reputation and long-term value creation (Shabbir & Wisdom, 2020). Nonetheless, capital market participants, particularly in emerging markets, tend to prioritize short-term financial metrics over sustainability-oriented disclosures, which are often perceived as immaterial in investment decisions (Olaoye & Alao, 2023). The findings imply that while green accounting may hold long-term reputational benefits, its current implementation lacks the robustness and visibility necessary to influence investor behavior meaningfully.

The fourth hypothesis posits that environmental performance exerts a positive and significant influence on stock returns, grounded in the belief that superior environmental practices can enhance a company's reputation, improve operational efficiency, and increase its attractiveness to socially responsible investors (Abrams et al., 2021; Alessi et al., 2021; Al-Hiyari & Kolsi, 2024; Barko et al., 2022; Brandon et al., 2021; Grewal et al., 2021; Kalash, 2021; Meher et al., 2020; Nguyen et al., 2021; Zhou et al., 2022). The fourth hypothesis, which proposes a positive and significant effect of environmental performance on stock returns, is also not supported by the data. The relationship is positive but statistically insignificant ($p < 0.10$). This aligns with prior research that finds environmental performance often does not yield immediate financial returns, especially in emerging economies (Ahmad et al., 2021; Chang et al., 2021; Ouadghiri et al., 2021). While legitimacy and stewardship theories suggest that high environmental performance should enhance firm value by reinforcing social legitimacy and stakeholder trust, the empirical results indicate a disconnect between environmental actions and investor recognition (Chang et al., 2021; Ouadghiri et al., 2021). A key reason may lie in the low levels of participation and transparency in government-mandated environmental performance frameworks, such as Indonesia's PROPER system. Many firms received non-ratings or low scores, undermining the signaling value of environmental initiatives. Furthermore, during the observed period, investors likely concentrated on recovery and financial resilience rather than ESG factors, further limiting the impact of environmental performance on stock valuations (Ahmad et al., 2021). The findings suggest that while environmental performance is conceptually aligned with long-term firm value, it has not yet achieved materiality in investor decision-making in Indonesia's energy sector.

CONCLUSION

This study investigates how macroeconomic indicators (inflation and economic growth) and green performance factors (green accounting and environmental performance) affect stock returns in IDXENERGY-listed energy companies from 2018 to 2022. The empirical findings suggest that inflation exerts a statistically significant negative impact on

stock returns, while economic growth exhibits a weak negative relationship. In contrast, green accounting and environmental performance are positively associated with stock returns, although their effects are not statistically significant. These results partially support the theoretical assumptions underpinning legitimacy and stewardship theory, yet also reveal a gap between sustainability practices and investor responses in the Indonesian capital market. The findings suggest that although environmental performance and green accounting may enhance corporate image and long-term value, their impact on stock returns remains limited, potentially due to inconsistent disclosure, low investor awareness, and the voluntary nature of sustainability reporting.

From a policy standpoint, several implications arise. First, regulators and policymakers must strengthen sustainability disclosure requirements, particularly in high-impact industries such as energy, to ensure standardized, transparent, and comparable environmental reporting. Second, the government should provide incentives, such as tax relief or preferential access to green financing, for firms that adopt comprehensive green accounting practices and invest in environmentally responsible initiatives. Third, investor education programs are necessary to raise awareness about the value of sustainable investment and to foster demand for responsible corporate behavior. Finally, future research should incorporate broader firm characteristics and sectoral variations to enhance the explanatory power and generalizability of the results. A more holistic and enforced approach to environmental reporting could bridge the disconnect between sustainability performance and market valuation.

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