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Macroeconomic Determinants of Indonesian SRI-KEHATI Index Performance: The Dominant Role of Exchange Rate Fluctuations During 2017–2024

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Abstract

This study examines the effects of selected macroeconomic variables on the performance of the SRI-KEHATI Index on the Indonesia Stock Exchange during 2017–2024. The explanatory variables include inflation, the policy interest rate, the rupiah–US dollar exchange rate, and gross domestic product (GDP), while the dependent variable is the quarterly return of the SRI-KEHATI Index. Using quarterly secondary data with 32 observations, the study applies an Ordinary Least Squares time-series regression model, preceded by stationarity testing using the Augmented Dickey-Fuller (ADF) test and supported by classical assumption tests. The findings show that the exchange rate has a significant negative effect on index performance, indicating that rupiah depreciation tends to weaken the returns of this sustainability-oriented index. In contrast, inflation, interest rates, and GDP do not show statistically significant effects. These findings highlight the importance of exchange-rate stability for ESG-oriented portfolio management and provide implications for investors, policymakers, and listed firms in strengthening sustainable investment strategies in Indonesia.

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INTRODUCTION

Over the past decade, a shift in capital-market investing shows that investors no longer pursue financial gains alone; they also weigh Environmental, Social, and Governance (ESG) factors. In Indonesia, this practice appears in the launch of the SRI-KEHATI Index, which comprises 25 issuers committed to sustainability and sound governance (IDX, 2021; KEHATI, n.d.). The index is expected to guide sustainable investing; however, in recent years SRI-KEHATI's performance has fluctuated and at times fell more sharply than the Indonesia Composite Index (ICX) (Cicilia, 2024).

This pattern raises questions about the extent to which macroeconomic factors influence the SRI-KEHATI Index's performance. The finance literature asserts that macroeconomic variables such as inflation, interest rates, exchange rates, and Gross Domestic Product (GDP) play important roles in stock-market dynamics (Fitriani, 2022; Sukartaatmadja et al., 2023). Yet empirical findings across studies are mixed and at times contradictory.

Although ESG-oriented investment emphasizes non-financial dimensions, such as environmental, social, and governance performance, it does not eliminate exposure to macroeconomic risk. Responsible investment still operates within the broader risk-return framework of financial markets, even when ESG factors are integrated into investment decision-making (PRI, 2019; Zairis et al., 2024). In this context, the SRI-KEHATI Index may respond differently from broad market indices because it measures the stock price performance of 25 listed companies selected on the basis of sustainability and governance-related criteria (IDX, 2021; KEHATI, n.d.). Therefore, examining inflation, interest rates, exchange rates, and GDP in relation to the SRI-KEHATI Index is important for understanding whether an ESG-based benchmark in an emerging market exhibits a distinct pattern of macroeconomic sensitivity (Hermawan & Purwohandoko, 2020).

Inflation is one of the most examined variables in relation to capital markets (Sutanto, 2021). However, the evidence is inconsistent. Stanuch (2024) reports that inflation does not affect Poland's WIG20, and Prasetyo et al. (2019) also find that inflation is insignificant for the Jakarta Islamic Index. By contrast, Amaresh et al. (2020) find a positive effect of inflation on Colombo's ASPI, whereas Zhiqiang et al. (2024) find a negative effect on the NYSE Composite. These varied results indicate that inflation exerts different patterns of influence across stock markets.

Interest rates likewise show varied empirical results. Sari (2019) shows that changes in the BI Rate do not significantly affect LQ45 returns, whereas Hadi et al. (2019) find a negative effect on Malaysia's KLCI. On the other hand, Najiand et al. (2022) find a significant positive correlation between interest rates and the Iraqi Stock Exchange index's performance. These differences suggest that markets respond to interest rate policy unevenly, depending on each country's economic structure and investors' behavior.

Exchange rates are also frequently linked to stock-market performance, yet the findings are not always consistent. Prasetyo et al. (2019) and Kengatharan and Ford (2021) report that exchange rates do not significantly affect the JII and Colombo's ASPI. Conversely, Samarawickrama and Pallegedara (2023) find a positive effect of exchange rates on the Colombo Stock Exchange index, while Hadi et al. (2019) and Rizki (2021) show a negative effect on Malaysia's KLCI and ICX's performance. These differences reflect that an index's sensitivity to exchange rate fluctuations depends heavily on a country's trade structure and import or export dependence.

Gross Domestic Product (GDP), as an indicator of economic growth, also shows mixed results.

Salzmann (2023) and Ahmadzada et al. (2023) find a positive effect of GDP on MSCI ESG Europe and Turkey's ISE 100, while Amaresh et al. (2020) and Samarawickrama and Pallegedara (2023) find a negative effect on the Colombo index's performance. Meanwhile, the study by Murtiningrum and Caesaria (2024) concludes that GDP growth has no discernible effect on Indonesia Composite Index (ICX) returns during 2021 to 2024. This inconsistency underscores a research gap regarding GDP's role in stock-market index performance, including SRI-KEHATI.

Prior empirical studies have largely focused on the effects of macroeconomic variables on conventional or sector-based stock indices, such as IHSG, LQ45, and the Jakarta Islamic Index. In contrast, relatively limited evidence is available on how macroeconomic shocks influence the performance of ESG-based indices, particularly in emerging markets such as Indonesia. This gap is important because a sustainability-oriented index may not react to inflation, interest rates, exchange rates, and output growth in the same manner as a broad market index. Differences in constituent screening, sectoral composition, corporate governance quality, and investor orientation may produce a distinct return response to macroeconomic fluctuations. Moreover, the theoretical application of the Arbitrage Pricing Theory (APT) to ESG-focused portfolios has not been thoroughly explored in the Indonesian context. The period between 2017 and 2024, which covers both the pandemic and post-pandemic recovery, also provides a unique macro-financial environment that has rarely been analyzed in relation to sustainable investment performance (Salzmann, 2023).

This study contributes to the literature in three ways. First, it extends the macroeconomic stock-market literature by focusing on the SRI-KEHATI Index as an ESG-based benchmark whose constituent firms are screened for sustainability and governance performance, rather than representing the broader composition of conventional stock indices. Second, it examines the 2017–2024 period, which captures both the COVID-19 shock and the post-pandemic recovery, thereby providing evidence from a highly dynamic macro-financial environment. Third, the study applies the APT framework introduced by Ross (1976) to assess whether an ESG-oriented index in an emerging market displays a different macroeconomic sensitivity structure, particularly with respect to exchange-rate movements. In doing so, this study contributes to the intersection of macro-asset pricing and sustainable finance, while offering policy-relevant insights into exchange-rate stability and risk management for ESG portfolios.

Given these empirical patterns and gaps, this study focuses on analyzing the effects of inflation, interest rates, exchange rates, and GDP on the SRI-KEHATI Index's performance on the Indonesia Stock Exchange from 2017 to 2024. The research question asks whether those four macroeconomic variables significantly affect SRI-KEHATI's performance, both individually and jointly.

The purpose of this study is to provide empirical evidence on the links between macroeconomic variables and the SRI-KEHATI Index's performance. The results are expected to offer practical value for investors in crafting sustainable investment strategies, enrich the ESG-based capital market

literature, and inform policy by guiding government and corporations in anticipating macroeconomic fluctuations' effects on sustainability-oriented issuers. To address this objective, the study employs quarterly data from 2017 to 2024, enabling the analysis to capture medium-term macroeconomic movements while maintaining consistency across all variables included in the model.

Arbitrage Pricing Theory

Arbitrage Pricing Theory (APT), developed by Ross (1976), serves as an alternative to CAPM for explaining the relationship between an asset's return and systematic risk factors. APT posits that stock returns are influenced by multiple macroeconomic factors such as inflation, interest rates, exchange rates, and GDP. Unlike CAPM, which emphasizes a single market risk, APT allows the measurement of return sensitivity to several macroeconomic factors (Elhusseiny et al., 2019). In principle, APT assumes that an asset earns a value commensurate with its level of risk, and the asset's price changes with movements in relevant systematic risk factors (Miasary & Rachmawati, 2023). This theory is relevant for examining the SRI-KEHATI Index's performance because the index consists of sustainability-oriented issuers that remain vulnerable to macroeconomic shocks.

In the context of this study, APT is particularly relevant because ESG-based portfolios are not detached from systematic macroeconomic risk. Although sustainability screening may improve firm quality and long-term resilience, it does not eliminate exposure to inflationary pressure, exchange-rate volatility, interest-rate changes, or economic growth fluctuations. Instead, ESG screening may alter how those risks are transmitted to portfolio returns through differences in firm characteristics, sector composition, and investor preferences. Therefore, applying APT to the SRI-KEHATI Index allows this study to examine whether a sustainability-oriented stock benchmark remains sensitive to macroeconomic shocks within an emerging market environment.

SRI-KEHATI Index

In Indonesia, there is a Sustainable and Responsible Investment (SRI) equity index known as the SRI-KEHATI Index. The index is introduced in 2009 through a collaboration between the Indonesia Stock Exchange and the KEHATI Foundation as a sustainability-oriented investment instrument. Its composition comprises 25 companies that adhere to environmental, social, and governance principles, making it an important benchmark for investors who emphasize ethical investing (IDX, 2021; KEHATI, n.d.). The index's performance is measured using return, namely the percentage change in the index value from one period to the next (Fratama & Kurniati, 2023).

Unlike broad market indices that mainly reflect general market capitalization and liquidity, the SRI-KEHATI Index represents a screened portfolio of firms with stronger sustainability and governance orientation (KEHATI, n.d.). This distinctive composition may influence the way macroeconomic shocks affect index performance. Companies included in ESG-based indices are often perceived as

having better governance quality, stronger reputational capital, and greater long-term resilience, which may reduce or delay the transmission of certain macroeconomic pressures. For this reason, analyzing the SRI-KEHATI Index provides a different perspective from studies on conventional indices and helps clarify whether sustainability-oriented portfolios exhibit a distinct pattern of macroeconomic sensitivity.

Inflation

Inflation is a general increase in the prices of goods and services that erodes money's purchasing power (Abidin et al., 2020). High inflation directly raises production costs, reduces households' purchasing power, and ultimately pressures firms' profitability. In stock markets, investors usually read this condition as a negative signal because it reduces issuers' earnings prospects (Yanti et al., 2024). Empirical studies support this view. Salzmann (2023) finds that inflation negatively affects MSCI ESG Europe's performance. Zhiqiang et al. (2024) also report a significant negative correlation for the NYSE Composite, in which higher inflation lowers index returns. These findings indicate that inflation can act as a systematic risk factor that weakens stock index performance, including ESG-based indices. Therefore, inflation is expected to negatively affect the SRI-KEHATI Index's performance.

H1: Inflation negatively affects the SRI-KEHATI Index's performance.

Interest Rates

Interest rates are a monetary instrument used by central banks to control inflation and maintain financial stability (Miasary & Rachmawati, 2023). Higher rates raise borrowing costs and suppress consumption and corporate investment. For investors, rate hikes often provide an incentive to shift funds from stocks to fixed income instruments such as bonds, thereby reducing demand for equities (Hermawan & Purwohandoko, 2020). Evidence tends to show a negative relationship. Hadi et al. (2019) find a negative effect on Malaysia's KLCI, and Wang dan Li (2020) confirm a similar relationship for the Shanghai Stock Exchange (SHSE) index. Byrne (2024) also argues that rising rates consistently depress global stock market performance. Overall, these findings suggest that rising interest rates tend to reduce stock market attractiveness and weaken index performance. Therefore, higher interest rates are expected to negatively affect the SRI-KEHATI Index's performance.

H2: Interest rates negatively affect the SRI-KEHATI Index's performance.

Exchange Rate

The exchange rate reflects the price of the domestic currency against foreign currencies; in Indonesia it generally refers to the rupiah against the U.S. dollar (Miasary & Rachmawati, 2023). Rupiah depreciation raises import costs and reduces profits, especially for issuers that rely on imported

inputs. This condition lowers the appeal of equities and weakens the index. Prior research supports a negative relationship. Rizki (2021) finds that rupiah depreciation negatively affects the Indonesia Composite Index (ICX). Hadi et al. (2019) also show a significant negative effect on Malaysia's KLCI. Ahmadzada et al. (2023) report similar evidence for Turkey's ISE 100. These findings imply that exchange rate instability can weaken stock index performance, especially in emerging markets. Therefore, exchange rate depreciation is expected to negatively affect the SRI-KEHATI Index's performance.

H3: Exchange rate negatively affects the SRI-KEHATI Index's performance.

Gross Domestic Product (GDP)

Gross Domestic Product (GDP) is a primary indicator of economic growth that reflects the total production of goods and services within a country over a given period (Abidin et al., 2020; Ilyas, 2022). Positive GDP growth indicates increased consumption and investment, which raises firms' profits and strengthens capital market prospects. In stock markets, rising GDP is often read by investors as an optimistic economic signal that pushes stock prices higher. Salzmann (2023) shows that GDP positively affects MSCI ESG Europe, while Ahmadzada et al. (2023) find that economic growth positively affects Turkey's ISE 100. These findings suggest that GDP, as a macroeconomic factor, may enhance stock returns through improved business conditions and higher expected cash flows. Therefore, GDP growth is expected to positively affect the SRI-KEHATI Index's performance.

H4: GDP positively affects the SRI-KEHATI Index's performance.

Research Framework

Based on the reviewed literature and Arbitrage Pricing Theory, this study develops a conceptual framework that links key macroeconomic variables, namely inflation, the policy rate, the exchange rate, and GDP to the performance of the SRI-KEHATI Index. According to APT, asset returns are affected by several systematic risk factors, and each asset has different sensitivities to these factors. In this context, macroeconomic changes are expected to influence the index's performance, both jointly and individually. This conceptual framework provides the foundation for the empirical model that examines how these macroeconomic variables affect the quarterly returns of the SRI-KEHATI Index. The conceptual framework of this study is illustrated in Figure 1.

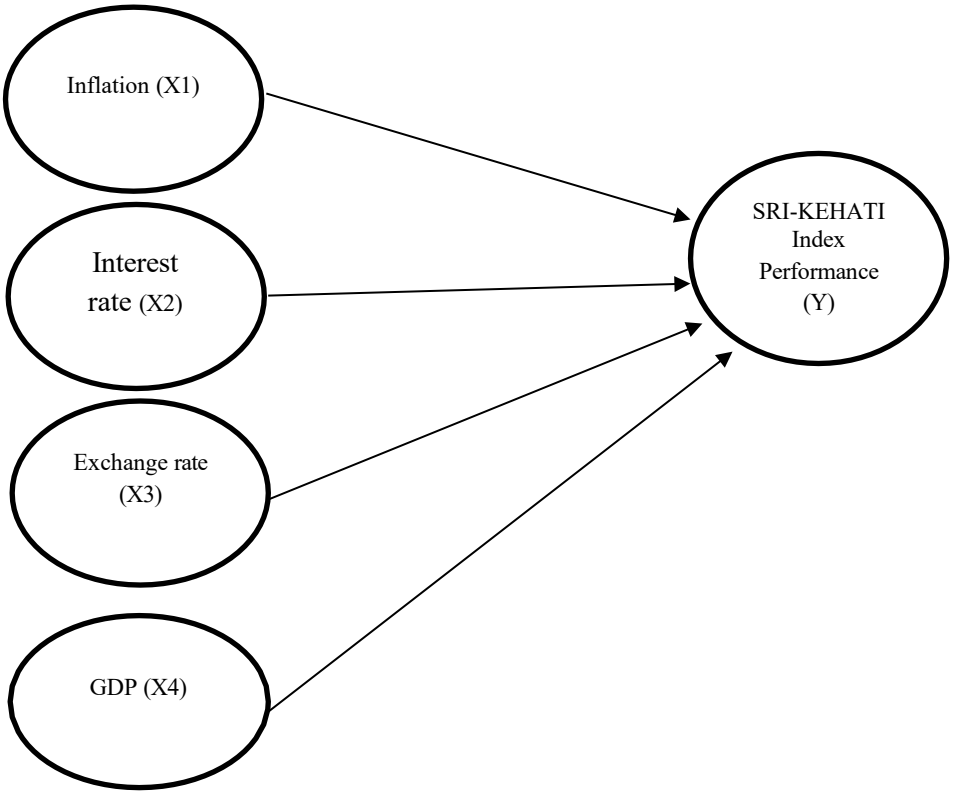

Figure 1. Framework

METHOD

Research Variables

The study used one dependent variable and four independent variables. The dependent variable (Y) was the SRI-KEHATI Index performance, proxied by the quarterly return. The return was calculated using the following formula:

$$R_{it} = \frac{I_t - I_{t-1}}{I_{t-1}} \times 100\% \quad \text{.....(1)}$$

Where R_{it} denoted the index return in period t, I_t denoted the index value in period t, and I_{t-1} denoted the index value in the prior period (Fratama & Kurniati, 2023).

The independent variables comprised four macroeconomic indicators. First, Inflation (X1) was measured by the change in the Consumer Price Index (CPI) and reflected the aggregate price increase (Abidin et al., 2020). This variable was computed as:

$$F_1 = \frac{CPI_t - CPI_{t-1}}{CPI_{t-1}} \quad \text{.....(2)}$$

Where F_1 denoted the inflation rate, CPI_t denoted the CPI in period t, and CPI_{t-1} denoted the CPI in the previous period.

Second, the Interest Rate (X2) was proxied by the BI Rate, the Bank Indonesia policy rate that influenced economic liquidity (Miasary & Rachmawati, 2023). This variable was computed as:

$$F_2 = BI_{Rate_1} - BI_{Rate_{t-1}} \quad (3)$$

Where F_2 denoted the change in the policy rate, BI_{Rate_1} denoted the BI Rate in period t, and $BI_{Rate_{t-1}}$ denoted the BI Rate in the prior period.

Third, the Exchange Rate (X3) used the rupiah–U.S. dollar middle rate, where rupiah depreciation indicated a weakening of the domestic currency (Miasary & Rachmawati, 2023). This variable was computed as:

$$F_3 = \frac{ER_t - ER_{t-1}}{ER_{t-1}} \quad (4)$$

Where F_3 denoted the rate of change in the IDR/USD middle rate, ER_t denoted the middle rate in period t, and $Kurs_{t-1}$ denoted the middle rate in the prior period.

Fourth, Gross Domestic Product (GDP) (X4) was proxied by the growth rate of Indonesia's real GDP as a primary indicator of economic growth (Abidin et al., 2020; Ilyas, 2022). This variable was computed as:

$$F_4 = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}} \quad (5)$$

Where F_4 denoted the rate of change in real GDP, GDP_t denoted real GDP in period t, and GDP_{t-1} denoted real GDP in the previous period.

Data and Data Sources

The study used secondary data with quarterly frequency. Quarterly data were chosen to capture short-term and seasonal dynamics while remaining adequate for time-series regression analysis (Stock & Watson, 2020). The study period ran from the first quarter of 2017 to the fourth quarter of 2024, totaling 32 observations. Quarterly data were selected to maintain consistency across all variables, particularly GDP, and to provide a comparable time-series framework for estimating macroeconomic effects on SRI-KEHATI Index returns.

SRI-KEHATI Index data were obtained from the Indonesia Stock Exchange (BEI), interest-rate and exchange-rate data were obtained from Bank Indonesia (BI), and GDP and CPI data were obtained from Statistics Indonesia (BPS). These data were retrieved in April 2025. These three sources were selected because they are official institutions, which supports the validity and reliability of the research data.

Data Analysis Techniques

The analytical methods included descriptive analysis to provide an initial overview of the data and inferential analysis to test the hypotheses. Data processing and estimation were conducted using Microsoft Excel and EViews, which provide the statistical procedures required for time-series

econometric analysis (Friera et al., 2024).

Descriptive Analysis

Before the regression tests, the data were analyzed descriptively to summarize the mean, maximum, minimum, and standard deviation of each variable (Sembiring et al., 2024).

Classical Assumption Tests

Classical assumption tests were performed to ensure the regression model met the Best Linear Unbiased Estimator (BLUE) criteria. First, the normality test aimed to verify that the residuals followed a normal distribution so the estimates were valid. The Jarque–Bera test in EViews was used, and residuals were considered normal when the probability value > 0,05 (Budi et al., 2024; Sugiyanto et al., 2022).

Second, the autocorrelation test was used to determine whether residuals were correlated across periods. Autocorrelation can lead to biased parameter estimates. The Breusch–Godfrey test was employed, and no autocorrelation was concluded when the Chi-square probability > 0,05 (Sugiyanto et al., 2022).

Third, the heteroskedasticity test aimed to detect differences in the residual variance across observations. A good model should be homoskedastic. The White test in EViews was used, and no heteroskedasticity was concluded when the Chi-square probability > 0,05 (Sugiyanto et al., 2022).

Stationarity Test

Because the data were time series, stationarity was tested using the Augmented Dickey–Fuller (ADF) test. The data were considered stationary when the probability value was less than 0.05 at the chosen significance level, indicating the absence of a unit root. The stationarity test verified that the time-series data exhibited statistical stability, namely constant mean, variance, and covariance over time (Basuki, 2019). If any variable was found to be non-stationary at level, further transformation would be considered before estimating the regression model.

Regression Model

The relationship between macroeconomic variables and the SRI-KEHATI Index return was estimated using a standard Ordinary Least Squares (OLS) time-series regression model. The model was applied after the data had undergone stationarity testing and classical assumption tests. Data were analyzed using multiple linear regression based on time-series data. Regression was used to examine the relationship between the dependent and independent variables and to test the significance of each explanatory variable (Iba & Wardhana, 2024). The empirical model was specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + e \quad (6)$$

Where β_0 denoted the constant term (the index return when all independent variables equaled zero), $\beta_1, \beta_2, \ldots, \beta_n$ denoted the regression coefficients that captured the effect of each independent variable, $X_1, X_2, \ldots, X_n$ denoted the independent variables, and e denoted the error term representing other factors outside the model. Thus, this multiple linear regression equation was used to estimate the relationship between macroeconomic variables and the SRI-KEHATI Index return.

Hypothesis Tests and Model Fit

After estimating the regression model, hypothesis testing was conducted to assess the significance of the independent variables. In multiple linear regression, hypothesis testing consisted of the t-test and the F-test.

The t-test was performed to determine the partial effect of each independent variable. The hypotheses were $H_o : \beta = 0$ (no effect) and $H_a : \beta \neq 0$ (effect). We rejected H_o if the calculated t-statistic exceeded the critical t value or the p-value was less than 0.05. If this condition held, the independent variable significantly affected the SRI-KEHATI Index return (Sugiyanto et al., 2022).

The F-test was performed to determine whether all independent variables jointly had a significant effect on the SRI-KEHATI Index return. The hypotheses were $H_o : \beta = 0$ (no effect) and $H_a : \beta \neq 0$ (effect). The decision rule was to reject H_o if the calculated F-statistic exceeded the critical F value or the p-value was less than 0.05. If this condition held, the regression model was deemed adequate and the independent variables had a simultaneous effect (Zahriyah et al., 2021).

In addition, model fit was measured using the coefficient of determination (R^2), which indicated the proportion of the variation in the SRI-KEHATI Index return explained by the independent variables (Novianty, 2024). An R^2 closer to 1 indicated that the macroeconomic variables explained a larger share of the variation. In EViews, the adjusted R^2 was used because it accounted for the number of independent variables in the model.

RESULTS AND DISCUSSION

Descriptive Statistics

Descriptive statistics were compiled to characterize all quarterly variables over 2017Q1–2024Q4 (32 observations). The variables included the SRI-KEHATI Index return (Y), inflation (X1), the policy interest rate (X2), the IDR/USD exchange rate (X3), and GDP (X4). Table 1 presents the summary statistics.

Table 1. Descriptive Statistics

Statistic	Y	X1	X2	X3	X4
Mean	0,01031	0,00744	0,00038	0,00697	0,01047
Median	0,02300	0,00750	0,00000	0,00300	0,00750

Table 1. Descriptive Statistics

Statistic	Y	X1	X2	X3	X4
Maximum	0,24400	0,02000	0,01300	0,17700	0,05000
Minimum	-0,28900	-0,00300	-0,00800	-0,12600	-0,04200
Std. Dev.	0,09293	0,00580	0,00424	0,04954	0,02358
Observations	32	32	32	32	32

Source: Research output using EViews.

Referring to Table 1, the SRI-KEHATI Index return (Y) had a mean of 1.03 percent, a median of 2.30 percent, a maximum of 24.40 percent, a minimum of −28.90 percent, and a standard deviation of 9.29 percent. Inflation (X1) had a mean of 0.74 percent, a median of 0.75 percent, a maximum of 2.00 percent, a minimum of −0.30 percent, and a standard deviation of 0.58 percent. The interest rate (X2) had a mean of 0.08 percent, a median of 0.00 percent, a maximum of 1.30 percent, a minimum of −0.80 percent, and a standard deviation of 0.42 percent. The IDR/USD exchange rate (X3) had a mean of 0.70 percent, a median of 0.30 percent, a maximum of 17.70 percent, a minimum of −12.60 percent, and a standard deviation of 4.95 percent. GDP (X4) had a mean of 1.05 percent, a median of 0.75 percent, a maximum of 5.00 percent, a minimum of −4.20 percent, and a standard deviation of 2.36 percent.

Classical Assumption Test Results

Residual normality was assessed using the Jarque–Bera statistic at the five percent significance level. The null hypothesis stated that the residuals were normally distributed. The probability value was 0.777965 (> 0.05), so we failed to reject normality. This result indicated that the residuals approximated a normal distribution, which supports the validity of the model's t and F inferences in finite samples.

Autocorrelation was tested with the Breusch–Godfrey procedure, allowing up to two lags to capture potential higher-order serial dependence. The null hypothesis stated that there was no serial correlation in the residuals. The Prob. Chi-square was 0.191570 (> 0.05), so we failed to reject the null. Accordingly, there was no evidence of serial correlation, and the independence assumption held for the estimated model, reducing concerns about biased standard errors.

Heteroskedasticity was examined using the White test, which does not assume a specific functional form for the variance. The null hypothesis stated that the residual variance was constant (homoskedasticity). The Prob. Chi-square (Obs*R-squared) was 0.306268 (> 0.05), so we failed to reject homoskedasticity. This finding indicated constant residual variance. Taken together, the diagnostic results supported the classical assumptions, suggesting that OLS estimates and their standard errors were reliable for inference.

Stationarity Test Results

Stationarity was tested using the Augmented Dickey–Fuller (ADF) procedure at level with a constant, with lag length selected automatically by the Schwarz Information Criterion (SIC) up to a maximum of seven lags. The decision rule followed the common cutoff that a series is stationary when

the ADF probability is less than 0.05.

Table 2. ADF Probability Values

Variabel	Probabilitas
Y	0,00000
X1	0,00023
X2	0,03429
X3	0,00000
X4	0,00000

Source: Research output using EViews.

Referring to Table 2, all ADF probabilities were below the 0.05 significance level; therefore, Y, X1, X2, X3, and X4 were stationary at level. Accordingly, we did not difference the series prior to estimation, and the risk of spurious regression was mitigated. These results justified estimating the model in levels using OLS and proceeding to the regression and hypothesis tests.

Multiple Linear Regression Results

The multiple linear regression was estimated using Ordinary Least Squares (OLS) in EViews for the dependent and independent variables. Figure 2 presents the summary of coefficients, standard errors, t-statistics, p-values, and model fit indices.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000239	0.022292	0.010744	0.9915
X1	2.421685	2.334856	1.037188	0.3088
X2	1.613518	2.962068	0.544727	0.5904
X3	-1.460069	0.272173	-5.364491	0.0000
X4	0.155846	0.551811	0.282426	0.7798
R-squared	0.534059	Mean dependent var		0.010313
Adjusted R-squared	0.465031	S.D. dependent var		0.092934
S.E. of regression	0.067973	Akaike info criterion		-2.396799
Sum squared resid	0.124750	Schwarz criterion		-2.167777
Log likelihood	43.34878	Hannan-Quinn criter.		-2.320885
F-statistic	7.736818	Durbin-Watson stat		2.104410
Prob(F-statistic)	0.000273			

The estimated regression model from the procedure was formulated as:

$$\boldsymbol{Y} = 0{,}000239 + 2{,}421685\,\boldsymbol{X_1} + 1{,}613518\,\boldsymbol{X_2} - 1{,}460069\,\boldsymbol{X_3} + 0{,}155846\,\boldsymbol{X_4}$$

The estimated relationships showed that the inflation coefficient (X1) was positive, the policy rate (X2) was positive, the exchange rate (X3) was negative, and the GDP coefficient (X4) was positive.

Hypothesis Tests and Model Fit Results

Decision rules were based on p-values at the five percent significance level. For the partial tests (t-tests), as shown in Figure 2, the exchange rate coefficient (X3) was negative and significant at α = 0.05 (0.0000 < 0.05), so we rejected $H_o : \beta = 0$. By contrast, the inflation (X1), policy rate (X2), and

GDP (X4) coefficients were not significant at α = 0.05 (p-values > 0.05), so the null was not rejected for each parameter.

The joint test (F-test) indicated that the multiple linear regression model was significant at the five percent level. Figure 2 reports Prob(F-statistic) = 0.000273, which was less than 0.05; therefore, we rejected $H_o : \beta = 0$. In other words, X1, X2, X3, and X4 jointly related to Y at the five percent level, and the regression model was appropriate.

Model fit was reported using the Adjusted R-squared because it accounts for the number of predictors in the model. Based on Figure 2, the adjusted R-squared was 0.465031.

Discussion

Based on the F-test, the model showed that the four macroeconomic variables jointly had a statistically significant effect on the SRI-KEHATI Index's performance at five percent level. Adjusted R-squared was 0.465031, which indicates moderate explanatory power: approximately 46.50 percent of the variation in quarterly index returns is explained by the macro factors included, while the remainder reflects influences outside the specification. This suggests that the model captures meaningful signal without exhausting the sources of return variation, as equity markets also reflect firm and sector conditions, global risk sentiment, and market microstructure. Viewed through APT lens, the evidence is consistent with the idea that asset returns are shaped by multiple systematic risk factors; the macroeconomic set used here contributes materially, yet additional priced factors can still matter beyond this study's scope.

The discussion of the hypothesis tests (t-tests) is as follows.

1. Effect of Inflation on the SRI-KEHATI Index's Performance

   The estimates showed that inflation did not have a statistically significant effect on the SRI-KEHATI Index's returns over 2017–2024. This result did not align with the initial hypothesis predicting a negative and significant effect, but it is understandable within the Arbitrage Pricing Theory (APT) framework. APT posits that asset returns are driven by several systematic risk factors, and each asset or index has different sensitivities depending on its characteristics. Because SRI-KEHATI constituents are selected for ESG practices, they tend to have more mature governance, disciplined risk management, and a long-term orientation. These characteristics allow firms to adjust when general prices rise, for example through operational efficiency, supply chain management, or product redesign, so inflation shocks do not necessarily transmit directly to index returns. In addition, some sustainability oriented issuers operate in segments whose demand remains relatively resilient when prices increase, which limits effective exposure to inflation shocks. It is also plausible that inflation expectations were well anchored over the sample, that pass through occurred with a lag longer than a quarter, or that firms with

pricing power offset cost pressures. Empirically, this result is consistent with Stanuch (2024) for Poland's WIG20 and with Prasetyo et al. (2019) for the Jakarta Islamic Index, both of which find no significant inflation effect on index performance.

2. Effect of the Policy Rate on the SRI-KEHATI Index's Performance

   The empirical results showed that the policy rate (BI Rate) did not have a significant effect on the SRI-KEHATI Index's performance during the observation period, so the hypothesis that predicted a negative impact was not confirmed. From an APT perspective, the policy rate is a systematic risk factor that can affect asset prices, but an index's sensitivity to rate changes differs. In SRI-KEHATI's case, many constituents come from defensive sectors such as basic consumption, utilities, and infrastructure, whose demand is relatively insensitive to borrowing-cost changes. In addition, Bank Indonesia's policy-rate adjustments from 2017 to 2024 were measured, so they did not exert material pressure on issuers' performance. The transmission of policy rates to effective funding costs may also be gradual because of fixed-rate liabilities, staggered refinancing, and banking spreads, which dilutes the short-horizon impact on quarterly returns. Investors in ESG-focused names may further emphasize governance quality and cash-flow visibility, which tempers the direct rate channel. Therefore, the insignificant policy-rate effect may reflect both the gradual transmission of monetary policy and the tendency of ESG-oriented investors to prioritize long-term firm resilience, governance quality, and sustainability fundamentals over short-term interest-rate signals. This finding is consistent with Sari (2019), who finds no effect on the LQ45, and it is reinforced by Agustina and Budiono (2020), who report no effect on returns for Indonesia's financial-sector index.

3. Effect of the Exchange Rate on the SRI-KEHATI Index's Performance

   The regression analysis showed that the rupiah against the U.S. dollar had a significant negative effect on the SRI-KEHATI Index's returns. This result aligned with the hypothesis that predicted a negative relationship, so rupiah depreciation tended to depress the index's performance. Under the Arbitrage Pricing Theory (APT), the exchange rate is an important systematic risk factor for assets in emerging markets. Rupiah weakness raises import-input costs, increases foreign-currency debt burdens, and reduces corporate profitability. These pressures lower constituent stock prices and reduce the index's overall performance. In addition, currency depreciation is often read as a signal of macroeconomic instability that triggers foreign capital outflows and raises the required risk premium. While exporters may benefit from a weaker currency, the net effect appears negative for this sustainability index, likely because several constituents bear meaningful import content or unhedged dollar exposures. This finding is consistent with Rizki (2021), who reports a significant negative effect of rupiah depreciation on

the Indonesia Composite Index (ICX), and with Hadi et al. (2019), who find that currency weakness depresses Malaysia's KLCI.

4. Effect of GDP on the SRI-KEHATI Index's Performance

This study found that GDP did not have a significant effect on the SRI-KEHATI Index's returns, so the hypothesis predicting a positive relationship was not confirmed. GDP is a broad average of economic activity, and it does not move every sector in the same way. Many SRI-KEHATI constituents provide basic goods and services or operate in regulated areas such as utilities, so demand for their products tends to remain steady when GDP rises or falls. ESG-oriented investors also place strong weight on governance, social, and environmental quality, which can matter more to prices than short-term macro indicators. Quarterly GDP changes often take time to flow through to company sales and profits, so the impact on same-quarter returns is weak. Index composition can further dilute the link because larger, more diversified firms are less sensitive to domestic cycles, and part of the macro news may already be anticipated and reflected in prices. The 2017–2024 period also included unusual shocks and rebounds, which made the GDP signal noisier for a sustainability index. Taken together, these factors help explain why stronger national growth did not automatically lift returns. In other words, aggregate economic growth does not automatically translate into stronger quarterly returns for a sustainability-oriented index, because market pricing may depend more on firm-level resilience, governance quality, and investor expectations than on broad macroeconomic expansion alone. This result is consistent with Murtiningrum & Caesaria (2024), who report that GDP is not significant on returns for the Indonesia Composite Index (ICX) during 2021 to 2024.

Overall, the findings suggest that the performance of the SRI-KEHATI Index remains exposed to macroeconomic risk, although the transmission channels are not uniform across variables. During the 2017–2024 observation period, which encompassed the COVID-19 shock and the post-pandemic adjustment phase, exchange-rate movements appeared to be the most immediate and relevant source of systematic risk affecting the performance of the SRI-KEHATI Index, while inflation, interest rates, and GDP tended to operate more indirectly or with longer transmission lags. For ESG-focused investors, this indicates that sustainability screening should be complemented by macro-financial risk monitoring, particularly with respect to foreign-exchange exposure and portfolio resilience.

CONCLUSION

Summary of Findings

Based on the analysis of the effects of macroeconomic variables on the SRI-KEHATI Index's performance from 2017 to 2024, we concluded that, jointly, inflation, the policy rate, the exchange rate, and GDP had a significant effect on index returns. However, individually, only the rupiah against the

U.S. dollar had a significant negative effect, while inflation, the policy rate, and GDP did not show significant effects. These findings corroborated the Arbitrage Pricing Theory (APT) framework, which emphasizes that assets have different sensitivities to systematic risk factors, with the SRI-KEHATI Index being more influenced by exchange rate movements than by other macroeconomic factors.

Implications and Recommendations

The findings of this study provide several implications and recommendations for investors, policymakers, and corporations.

For investors and investment managers, exchange rate movements should be closely monitored because currency volatility directly affects SRI-KEHATI returns. In this regard, currency hedging strategies may be considered as a practical risk-management tool to reduce foreign-exchange exposure in sustainability-oriented portfolios.

For policymakers, the government and financial authorities should maintain macroeconomic stability, particularly exchange-rate stability, through coordinated monetary and fiscal policies to strengthen investor confidence in ESG-oriented investments.

For listed companies, firms included in the SRI-KEHATI Index should enhance their risk management frameworks, especially regarding foreign currency exposure, to reduce vulnerability to external shocks.

Limitations and Future Research

This study has several limitations. First, the use of quarterly data may limit the robustness of the findings and may not fully capture short-term fluctuations in macroeconomic variables and stock-index returns. Second, the observation period includes the COVID-19 pandemic and post-pandemic recovery, which may have introduced structural breaks in the relationship between macroeconomic variables and the SRI-KEHATI Index. Third, the study applies a static Ordinary Least Squares (OLS) model, which is suitable for identifying baseline linear relationships but may not fully capture long-run dynamics or adjustment processes. Finally, the analysis is limited to four macroeconomic variables and does not incorporate other potentially relevant external factors, such as global commodity prices, foreign capital flows, and global market uncertainty indices.

Future research is encouraged to use higher-frequency data, where available, in order to better capture short-term fluctuations in macroeconomic variables and stock-index returns. In addition, extending the observation period may provide a more comprehensive picture of sustainable stock-index performance across different economic conditions and help account for possible structural shifts during the COVID-19 and post-pandemic periods. To better identify both short-run and long-run relationships, future studies may also apply more dynamic econometric models, such as the Autoregressive

Distributed Lag (ARDL) or Vector Error Correction Model (VECM). Finally, expanding the scope of analysis by incorporating ESG disclosure scores, global commodity prices, foreign capital flows, and global market uncertainty indices may improve the explanatory power of future models and provide a broader understanding of sustainability-based index performance in emerging markets such as Indonesia.

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